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Using cultural-historical activity theory to describe a university-wide blended learning initiative

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Institution-wide evaluations of Blended Learning implementations are rare. Even less common are evaluations that report the sociocultural context of the implementation. Recently, an Australian university in the western region of Victoria embarked on an initiative to blend all course units over a three-year period. Stemming from a rigorous analysis of reporting documents and participant-researcher observations, an attempt has been made to describe the sociocultural context of this blended learning initiative through the lens of Engestrom's Cultural-historical Activity Theory (CHAT). This description, along with the challenges surfaced will serve as a precursor to the university-wide impact evaluation of this blended learning initiative. The objective of the analysis was to reify the complex processes, intricate relationships and dynamic environmental elements, which tend not to be captured by impact evaluations. Understanding what exactly is going on will enable the University to situate evaluation findings in the context of factors that might have helped or hampered the achievement of outcomes, and remediate process-related problems in a timely manner. Amidst the flurry of focused and coordinated blended learning activities, eight key process-related challenges emerged: Staff Capacity, Engagement, Deployment, Workload, Technological Issues, Project Management, Communication and Unit Stability. These challenges could potentially make or break 'the Blend' if not adequately addressed. This paper highlights the value of process evaluations for online and blended learning implementations and argues for such evaluations to be grounded in ontological realities reflected on accountability reports and observational data.

Introduction

Against a backdrop of falling student satisfaction, unsatisfactory course progression and rising attrition rates, much has been touted about the transformative potential of blended learning to deliver deep, meaningful and worthwhile learning experiences (Garrison & Kanuka, 2004). How can institutions then tell if their blended learning initiatives are delivering on its promise? The answer lies in a systematic, structured and periodic evaluation. Evaluating a blended learning initiative has several advantages. End-of-semester evaluations will enable institutions to re-assess the impact of financial and human resource investments on educational outcomes, possibly leading to modifications of strategic trajectories. An honest evaluation will surface areas for improvement, which can be addressed at subsequent iterations. Notwithstanding, identified strengths stemming from blended learning practices can be scaled across the institution thereby triggering higher returns on investments. Data-informed dialogues surrounding valuable pedagogical lessons at various platforms, such as at conference presentations, will also promote a culture of learning across institutions.

However, most evaluations of blended learning initiatives are summative in design and hence a heavier emphasis is placed on terminal outcomes, be they economic, learning, teaching or technological. One example is a study done by Bentley, Selassie and Parkin (2012) which aimed to evaluate the effectiveness of a blended MBA programme. Three surveys were administered to gather students' feedback on their level of satisfaction with the delivery of the programme. Based on feedback received from each survey, changes were progressively implemented. For example, a key finding reported by the study was the under-utilisation of the institution's Learning Management System. Citing higher access rates as evidence, the authors claimed that a restructure in the format of delivery had led to an improvement in its useability. However, the study does not delve into the reasons for the under-utilisation. Understanding the reasons for the lack of use of the LMS from the perspectives of staff, students and learning technologists

will help to explicate the connection between the specific change implemented and the improvement in access rates. This explication would add even more value to the findings and hence enrich learning for the community of blended learning designers already grappling with a complex undertaking.

Indeed, blended learning is a 'messy' construct with both scholars and practitioners wrestling with issues of nomenclature. While there is consensus that blended learning necessarily includes both face-to-face interactions and one or more uses of technology, most authors either omit the manner of this combination or seem to wrestle with pin-pointing the modus operandi of this combination. Garrison and Vaughan (2008) refer to this combination as a "thoughtful infusion", Torrisi-Steele (2011) calls it a "harmonious integration" and there are those in the tradition of Allen, Seaman and Garrett (2007) who attempt a more formulaic operationalisation of this combination by specifying the ratio of online to face-to-face investment in time or content (i.e. 30% online 70% face-to-face). Finally, Partridge, Ponting and McCay (2011) place the delivery of Blended learning courses on a continuum, "between fully online and fully face-to-face". The challenge with the latter two operationalisations is that they exclude discourses in which the delivery of both face-to-face and online teaching co-exist. One example would be the use of a synchronous communication platform such as CoverItLive in a face-to-face environment to enhance interaction and student engagement. CoverItLive enables students to pose questions in real-time without interrupting an instructor's lesson delivery. The questions are visible to all members of the class. At an opportune time, the instructor may identify questions and respond to them.

