Tensions and turning points: exploring teacher decision-making in a complex eLearning environment

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Understanding how university teachers experience and respond to imperatives to integrate digital technologies into their curricula and teaching practice is essential for addressing the gap between the potential of such technologies to articulate with institutional objectives and their uptake by university teachers. This article reports on a study in a regional Australian university focused on capturing the complex ways that individual and contextual factors can interact to support or impede the integration of technology into teaching practice. The lens of cultural-historical activity theory is used to describe and interpret the complex activity of designing and teaching a blended-mode course from the perspective of an experienced lecturer. An analytical focus on emergent tensions and the identification of turning points as markers of critical encounters requiring the lecturer to make decisions and take action provides an insight into potential transformations in their thinking and practice.

Keywords: activity theory, university teaching, blended learning, technology integration

Introduction

The integration of digital technologies into university curricula is a multi-faceted phenomenon shaped by a complex array of political, cultural, technical and pedagogical factors (Selander, 2008). From the lecturer's perspective, the task of designing and teaching a blended-mode course is active, intentional, value-laden work with many matters often vying simultaneously for their attention, decision-making and action-taking (Sanders & McCutcheon, 1986). The work of university teachers is far from simple, however a recent literature review of the ways in in which teacher participation has been conceptualised in eLearning research reveals a relatively dispersed and under-theorised account of the relationship between technology, context, human cognition, and action (Bradey, 2015). Some of these interrelationships have been considered from the systems design perspective in the field of human-computer interaction (HCI) (e.g., Kaptelinin, 1996; Nardi, 1996); however, few of these are well represented within educational technology or eLearning. Oliver (2012) argues that the paucity of theorisation has resulted in the prevalence of simplistic accounts of the role of technology in various kinds of teaching and learning, usually involving some kind of causal or determining mechanism. The experience of universities internationally showing that digital technologies have often failed to meet expectations for transforming teaching and learning (Kirkwood & Price, 2011) would seem to suggest a much more complex interplay of factors may be at work, and that more critical and rigorous research is required.

As noted by Sam (2012, p. 84) "part of the challenge of conducting research in digital realms is determining how to understand online life holistically and within context". Finding a research framework that incorporates these various elements is a challenge, as most conceptual frameworks usually separate individuals, contexts, technology, and such, or only combine a few (Kuutti, 1996; Nardi, 1996; Roth & Lee, 2007). This paper demonstrates how the theoretical and interpretive framework of cultural-historical activity theory (CHAT) (Engeström, 1987, 2001) can be used to describe the highly mediated yet dynamic nature of lecturers' participation in planning and teaching a blended-mode course, and capture the social, cultural and historical factors influencing their decision-making in their local context. In particular the paper shows how the CHAT principle of contradictions can be used to indentify interactions and tensions within and between components of lecturers' activity systems as potential sources of development and innovation. Kärkkäinen's (1999) concept of 'turning points' is employed as an integral component of the interpretive framework to explain how lecturers' responses to systemic tensions can influence the transformation of established practices.

Research context

This paper is based on one of the four case studies within a doctoral research project conducted at a regional Australian university. The research sought to better understand how lecturers, who are experienced university teachers and disciplinary professionals, make decisions about teaching with digital technology in a contemporary blended learning environment. This qualitative study focused on capturing the complex ways that individual and contextual factors can interact to support or impede the integration of technology into teaching practice.

The subject of the case study interpreted in this paper is Lisa, an experienced professional journalist who had been teaching in Higher Education for eight years and had been using digital technologies to supplement her courses for the previous two years. However, Lisa had no formal training in teaching or technology. The course in this case study was a second year unit of study in the professional discipline of journalism and was initially structured in a format comprising 13 hours of lectures and 20 hours of tutorials. Tutorial readings were prescribed in the form of textbook chapters. Lisa frequently used stories of real-world experiences as a bridge between the theory found in the course textbook, and the vocational skills students would be expected to demonstrate.

Methodology

To allow the nature of lecturers' participation in a complex activity to emerge over time, this exploratory research adopted a qualitative design and a multiple case study approach. Data were gathered over the course of a study period by way of individual and group semi-structured interviews, stimulated recall interviews, online observations and digital artifacts. Data interpretation was undertaken in two phases and employed Rogoff's (1995) notion of the three planes of sociocultural analysis to focus on the activity taking place on the personal, interpersonal and institutional-community levels.

