Blended and Online Learning Environments: Motivations, Contradictions, and Influencing Factors

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Abstract. Blended and online learning environments continue to grow, transforming higher education. The motivation behind this study is to explore blended and online learning environments, from the perspective of students, through the lens of Activity Theory (AT). Based on 12 virtual semi-structured interviews with Master's (MSc) students at one University in England, the paper sheds light onto some of the findings with respect to student motivation underlying engagement, as well as tensions and contradictions in the activity system.

Keywords: Blended and online environments · Higher education · Covid-19 · Activity theory · Student engagement · Motivation · Tensions and contradictions

1 Introduction

This paper presents research-in-progress exploring a blended and online learning environment at one University in England, from the perspective of students, via the lens of Activity Theory (AT). This theoretical framework helps researchers gain insights into tool-mediated human activity, within its natural environment [1, 2]. Compared to other social theories, AT's distinguishing contribution is the acknowledgement of tensions and contradictions, which interrupt the flow of an activity, as a means of change and understanding [3]. AT was applied in this study to investigate the underlying student motivation(s) that result in class attendance and engagement, as well as illuminating examples of four levels of tensions and contradictions in the activity system.

This qualitative research was conducted as a single case study based on one Masters (MSc) Course. The structure of the course included multiple lectures in the form of pre-recorded material and/or activities, and Live class discussions held on a weekly basis. The data were gathered over a one-semester period and data collection methods included 12 virtual semi-structured interviews (via Zoom or Google Meet), observation of the face-to-face and online activities, and document analysis (e.g. resources for students, course outline and information, activity statistics, and University guidelines/regulations).

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Digital technology has transformed society and, in particular, the landscape of higher education during the pandemic [4]. First, there was a requirement for essential short-term crisis management, but now there is a broad recognition and acceptance that there is a need to commence working toward a 'new-normal' as the Covid-19 disruption continues [5, 6]. For the 2020–2021 academic year, many UK universities have initially decided to adopt Blended Learning (BL) approaches in order to deliver modules, courses, and programmes. However, due to the Covid-19 cases increasing and the third national lockdown (January 2021–March 2021), institutions have been 'forced' to revert to complete online delivery (with an exception for a few disciples).

The introduction and implementation of technology in learning and teaching is not a new paradigm [7]. Indeed, the number of online and blended learning classes will most likely increase in the near future and, hence, there is a need to gain a deeper understanding of such contexts, and in relation to how student interactions and engagement could be improved and maintained. Furthermore, discussions regarding 'value for money' has increased over the past year [8], meaning that there is a pressing need for Universities to provide 'value' to students by improving their learning experience. This could be achieved by understanding potential tensions and how they could be addressed effectively, along with identifying factors that influence student engagement and motivation during the course.

The remainder of the paper is structured as follows: the next section presents the background and related literature, followed by a description of the theoretical framing. Next, the preliminary findings are presented and discussed. Finally, we offer a brief conclusion and outline the future plan for the study.

2 Background

In this section, a short overview of blended and online learning environments is provided in order to present the research context, along with student engagement, motivation, and challenges associated with both modes of delivery.

2.1 Blended and Online Learning Environments

Over the past two decades, educational institutions have adopted Blended Learning (BL) for various reasons. However, BL has recently received significant interest due to the Covid-19 pandemic [5, 6].

BL appeared in the late 1990s and refers to an approach in education that combines face-to-face elements with online learning [9]. This approach can consist of implementing face-to-face delivery with educators, followed up with online activities with peers. Alternatively, online learning may be delivered first (i.e. in the form of pre-recorded lectures/activities), followed by face-to-face interactions. This latter approach is usually termed as 'flipped teaching' [10, 11]. Although there does not appear to be a single definition to the term, BL is essentially a model that combines different forms of media such as video, audio, and text at different time scales (such as asynchronous, synchronous) with a face-to-face element in the same course [12]. Usually, this is supported with the adoption of Learning Management Systems (LMS), which enable the facilitation

of asynchronous and synchronous activities, whereby students have the flexibility to engage in learning activities in terms of place and time. Such systems also facilitate interaction and collaboration between students (e.g. in the form of discussion forums).

A number of studies have identified the advantages of BL. For example, the combination of computer-mediated instruction and face-to-face delivery enables gaining the benefits of both approaches [13]. Furthermore, scholars assert that it may potentially enhance student learning performance, and allow them to become more engaged in the learning process [14].

2.2 Student Engagement

While the pandemic has resulted in higher education institutions rethinking future education and the role of technology, many scholars have revisited the notion of student engagement pre-, post-, and during the pandemic [4, 15].