The lack of a widely accepted definition may lead to teachers designing units based on their own 'folk theories' of blended learning. One commonly observed 'folk theory' is the notion of blended learning being only about the technology. Many academics tend to use the term blended learning interchangeably with technology-enhanced learning tools. This results in the oft-observed "add-on" effect where academics preserve all face-to-face activities associated with learning and 'throw' in additional technology-related activities. This variant of blended learning significantly increases the workload for both instructors and students. The Blend is very much about the face-to-face discourse as it is about the technological tools aiming to enhance learning. It would therefore be beneficial to understand the processes of blending leading to the finished blended learning solution.

The aforementioned complexities of Blended Learning are exacerbated by the observation that the work of blending units at higher education is rarely a solitary endeavour, but a journey involving a community of stakeholders – College Librarians, Educational Designers, Academic Support Staff, casual academic sessionals, and even accreditation authorities. Educational Developers work with academics on curriculum matters such as the formulation of learning outcomes and assessment. College Librarians ensure that students and academics are well supported by readily available high quality materials. Academic Support Staff complement teaching and learning efforts through the provision of personalised coaching to ensure every student succeeds regardless of their aptitude, circumstances or academic background. Clearly, these roles overlap leading to a blurring of ownership boundaries in the blending process. The lack of insight into what exactly is going on may lead to errors of attribution. In a blog post entitled "The Attribution Error and School Reform", Larry Cuban cites the example of Union City where gains in academic test scores had been attributed to "student use of computers" (Cuban, 2017). However, Cuban reports less is known about the district's system-wide reforms in "curriculum, teaching, and accountability" in the 3-5 years leading up to the integration of technology and the facilitation of its use. The importance of systemic strategies had been underscored with technology being elevated as The Silver Bullet in being able to deliver student-related outcomes. The lack of insight into what exactly is going on may have led to such errors of attribution. Ultimately, the focus of evaluations must be on gathering lessons that can be feedforwarded to inform future initiatives. Without sufficient knowledge on the contribution of processes to outcomes and conversely, challenges that hamper the achievement of them, learning cannot take place.

Herein lies the value of Cultural-historical Activity Theory (CHAT) popularized by Engestrom (2000) as a useful tool to analyse blended learning processes as either a precursor or a complement to outcomes-based evaluations. A comprehensive understanding of the sociocultural context in which a university-wide blended learning initiative is embedded will lead to rich organisational learning opportunities.

Theoretical underpinnings of CHAT

Activity Theory has been hailed as "the best kept secret of academia" (Engestrom, 1993, pp 64, as cited in Roth & Lee, 2007). The origins of CHAT have been tied to 1920s' Russian scholarship, and most notably the works of psychologists Vygotsky and Leont'ev (Yamagata-Lynch, 2010).

Vygotsky's "classical mediational triangle" is often referred as the first-generation Activity Theory (Please see Figure 1). Vygotsky posited that higher mental functioning unique to humans are *mediated* by technical and psychological tools as indicated by the apex of the triangle (Hardman & Amory, 2015; Wertsch, 1993). Conversely, lower elementary operations are subconscious and acted upon directly on the object as indicated by the base of the triangle. For example,

consider a lecturer who is the Subject, listing a set of instructions for a task on the whiteboard with the objective of being as clear as possible. We could say that the activity of communicating instructions is mediated by the whiteboard marker and whiteboard — as technical tools, and the genre of lists and language — as psychological tools. The actions of reaching for the marker, uncapping it and the movement of hands to write the instructions are cognitively triggered at a subconscious level. Vygotsky's Activity Theory represented a shift away from a view of human cognitive processing as residing in the atomic individual – as had been the dominant psychological perspective at that time – and towards a view, that recognises the distributive nature of consciousness. Intellectual processing is not restricted to neural activity within the boundaries of the brain, but a synchronised series of mind-body actions leveraging tools as mediatory artefacts.