Locating the study within the theoretical and interpretive framework of cultural-historical activity theory provided a means to to study the actions of people on both an individual and societal level simultaneously. A distinctive feature of CHAT is that its unit of analysis is an activity, that is, a conscious action directed at a goal in a particular context over time. Activities in this sense are not one-time brief actions, described by Roth and Lee (2007, p. 98) as "evolving complex structure[s] of mediated and collective human agency." Each activity consists of interacting components and their relationships to one another: *subject*, *object* (motive), *community*, *tools*, *rules*, *division of labour*, and *outcomes*. The relationship is often visualised as an activity triangle, with connecting lines indicating a possible interaction between and among all the components. Engeström referred to this as an activity system. In this study, the basic elements common to all participants in the activity are represented in Figure 1.
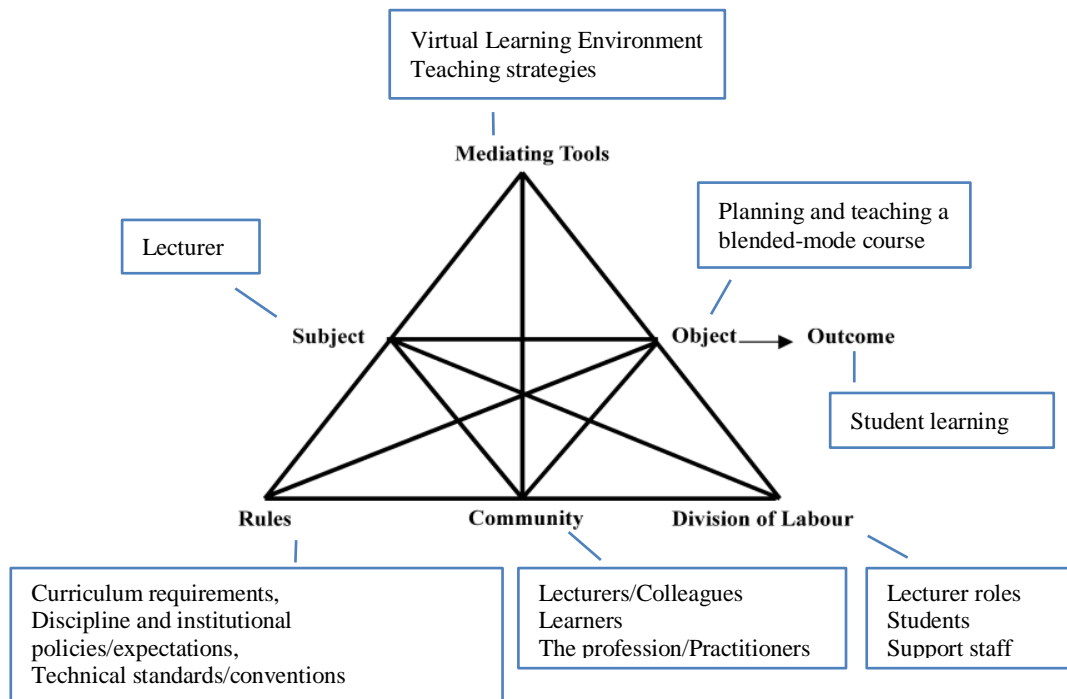
Figure 1: A generic activity system in the current study adapted from Engeström (1987)

If tensions arise within or between the elements of an activity system then the flow of interactions can become disrupted or discoordinated. These tensions, referred to as *contradictions* in activity theory are the underlying causes of visible problems and conflicts. While contradictions generate disturbances in an activity system, they are also seen as important drivers for innovation and change. The current analysis drew on Kärkkäinen's (1999) notion of 'turning points' as a way of identifying possible contradictions within participants' activity systems. Turning points have been used extensively by Russell and Schneiderheinze (Russell, 2004; Russell & Schneiderheinze, 2005; Schneiderheinze, 2003) as indicators of object transformation, that is, ways in which the lecturer delineated the activity of teaching in a new way. Kärkkäinen (1999) defines three indicators of turning points: disturbance clusters (including dilemmas, disturbances and innovation attempts), questions, and interaction of voices.

In the current analysis, turning points were operationalised through the interpretation of reflective dialogue with the researcher (Individual interview; Stimulated recall interview) and with other participants (Group interview), guided by the decision indicators illustrated in Table 1.