Engagement and interaction are closely related, and in some instances, the terms are used interchangeably. It is argued that, in the learning context, engagement describes the active involvement of the learner and is directly related to a potential learning outcome [16]. According to Moore [17], three types of interactions are significant in effectively delivering learning via online methods; (a) learner-to-learner interaction, (b) learner-to-instructor[1] interaction, and (c)learner-to-content interaction (Fig. 1).

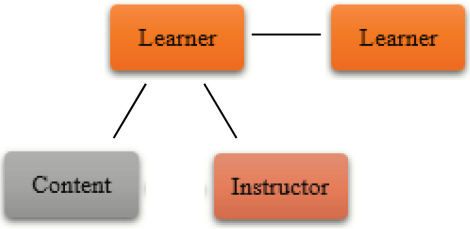

Fig. 1. Illustrating the relationship between different entities described by Moore [17]

Although Moore [17] recognises the three fundamental entities involved in learning environments, he does not explain the 'type' of interaction involved. He emphasises that online or distance programmes should be designed in a way that maximises the "effectiveness of each type of interaction" [17:23], and to ensure that a suitable type of interaction is selected for the learners and the teaching task. Hillman et al. [18] extended this model to include learner-interface interaction since distance and online environments involve learners interacting with a medium/tool. In line with this, research concludes that there are three major types of engagement; cognitive, behavioural, and emotional [19].

Student engagement lies on a continuum ranging from disengaged to engaged, and in-between lies varies degrees of engagement. There is confusion as to whether the

[1] The literature uses the terms 'instructor', 'teacher', 'lecturer', 'educator', and 'academic' almost interchangeably. However, to remain consistent with the terminology adopted by the University in this study, the term 'lecturer' will be adopted hereafter.

terms engagement and motivation should be used interchangeably. However, there is an understanding among scholars that motivation is usually a moderator or an antecedent to engagement. Motivation is the unobservable force or intent that drives behaviour, while engagement is the effort and energy in action, which is observable [20].

2.3 Motivation

Originating from the Latin word for "to move", motivation is considered as the fuel for action. "To be motivated means to be moved to do something" [21:54]. Scholars interpret motivation as the process by which an individuals' desires and needs are set in motion. Usually playing a role in satisfaction and success, motivation is fundamental to learning. Undeniably, motivation is a crucial factor to address in enhancing student learning outcomes and performance [9, 22] and has received increased interest from scholars during the pandemic [4, 15].

The literature highlights two types of motivation associated with learning: extrinsic and intrinsic. Intrinsic motivation focuses on the inherent pleasure and satisfaction from undertaking a specific activity. On the other hand, extrinsic motivation is linked to goal-driven behaviours and reasons from undertaking an activity, including rewards gained, benefits, or recognition. Together, extrinsic and intrinsic motivations affect individual intentions and behaviours with respect to an activity. Some scholars argue that intrinsically motivated students are more likely to show better performance and complete tasks compared to extrinsically motivated students.

Ryan and Deci's [23] Social-Determination Theory (SDT) suggests different forms of extrinsic and intrinsic motivation (Fig. 2) and is argued to be a valuable framework in understanding students' self-determination during a learning task, the quality of effort evidenced, and, hence, engagement. For example, research shows that self-regulated students are generally more motivated to learn regardless of the content covered in the course.

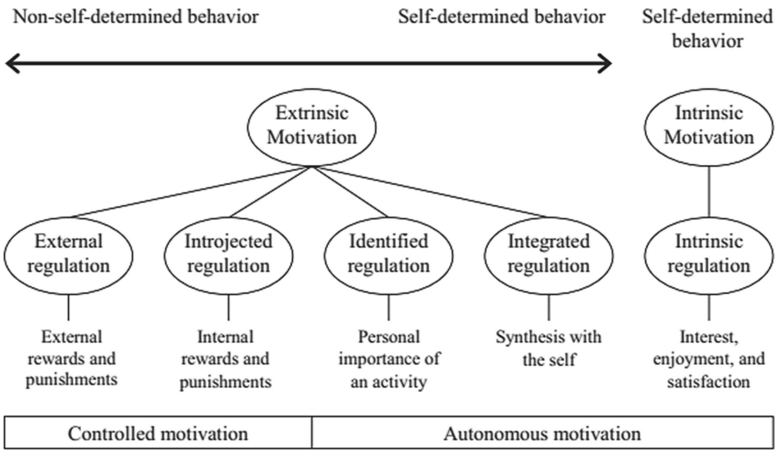

Fig. 2. Self-determination theory (based on Ryan and Deci [23])

2.4 Challenges

Recent studies highlight a number of challenges experienced by students in blended and online learning environments, such as challenges associated with self-regulation, technological literacy and competency, and student isolation [13]. Similar findings were reported in studies conducted over the Covid-19 pandemic across multiple disciplines [24, 25]. From a content and technology perspective, studies have alluded to the need of creating an infrastructure that enables locating 'learning-objects' and resources effectively and the development of protocols or standards that support this [26]. Furthermore, [27] highlight that lecturers' main challenges were associated with learning the new technology tools and the discomfort with implementing, and indeed understanding, online pedagogy, in addition to the difficulty in sustaining student engagement in the online component of the programme.