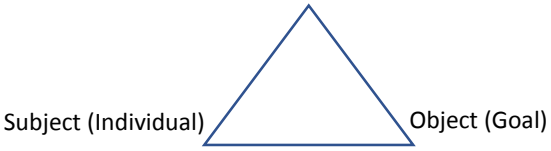

Figure 1: First Generation Activity Theory

Leont'ev, a student of Vygotsky, added the social dimension to Vygotsky's mediational theory. Leont'ev's model is regarded as the second-generation Activity Theory and is best illustrated through the primal hunting example he offers, and which I adapt. A person's involvement in a paired tribal hunting activity is stimulated by the motive of obtaining food. However, in order to achieve this motive of food, this person needs to perform actions with goals that may not be directly aimed at obtaining food. This person may yell at a boar (action) to scare it onto the path of the spear thrower (goal). This spear thrower may eventually be the one to kill the boar. Both 'Boar Chaser' and 'Spear Thrower' had been unified in their motive for obtaining food but each used a different set of actions with correspondingly different goals in the hunting activity to achieve this shared motive. Through this example, Leont'ev introduced the importance in the role of the community of hunters and, division of labour in achieving objectives. In the context of assessing a diagnostic task, a teacher may be the person responsible for evaluating a learning outcome through a diagnostic task. However, this teacher's actions associated with evaluating the task is supported by an orchestra of different members from both the home and school. One of the stakeholders at school may be the school principal who constantly communicates high standards of achievement to students and another, the Head of Department who set the task. All three of them are united by a single motive, which is to take stock of student learning.

Over the past 20 years, Vygotsky's Activity Theory model has been extended by Engeström through the inclusion of Leont'ev's Activity Theory model. The resulting framework is referred to as the Cultural–historical Activity Theory (CHAT) (Engestrom, 2000), which I have adopted to describe the Blended Learning Initiative in the next section.

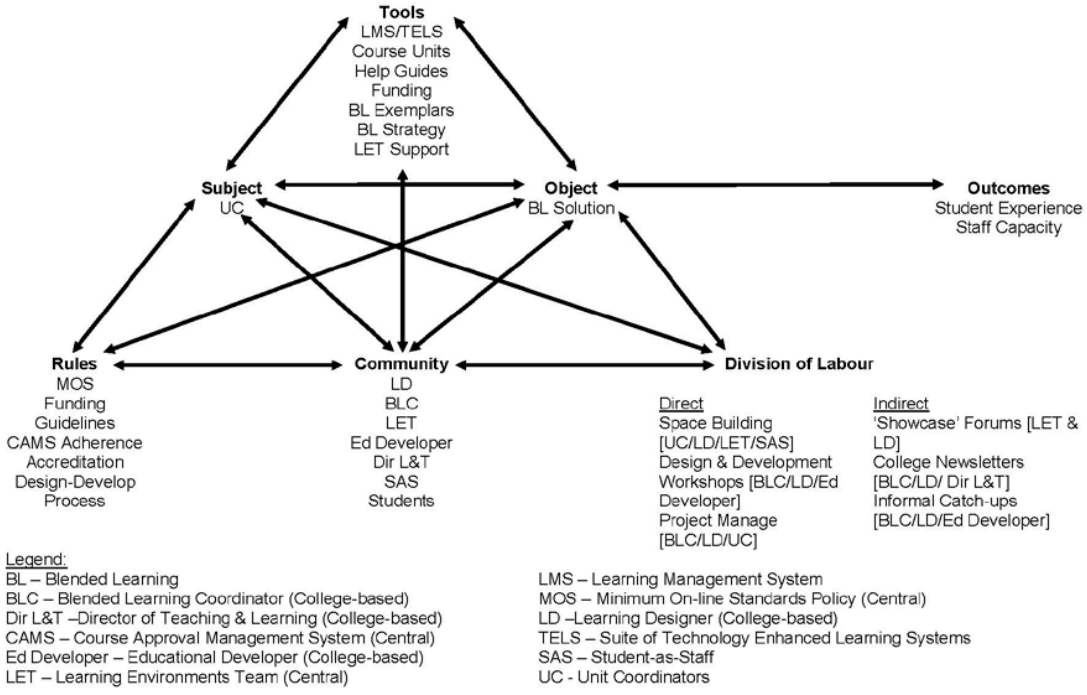

Figure 2: CHAT of the Blended Learning Initiative

The Blended Learning Initiative

In 2016, our University embarked on a Blended Learning Initiative with a quest to have all courses blended over a three-year period. A university-wide evaluation involving 86 course units from across all colleges will be completed by October 2017. The focus of the evaluation is on the evaluation of students' experiences, staff capacity and the impact of technology-enhanced learning systems on students and staff.