Table 1: Kärkkäinen's (1999) indicators of turning point events

Turning point indicator	Decision indicator
Disturbance clusters	• The participant expresses hesitations, reservations, being "in two minds" things, inconsistent opinions, characterised by clusters of "buts" and negatives (Dilemmas) • The participant expresses difficulty in understanding, disagreement with, or rejection of a situation (Disturbances) • The participant consciously seeks to introduce a new idea or solution (Innovation attempts)
Questioning	• The participant questions accepted practices, such as ideas presented, present pedagogy and work practices • The participant expresses doubt about whether former ideas and ideologies are worthwhile or workable in practice

Interaction of different voices	• The participants in a collaborative setting present different viewpoints on an issue

According to Kärkkäinen (1999), transformation can occur in four ways: widening, narrowing, switching and disintegrating. When a disturbance manifesting an underlying contradiction is acknowledged and successfully resolved, a widened or expanded way of thinking and practising becomes possible. However, if the disturbance manifesting an underlying contradiction is not acknowledged and resolved the object may be narrowed. A narrowing of the object could mean that the teacher's concept of the object becomes less broad, for example, more traditionally focused. A switching of the object means that tensions inherent in the implementation of the object caused the lecturer to change her response to the object. The disintegration of the object means that the lecturer's response in relation to the object will be fragmented.

The following section presents an interpretive commentary of Lisa's case study for the purposes of situating the data within a CHAT framework; describing the trajectory of this participant's activity as it changed over time; providing additional information to help contextualise the data; identifying systemic tensions underlying the conflicts experienced by the participant; serving as a device for zooming between the personal, interpersonal and institutional-community plane of analysis, and focusing attention on the meaning interpretations of the researcher.

Findings and discussion

A summary representation of Lisa's activity system is illustrated in Figure 2. The *Subject* node of Lisa's activity system, encapsulates her individual attributes such as beliefs about teaching, learning and technology; personal qualities, attitudes and past experiences. The *Mediating tools* node represents the cognitive, virtual and physical tools employed in the activity of teaching a blended-mode course. The *Object* node establishes the purpose of the activity, and the *Outcomes* node indicates the intended outcomes of the activity. Contextual elements influencing the activity are informed by elements contained in the *Division of Labour, Community* and *Rules* nodes.
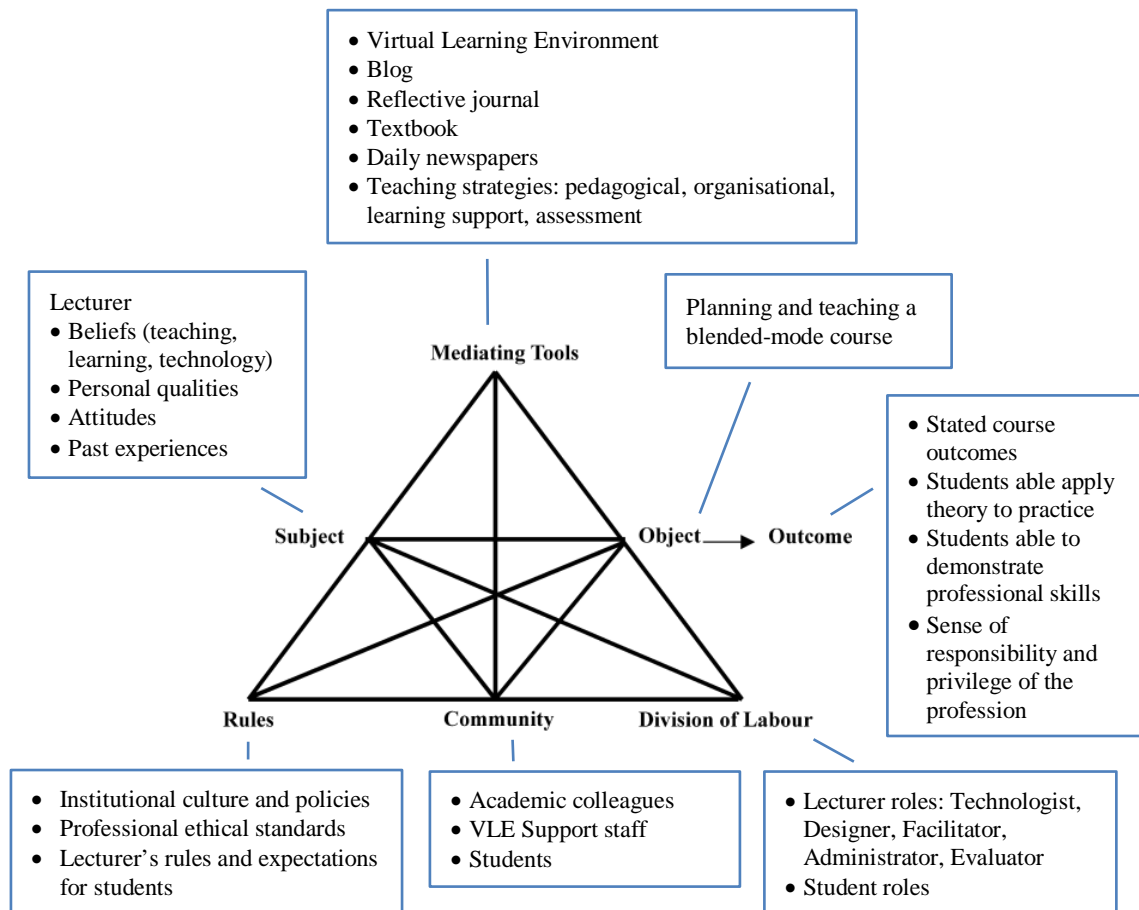
Figure 2: CHAT model of Lisa's work activity system