3 Theoretical Framework: Activity Theory

AT was selected as a theoretical framework to investigate student motivations and understand the tensions and contradictions experienced in a blended and online learning environments. Scholars argue that AT is one of several practice-based approaches that has evolved into a cross-disciplinary and global approaches and is useful when aiming to frame and comprehend complex activities [1, 2] and understand how new technologies can impact educational change [28]. The model allows the analysis of complex and evolving practices by providing a multi-dimensional and systematic approach, which considers aspects such as tools, motives, always-present dynamics of history, culture, and the wider community [3]. Figure 3 depicts the activity system studied in this paper in the form of the second generation AT model.

3.1 Principles of Tensions and Contradictions

Allen et al. [2] highlight that an 'activity' is under continuous development due to the impact and effect of instability, subject and community needs, tensions, and contradictions. Contradictions are not considered the same as problems, but are recognised as tensions, which occur between and within activity systems.

Four levels of contradictions are proposed by Engeström [1]:

- Primary contradictions – takes place when tension is brought by one construct/element within an activity system (found within a component such as the 'rules/norms', 'subject', etc.).
- Secondary contradictions – takes place when there is tension between two elements (e.g. between the division of labour and object). For instance, strictness or flexibility of the rules to achieve the objective.
- Tertiary contradictions – takes place when there is tension between the original activity (before change) and a more advanced form.
- Quaternary contradictions – takes place when there is tension between the activity and another co-existing or concurrent neighbouring activity.

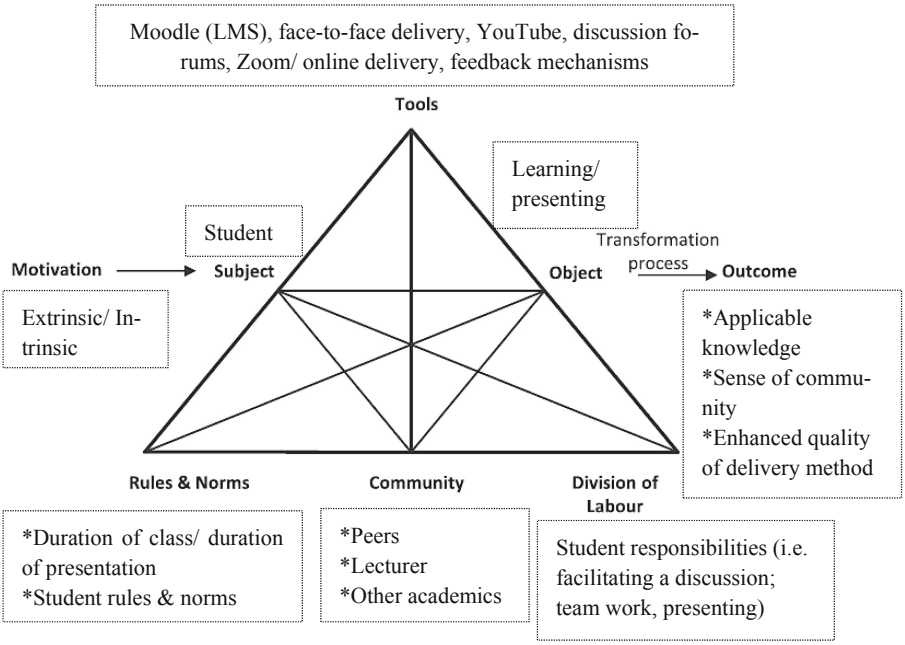

Fig. 3. Activity system using the second generation AT model

This theoretical framework, and the notion of tensions and contradictions, has been adopted in previous studies exploring the inter-relationship between the physical classroom and the virtual classroom, further supporting its adoption in this study [29].

4 Findings

A total of 12 virtual semi-structured interviews were conducted with students undertaking an MSc course specialising in Information Systems (IS) and digital technology at one university in England, over a period of one semester. All students enrolled on this course were contacted via email (*total of 23 students*). Interview questions were framed in line with AT and sought to understand students' initial expectations from studying this degree during Covid-19 and their motivation in terms of engagement and attendance in both blended and online classrooms, along with the challenges they had experienced in either mode of delivery. The interviews were very open and students shared their opinions in an open manner. They did not hesitate in expressing their opinion about the challenges they experienced and their expectations. Checking against their activity statistics in the LMS, they did not 'hide' or 'cover' their non-engagement, but instead spoke freely about their experience. Each interview lasted between 60–90 min and all responses were audio-recorded, transcribed, and annotated. Table 1 highlights the demographics of the participants.