As a precursor to the evaluation, Engestrom's Activity Theory framework was adopted as a theoretical lens to understand what exactly is going on. This would enable us to not only measure the impact of the evaluation but to also understand it in the context of environmental issues and challenges.

Method

To obtain an ontological perspective of the Blended Learning Initiative, content analysis was performed on 40 reporting documents with the aid of NVivo software. Documents were first analysed in an attempt to identify the elements of CHAT i.e *Tools*, *Community*, *Division of Labour*, and *Rules*. In addition, risks, problems, deviations, concerns, and 'blockers' were coded as challenges. Reporting documents include newsletters and progress reports from June 2016 to March 2017. Apart from my role as the Chief Investigator of the evaluation, I also worked as a learning designer with one of the colleges. Therefore, this analysis has also been informed by personal observations and conversations with other stakeholders.

The evaluation is guided by an Evaluation Reference Group (ERG) comprising senior staff from across the University. The group meets periodically to discuss the progress of the evaluation. The challenges from this analysis were shared with the ERG. In addition, findings from the process evaluation have been communicated to College Directors, Blended Learning Coordinators and Learning Designers.

Results

Figure 2 depicts CHAT for the Blended Learning Initiative. With the Activity of focus being the work of blending, the *Subject* of the Activity are Unit Coordinators who take ownership of blending the units beyond their teaching, research and other administrative duties.

Object

The *Object* of the Activity is the Blended Learning Solution. This includes both the face-to-face component and the technology that complements it. The *Outcomes* targeted through the Blend are student experience and staff capacity. The impact evaluation aims to measure these outcome indicators. It is important at this juncture to highlight a controversy surrounding the use of the word "object" amongst CHAT scholars (Yamagata-Lynch, 2010). The Russian word for "object" may have several meanings. It may refer to the goal of an activity, the motives for participating in an activity, or a physical entity developed by participants through an activity. Our Blended Learning Solution interestingly matches all three possible uses. The goal of Unit Coordinators is to have a blended version of their units. This goal motivates them to engage in the on-going blending process. The Blended Learning Solution includes both a virtual delivery space with online activities on the LMS and face-to-face activities.

Tools

To help them develop their Blended Learning Solution, Unit Coordinators have access to a variety of *Tools.* The primary tool is the Unit itself comprising content knowledge, learning outcomes, and modes of assessments. For the first year of implementation, first-year course units with larger enrolments had been recommended to the colleges. However, the final decision on the choice and number of units was left to the discretion of colleges with a shared understanding that by 2020, all units in the university would be in blended mode. The work of blending the units takes place a year before the implementation. For example, 2016 Units refer to units blended in 2016 for delivery in 2017. On a par with the Unit as a *Tool*, is the University's Learning Management System (LMS), comprising the suite of technology-enhanced learning systems supported by the University. The LMS and the TELS reflect the online component of the Blended Learning Solution. Help Guides prepared by the Learning Environments Team (LET) offering advice and assistance on the use of the LMS and supported TELS are accessible via the staff portal. LET also conduct workshops, drop-in sessions and online / Phone-in consultations. Possibilities of the Blend are offered on the university's Blended Learning strategy documents and blended learning exemplars. Each Unit has additional funding attached, which Unit Coordinators may tap into to support them in their blending work.

Rules

Unit Coordinators' work of blending the units is governed by a set of *Rules*. The minimum expectation of the online component is set by the Minimum Online Standards (MOS) policy. Broad Funding Guidelines direct the use of these funds. Unit Coordinators may choose to 'buy-out' their time using the funds. Sessionals may be hired to take on their marking load, for example, while Unit Coordinators focus on blending their unit. Unit Coordinators might also choose to use the funds to engage specialist help to create additional resources, for example, professional videos. There is also a broad Design-Development model, which requires Unit

Coordinators to participate in the following phases: Phase 1: Kick-off to contribute to initial conversations on the blended learning work and learning issues targeted by the Blend. Phase 2: Unit Stock-take to share the current state of Units and the value proposition aimed for by the Blend. Phase 3: Design Workshops to re-imagine existing units. Phase 4: Development Workshops where staff learn from and work with college-based students-as-staff and Learning Designers to translate their designs into Unit Spaces on the LMS.