Lisa experienced tensions in her work activity system in both the planning and teaching phases of her blended-mode course. She experienced these tensions as disturbances, dilemmas, questioning and innovation attempts which were clustered into one turning point event in the planning phase and three turning point events in the teaching phase. Lisa acknowledged and responded to the tensions in her activity system through expanding the scope of her thinking and practice (widening) or by adjusting her expectations and the implementation of the intended task (switching) in order to achieve her intended outcomes. Lisa's experience of the tensions in her activity system, her responses, and transformations of practice are summarised in Table 2 and interpreted in detail below.

In the planning phase of her course, Lisa experienced a turning point event that impacted on her intent to improve both the flexibility and authenticity of her second-year journalism course. Lisa was enthusiastic about experimenting with new technologies in her teaching. Although she lacked experience with both the functional aspects of digital technologies and the process of integrating them into her curriculum she did not perceive this as a problem, preferring instead to take a trial and error approach and let the design emerge. Lisa's seemingly laissez-faire attitude and her desire to innovate were at odds with the existing school culture that discouraged change and attempts at innovation. The hegemony in Lisa's school was manifested as non-participation in institutional initiatives such as the development of blended-mode courses and effectively impeded Lisa's attempts to seek in-house advice and assistance with improving her course design. This socio-cultural barrier represented a significant turning point for Lisa by compelling her to look beyond her own School for support (Table 2, turning point 1).

Through initiating a dialogue with a more experienced academic mentor from another discipline, Lisa was able to transcend the barrier imposed by her own School culture, engage in self-directed professional development, and apply her new understandings to the design of the course. Lisa's planned integration of Blog and Discussion Board tools to articulate with her desired pedagogical objectives represents a significant widening of the object in comparison

with her initial 'trial and error' approach.. Although Lisa's efforts were not well supported in her own School, she was able to sufficiently reduce the tension between the existing culture in the School (*Rules*) and her own expectations and beliefs (*Subject*) to allow her intended innovations to proceed. This is represented as a dashed arrow between the *Rules* and *Subject* nodes of Lisa's work activity system (Figure 3)

Table 2: Systemic tensions and turning point events influencing Lisa's object transformation

Turning point event	Indicators of turning point	Activity system tensions	Practice transformation
PLANNING PHASE			
1. Introducing flexibility and authenticity	*Disturbance:* disagreement with conservative school culture acting to discourage innovation *Dilemma:* how to use technology to improve flexibility and authenticity *Innovation attempt:* connecting with a mentor; online publication (Blog), reflective journal and peer support (Discussion Board)	*Rules* (School culture) vs *Subject* (Intention to introduce a new course design and expectations of support)	*Widened*: Decided to incorporate blog to enable publication of articles and Discussion board to facilitate reflective practice
TEACHING PHASE			
2. Scaffolding the blogging activity	*Dilemma:* how to engage students in a task/genre/technology with which they have limited experience *Innovation attempt:* attempt to integrate support resources into VLE	*Community* (Students' experience/skills) vs *Object* (Publishing an online new story)	*Widened*: Incorporated additional guidelines, template, physical demonstration, expanded role of the Editor
3. Using the Discussion Board for peer support	*Innovation attempt:* participants attempt to initiate peer support using the Discussion Board	*Rules* (Lecturers' rules for reflective journal task) vs *Community* (Students' need for peer support) *Community* (Students' need for peer support) vs *Division of labour* (Established lecturer and student roles)	*Widened*: Parameters of reflective journal task extended to allow personal feedback; Future intention to integrate peer support
4. Capturing and tracking the story writing process	*Dilemma:* how to track story versions throughout the process; how to efficiently provide individual feedback *Questioning:* whether current time intensive feedback strategy is sustainable *Innovation attempt:* worked with VLE support team to redesign story writing workflow	*Mediating tools* (Cognitive tool – teaching strategy) vs *Object* (Timely completion of the story writing task)	*Switched*: Story writing workflow redesigned to incorporate VLE File Exchange and Assignment tools *Widened*: Extended reflection activity to incorporate student generated artifacts