Community and Division of Labour

Unit Coordinators are supported by a Blended Learning *Community* comprising a Director of Teaching and Learning, Blended Learning Coordinator, Learning Designer, Educational Developer, and Students-as-Staff. The *Division of Labour* varies from college to college. Guided by a hub-and-spoke model, the Blended Learning *Community* report back to the Learning Environments Team (LET), which oversees the Blended Learning Initiative across the University.

The Blended Learning Project is best characterised as a flurry of activity with each and every member identified as part of the Blended Learning team participating actively. Blended learning project activities include the facilitation of key phases of the unit design and development processes, the wide array of informal and organised PD sessions and, technology support and troubleshooting. These activities have been categorised into two themes: direct support, which affects the blend of the Unit directly, and indirect support, which aims to raise awareness, scale good practices and build staff capacity in general. The Learning Designer and the Blended Learning Coordinator lead in the area of direct support. The spectrum of support is specified in Figure 2 under the "Division of Labour" node.

The analysis also unveiled challenges, which are an inevitable part of any project. Nevertheless, for lessons to be learnt and progress to be achieved, it is paramount that these challenges are addressed. However, to address them may require us to get to the root of the problem. CHAT offers a useful strategy to identify challenges through an examination of Contradictions, which I will discuss in the next section.

Discussion

An often "valorised" (Bligh & Flood, 2017) aspect of CHAT is its potential to surface 'knots' in the system. These 'knots' are referred to as Contradictions (Engestrom, 2000). Contradictions 'disturb' the Activity System. For the purposes of this analysis, I have operationalised contradictions as challenges. Surfacing contradictions will assist project administrators isolate sites of conflicts so that efforts to address them can be appropriately channelled in a strategic and efficient manner.

According to CHAT, there are four levels of contradictions. Each of these contradictions will be discussed in the context of the challenges reported. The discussion here is not meant to be exhaustive but rather to highlight the value of CHAT in being able to surface contradictions. Likewise, prematurely proposing solutions to these contradictions is not the intent of this phase, which is meant to be precursory.

Primary Contradictions

Primary Contradictions are contradictions that exist within each and any node of the Activity (Engestrom & Sannino, 2010). They appeared to be most obvious within the *Division of Labour* node. It was evident that Unit Coordinators were very well supported by the wide array of activities. However, from an analytical standpoint, there seemed to be a lack of clarity in which member of the Blended Learning Community was doing what. This lack of clarity in boundaries was more apparent in the distribution of labour between the Blended Learning Coordinator and the Learning Designer. For example, at one college, the Blended Learning Coordinator had led in the Design-Development workshops. At another college, it was led by the Learning Designer. In addition, there were colleges without Blended Learning Coordinators for extended periods leading to other members of the team re-organising their roles to 'cover' additional duties. Project Management (monitoring of timelines, budget, scheduling, etc.) seemed to be an implied role of the Blended Learning Coordinator, and a challenging one at that. The bulk of the stress associated with contradictions in this node appeared to have been shouldered by the Blended Learning Coordinator, an academic hired on a part-time load based on a position description with significant overlaps with duties typically performed by a Learning Designer. This may have led to further challenges in workload, communication and project management.

Secondary Contradictions

Secondary Contradictions are openly manifested between two or more nodes within the Activity. There were two main types of Secondary Contradictions identified. The first contradiction coded as Staff Deployment challenges was between Unit Coordinators and Units. This arose when a Unit had been without a Unit Coordinator either indefinitely or for extended periods. The lack of input from a content expert made it seemingly very difficult for a unit to progress beyond the superficial elements (e.g. college banners and placeholders for modules) of the Blend. The second contradiction identified was between the Unit Coordinators and the Community leading to the challenge of Staff Engagement. The active and deliberate engagement of the Unit Coordinator is crucial, and a Unit Coordinator's lack of involvement often prevented the Blended Learning project team from making progress. One possible reason was staff workload with Unit

Coordinators not being able to commit at times due to conflicting priorities. In addition to being involved in the Blending Learning Initiative, Unit Coordinators are also involved in a variety of other college-related work. A secondary reason could be ripple effects from Quaternary Contradictions (discussed below). Both Staff Deployment and Staff Engagement contradictions break the Activity system since the work of blending is dependent on the purposeful participation of the Unit Coordinator.

Tertiary Contradictions

Tertiary Contradictions exist between a newly established mode of the Activity and remnants of the previous mode. Against the background of copyright infringement issues, an online system for curating readings such as journal articles was implemented sometime after the work of Blending had commenced and shortly before the start of the semester. This led to modifications in work processes by the Blended Learning Community and Unit Coordinators in two ways. Firstly, there was a need to learn how to operate the new system and embed it in the LMS. Secondly, they had to ensure that readings previously stored on Unit Spaces were removed and linked to a central repository through the online system. Limitations with the new system (i.e. the inability for readings to be 'peppered' according to weeks of delivery) led to resistance. Another tertiary contradiction was due to the merger of two colleges. This led to significant re-adjustments for two colleges in all areas and in particular, the ways in which the two college-based Communities collaborated. This may have resulted in Unit Stability issues i.e. the "chopping and changing" of both units and unit coordinators that often paused the blending of units or required the team to restart the blending process.

Quaternary Contradictions

Contradictions between a neighbouring Activity and the Activity in focus are known as Quaternary Contradictions. There was news of a major initiative that would significantly affect staff deployment and the first year units across the University the following year. This either slowed down or seemed to cripple the blended learning work at all colleges because of the shroud of uncertainties: Would work invested in blending a unit be wasted should the unit not be delivered or require re-designing? Would the Unit Coordinator still be around to deliver the Blended Learning Solution?

Table 1 lists a summary of the challenges, which surfaced from the analysis. Using CHAT, I have attempted to map these challenges to Contradictions. Figure 3 depicts the proportion of these challenges relative to one another.

Contradiction	Key Challenge Reported	Example
Secondary [Subject<->Object]	Staff Capacity	Staff lacking in understanding of Blended Learning
Secondary [Subject<->Division of Labour]	Staff Engagement	Staff member indicating that they do not wish to participate
Primary [Division of Labour]	Communication	Lack of clarity surrounding "Costing queries"
Primary [Division of Labour]	Project Management	Unit development running behind schedule
Quaternary [BLP <-> FYC]	Unit Stability	"Chopping and changing" of units
Secondary [Subject<->Tools]	Staff Deployment	No Unit Coordinator attached
Secondary [Subject<->Tools]	Staff workload	Concern with work and effort required
Secondary [Subject<->Tools]	Technological Issues	Perceived shortcomings with online tools
Tertiary [e.g. Upcoming Major Initiative]	Staff Engagement	Staff members lacking in motivation to prioritise the work of blending a unit that may need to be re-designed.

Table 1: Challenges Reported

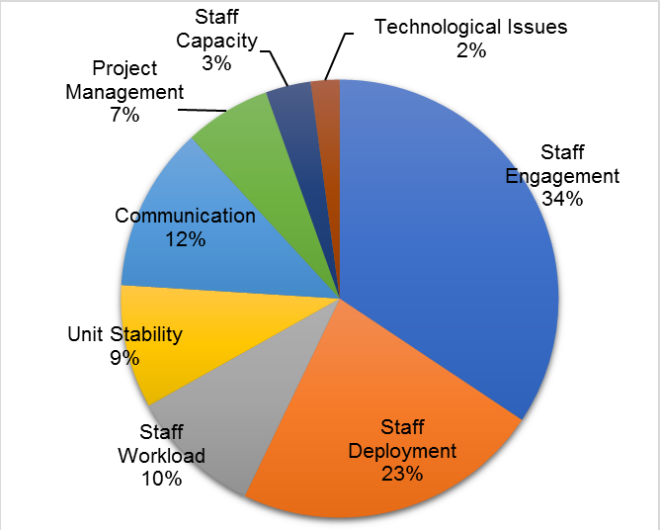

Figure 3: Proportion of Challenges Reported

Conclusion and future directions

This paper has reported on the use of CHAT to describe a university-wide blended learning initiative as a precursor to an evaluation that is currently ongoing. Reporting the sociocultural context of the initiative in conjunction with the results and findings from an impact evaluation will help the university to make better sense of evaluation findings. In addition to describing the initiative, this paper has also discussed Contradictions, a key tenet of CHAT in the context of the initiative. The identification of Contradictions will help the university to zoom in on these 'knots' and chart a way forward to untie them.

Upon conclusion of the impact evaluation, lessons and recommendations will be discussed in consultation with the Evaluation Reference Group and stakeholders of the Blended Learning Initiative.

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