Lisa's approach to designing her course was shaped by her desire to emulate the professional practice of journalism through active participation in authentic activity mediated by contemporary digital technologies. Through independently seeking the assistance of an academic mentor, Lisa was able to undertake self-directed professional development to explore the capabilities and affordances of the available technology and deepen her understanding of how technology could be integrated into her teaching. Lisa subsequently designed an extended

newsroom role-playing scenario requiring students to undertake researching, writing, editing and production tasks using a public blog to publish real news stories.

In effect, Lisa used digital technologies to enable and support a more flexible and authentic course design though their application as a publication medium, reflective journal, submission and feedback tool and peer support mechanism. Lisa's response acted to reduce the perceived organisational tension within the school by establishing productive relationships outside the school boundaries, and in turn she was able to enact her espoused pedagogogical beliefs.
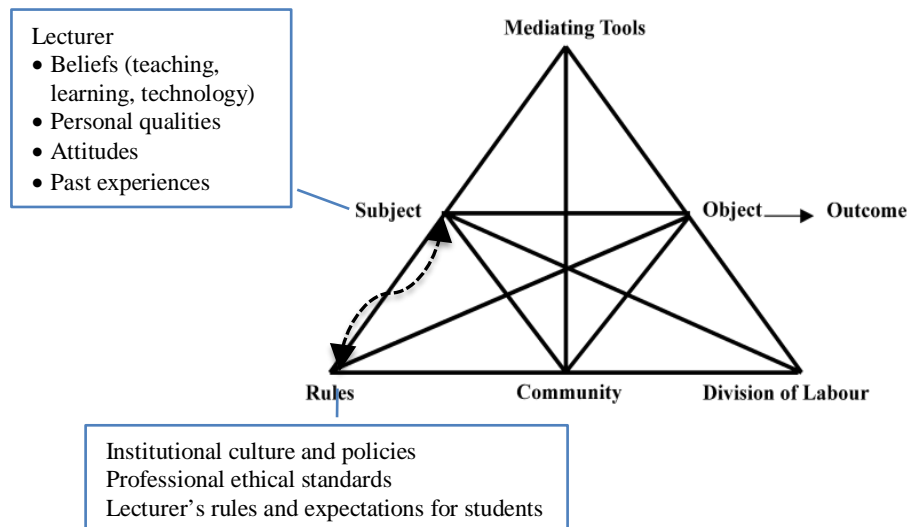

Figure 3: Tensions in Lisa's work activity system in the planning phase

Lisa's participation in the teaching phase of the course could be characterised as reflexive and dynamic. She valued student feedback and was always seeking to improve her own teaching strategies and students' learning experiences. As the course progressed Lisa encountered several dilemmas, but viewed the course organisation and activities as a 'work in progress' that could be adapted to suit the current circumstances. In seeking to sustain a realistic and immersive role-play experience, Lisa formed students into teams and structured all interaction around a newsroom scenario. Early in the semester, Lisa perceived the prescribed academic lecture/tutorial format as a disruption to the flow of news as it would occur in the real word of journalism. She soon abandoned the formal lecture structure in favour of regular Announcements in the VLE and tutorials organised as a news conference where students would be expected to research, develop and discuss their ideas for stories.

An unanticipated contextual tension arose early in the story production process with the realisation that the majority of students possessed a very limited conception of blogs as an online medium and were not aware of the process of writing for online publication. For Lisa, this introduced the dilemma of how to engage students in a task where they were relatively unfamiliar with both the genre and the tools (Table 2, Turning point 2). From an activity theory perspective, this dilemma represented a tension between the *Community* node (students' experience/skills) and the *Object* node (publishing an online news story) of Lisa's work activity system (Figure 4).

With the intention to remediate the difficulty posed by students' variation in knowledge and experience, Lisa attempted to scaffold the online story writing process. She sourced supplementary background information about the blog genre including guidelines for authors covering the legal and ethical responsibilities of writing for public online media. Lisa also found a suitable example of current affairs blogs online which was subsequently used as a template to guide students' contributions. Further, a member of the VLE support team was invited to demonstrate the functionality of the 'Tropic Zone' blog being used in the activity. After students had gained some familiarity with their assigned roles and the online story writing process, Lisa adjusted the role of the Editor to introduce a greater degree of authenticity into the role-play.

Lisa's multi-layered approach to scaffolding student performance effectively mitigated the issue of students' lack of experience by providing the 'building blocks' that students could draw together to complete the task. Lisa's response resulted in a widening of the blogging activity by initially providing more specific guidance and later by adjusting the role responsibilities. Her actions effectively reduced the tension between the *Community* and *Object* nodes of her activity system as illustrated by the dashed arrow (Figure 4).

As students progressed through the researching, interviewing, writing, illustrating, editing and publication stages of the blogging activity, they were expected to contribute to a dedicated Discussion Board to evaluate and reflect on their experiences. Lisa interacted with students on the forum to make explicit connections between disciplinary frameworks and students' developing practice and subsequently used the contributions as material for further discussion during tutorials. Lisa had positioned students as active co-constructors of the course with a view to enhancing their sense of involvement and ownership. Within a few weeks, Lisa noticed that students had begun using the reflective journal forum as a place to share personal experiences with other students effectively extending the use of the Discussion Board to function as a peer support forum.
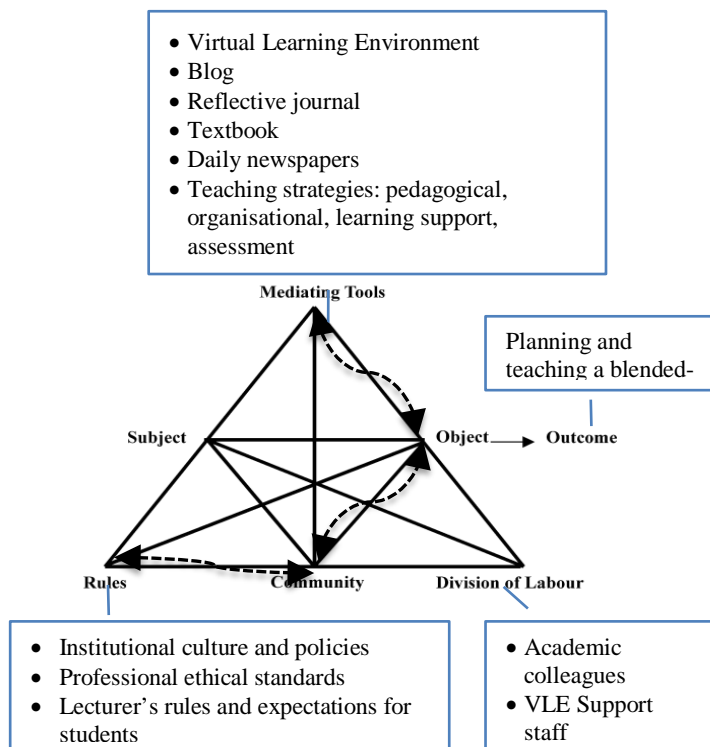

Within the diagram:

- Virtual Learning Environment
- Blog
- Reflective journal
- Textbook
- Daily newspapers
- Teaching strategies: pedagogical, organisational, learning support, assessment

Mediating Tools

Planning and teaching a blended-

Subject — **Object** → **Outcome**

Rules **Community** **Division of Labour**

- Institutional culture and policies
- Professional ethical standards
- Lecturer's rules and expectations for students

- Academic colleagues
- VLE Support staff

Figure 4: Tensions in Lisa's work activity system in the teaching phase

For Lisa, the spontaneous student-driven evolution of their online activity suggested she had initially underestimated students' need to connect with each other and share their experiences on a personal level. She had also insufficiently considered the value and utility of the Discussion Board for this purpose (Table 2, Turning point 3). In effect, students 'broke the rules' Lisa had set specifying the structure and recommended content of contributions to the reflective journal. This behaviour represented a tension between Lisa's rules for the reflective journal task (*Rules*) and students' need for peer support (*Community*). Lisa recognised the need for peer support as crucial to students' formative development as journalists and consequently extended the parameters of the reflective journal task to allow personal reflection and feedback. She also expressed the intention to create a dedicated peer support forum for the following year. Lisa's response to support the student-initiated innovation attempt immediately resolved the tension by adapting the 'rules' to suit the evolving context (Figure 4).

Lisa's fourth turning point event revolved around the need to track students' storywriting progress and provide feedback in a timely way. The tension underlying this event was borne from her emphasis on flexibility and authenticity which was intended to emulate the flow of activity in a real newsroom. In an attempt to immerse students in the story writing process, she had relaxed the more rigid academic structures of set lecture times and due dates for assignments in favour of allowing students to pursue news stories in real time. Deadlines were determined on an individual basis. From a student perspective, such an approach was extremely flexible. However, Lisa found it difficult to keep track of the most recently edited version of articles and soon experienced a significant workload issue due to the need to provide frequent feedback. For Lisa, the dual pressures of monitoring student performance and providing timely feedback presented a significant logistical dilemma leading her to question the sustainability of her current practice (Table 2, Turning point 4). In effect, her initial teaching strategy (*Cognitive mediating tool*) was impeding her own and students' timely participation in the learning task (*Object*). In an effort to identify a more efficient workflow, Lisa collaborated with the central VLE support team to design a technology-mediated solution that enabled her to electronically capture stories at different stages of development and return individual feedback to the author. Lisa's actions did not change the parameters of story writing process per se but represented a switching of the article submission and feedback procedure to a technology-mediated method using the VLE File Exchange and Assignment tool.

Later in the study period, Lisa saw an opportunity to capitalise on the VLE's capacity to capture work in progress by having students submit artifacts, such as emails, generated during unsuccessful or problematic encounters with potential interviewees. For Lisa, these digital artifacts were a way to capture a perspective on student activity that was not always evident in their reflective journal entries. She subsequently widened the reflective journal task to incorporate evaluation of student-generated artifacts as stimuli for discussion. Lisa's purposeful integration of the appropriate VLE tools into her pedagogical repertoire enabled her to continue her planned monitoring and feedback strategy but using a more efficient and manageable technology-mediated workflow. This solution effectively reduced the tension between the teaching strategy itself (*Cognitive mediating tool*) and her timely participation in the online learning activity (*Object*) as illustrated by the dashed arrow between these nodes (Figure 4). Indeed, her early success with technology integration prompted Lisa to later extend the reflective journal task to similarly take advantage of capabilities of the VLE.

Overall, Lisa's decision-making was characterised by self-confidence in her repertoire of pedagogical skills, a deep belief in the importance of good teaching, a concern for the wellbeing of her students, a strong sense of professional identity, a willingness to experiment with new technology, a willingness to take risks, and a positive regard for reflective practice. Lisa's decisions about using technology in particular ways were strongly influenced by her personal theory of teaching but were also historically mediated by her previous experiences with digital technologies, and her own personal history as a disciplinary professional and university teacher.

The design of learning tasks in the planning phase consistently demonstrated Lisa's purposeful selection of technological tools to facilitate activities aligned with her espoused pedagogical disposition. Significantly, her case reflected the broader finding that the mere presence of functional affordances perceived in a mediating technology did not guarantee its consistent application in a given teaching and learning scenario. Affordance theories offered a useful insight into how Lisa and the other participants perceived the possible uses of digital technologies for teaching and learning in relation to the actualising circumstances in their work activity systems.

The analysis presented in this paper reflected the broader finding that participants' teaching approaches as socially constructed through their interactions with academic colleagues in their schools and students in their courses. Lisa's case typified the circumstances of many lecturers in the study who frequently found themselves in a regime with a dominant ideology that was at odds with their own personal practical theories of teaching a blended-mode course suggesting that, in a collaborative activity, a group can share one object, but members of the group can relate to the object through differing motivations. Lisa's case exemplified how socio-cultural tensions can be manifested progressively as a lecturer moves through the planning and teaching phases of their course in the form of questioning, disturbances, dilemmas and

innovation attempts. The case further demonstrated how implementation of the object (planning and teaching a blended-mode course) was achieved through dialogic negotiation with the community (stakeholders) and through exercising individual agency.

Like the other experienced experienced lecturers in this study, Lisa demonstrated a strong sense of self-efficacy, was readily able to identify and acknowledge a range of barriers in her activity system, and could assess the elements in her pedagogical context over which she had some influence. When Lisa felt she could control the events in her local context, she responded by widening her thinking and practice, effectively introducing new forms of activity. In other situations where she perceived less control, Lisa tended to change her response to the object by adjusting her expectations and seeking alternative ways to actualise her pedagogical vision.

Conclusion

Using one case study as an example, this paper demonstrated how cultural-historical activity theory can be successfully applied as descriptive and interpretive framework to gain an insider's perspective on how university teachers make decisions about teaching with technology in a contemporary blended learning context. A focus on interpreting systemic tensions and critical 'turning points' provided a means to indentify markers of object transformation, that is, ways in which the lecturer delineated the activity of teaching in a new way.

A key benefit of selecting CHAT as an appropriate framework for eLearning research is that it reframes the traditional notion of participation as an individual's actions and mental processes and considers the minimal meaningful unit of analysis as an activity system. CHAT is, therefore, capable of providing a more expansive and holistic conception of participation that can take account of individual and social factors, and recognise the socially-situated and culturally-mediated nature of learning (Barab, Evans, & Baek, 2004). An expanded conception of participation that encompasses contextual factors has significant value for eLearning research by enhancing access to many aspects of participation that have been relatively under-explored, including non-visible activity such as navigating through a course website or reading student contributions to a discussion forum. A wider view of participation can also access non-visible activities that occur away from the computer such as reflecting upon ideas; developing personal theories of student engagement; and shifting of pedagogical orientation. Importantly, the conceptual framework of activity theory illuminates the internal dynamics of an activity rather than studying the components in isolation. This interconnectedness makes it possible to describe relationships between members of the community (such as teachers, students, and colleagues) as well as roles adopted; tools shared by the participants, and explicit and implicit rules for collaboration.

A central tenet of activity theory is that tools or artifacts mediate all human action and these tools may be physical (e.g., a smartphone), or symbolic (e.g., teaching strategies, arithmetic, language) (Cole & Engeström, 1993). Cultural tools, such as technology, contain both affordances and constraints that mediate the actions of the agent, in this case, the university teacher (Wertsch, del Rio, & Alvarez, 1995). In other words, digital technologies have particular properties that "allow certain actions to be readily performed with them, and which therefore push behaviour in certain directions" (Tolmie & Boyle, 2000, p. 120). Rather than focusing on technology as the agent, CHAT accommodates a consideration of the types of activity afforded or constrained by the technology and acknowledges how the attributes of the technology interact with the surrounding social and cultural context. CHAT also offers insights into the role of cognitive mediating tools by considering the potential interrelationship between lecturers' pedagogical beliefs, perceptions of the technology, and the teaching strategies employed in a blended-mode setting. Significantly, CHAT's capacity to examine the manner in which teachers, as agents, have purposefully used tools to achieve the intended outcomes of the course challenges traditional approaches to learning which have tended to ignore mediated activity (Säljö, 1999).

The ability of CHAT to represent the "multivoicedness" of complex social situations is particularly useful as it provides a means to capture the dynamic interplay between the vertical and horizontal divisions of labour. For example, tasks may be distributed among community members such as students and academic colleagues (horizontal) and may also be distributed

vertically in that the lecturer may hold multiple roles as technologist, designer, facilitator, administrator and evaluator of the learning activity. Additionally, the concept of multivoicedness can also include the historical beliefs, expectations, and values of different community members, which are imported into current activities, and shape what transpires.

CHAT also facilitates the analysis of change over time in an activity system. This affordance is pertinent to eLearning research that seeks to understand why digital technologies have often failed to meet institutional expectations for transforming teaching and learning. Instead of assuming a goodness of fit between lecturers' peadagogical vision and the institutional expectations for integrating digital technologies, CHAT has the capacity to view an enterprise such as planning and teaching a blended-mode course as an emergent activity that unfolds over time and considers how actualising circumstances can influence the subject's response to a disturbance such as institutional eLearning imperative. Rather than simply focusing on "what went wrong," the interpretive lens of CHAT affords insight into turning point events as moments when something new was learned and when the participants in an activity conceptualised it in a new way.

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