Table 1. Interviewee details.

Code	Gender	Nationality *Home (UK) or International*	Code	Gender	Nationality *Home (UK) or International*
Student 1	M	Home	Student 7	M	International
Student 2	F	Home	Student 8	F	International
Student 3	F	Home	Student 9	M	International
Student 4	F	Home	Student 10	M	Home
Student 5	M	International	Student 11	F	International
Student 6	M	International	Student 12	F	Home

4.1 Main Findings of the Semi-structured Interviews and Document Analysis

The data that emerged shows contrasting views of motivation. Table 2 illustrates examples of intrinsic and extrinsic motivations revealed when asked about attendance and class engagement. In some student responses, it was difficult to distinguish whether students were intrinsically or extrinsically motivated, since both types were found to co-exist.

Table 2. Student motivation towards attendance and engagement.

Theme	Example of quotations
Intrinsic Motivation	*"It's something new for me…So it is new knowledge" (Student 1)* *"There's always hints and tips that your professor [instructor] gives you." (Student 7)* *"If you're paying for something, you want to get your money's worth … but not everyone does that. Finance [for the MSc degree] – I see it come out of my bank account, I know that it is coming out of my bank account and it can be a lot but it is not a factor I consider every time I log in to a session. It's more of 'I want to do it'." (Student 2)* *"For a Master's course, you can get behind very quickly if you don't attend. And because it is quite in-depth and specific knowledge, it can be difficult to teach yourself if you do miss a session. I always thought if I always attend, then it meant that I didn't have to do that amount of catch-up to get to the same level as everyone else" (Student 3)*
Extrinsic Motivation	*"Missing a session meant that you would be missing what you would have learnt that day. And that is not really an option because you are paying for this degree." (Student 2)* *"I didn't want to miss the classes and material for which I am paying high fees. I would feel that it is a waste of money, I paid for it and didn't use this opportunity." (Student 10)*
Opportunities	*"…then every seminar, every lecture, every conversation in English for me is practice to improve my English language. For me, it is also like training for my brain and my English skills" (Student 6)*

(*continued*)

Table 2. (*continued*)

Theme	Example of quotations
Norms that govern behaviour	*"That's what I'm used to. I went straight from Undergrad where we had to go in [attend] because we have to tap our [student] cards. So that was already built in." (Student 2)* *"My motivation is that I've been doing it for years." (Student 1)* *"If it is in your schedule, then you do it." (Student 11)* *"I would say I've been groomed to attend class from day 1." (Student 3)*

Moving on to consider the second major theme in this paper, Table 3 presents examples of four level contradictions observed in this case study. Some contradictions were specific to a blended learning environment where there is an element of online delivery and face-to-face contact, while others were observed across both blended and fully online learning environments.

Table 3. Four levels of contradictions observed in this case study

Contradiction level	Observation from the case study	Example of quotations
Level 1 Primary contradiction	• Not all students are motivated to the same extent or for the same reason (*blended and online learning environments*)	*"…because I applied to this postgraduate course, I still like to feel like a student and have a student life and I wanted to experience this so I needed to attend lectures and seminars for that one year" (Student 6)*
	• Different objects among students (*blended and online learning environments*)	*"…attending meant that I wasn't necessarily missing gap in knowledge by teaching myself and if I did have any questions, then I could just ask rather than having to catch-up again with a lecturer [instructor] at a later date" (Student 9)*
		"For me, it depends on what I am going to do that session"(Student 11)
		*"Well, I stopped attending those face-to-face sessions only because other students wouldn't follow the rules, you know wearing a mask and all that" (Student 12) - *Blended learning environment*

(*continued*)

Table 3. (*continued*)

Contradiction level	Observation from the case study	Example of quotations
Level 2 Secondary contradiction	• Interaction between the subject and community (peers and/or lecturer) (*blended and online learning environments*)	*"But if I was in the position if I was on Zoom and not physically in the classroom, I might miss out on what someone else was saying because they talk to you [instructor] and not talking to the screen." (Student 2) – *Blended learning environment*
	• Different culture, rules and norms between students in a class (*blended and online learning environments*)	*"…so it became a bit difficult that you were put into two worlds. You're trying to listen and interact but you're also trying to listen and interact with those online so you are kinda torn between the two." (Student 9) – *Blended learning environment*
		"breakout rooms are enjoyable until you are working in a group where no one contributes or all the work is on you" (Student 7)
Level 3 Tertiary contradiction	• Pre- and post- activity system – after-session activities/ behavior (*blended and online learning environments*)	*"I have the opportunity to visit the Library straight after and do some work. Also, if I wanted to speak to the lecturer for a quick question, I could catch them at the end of the class." (Student 4)*
Level 4 Quaternary contradiction	• University-wide regulations (*blended and online learning environments*)	*"I know people who, to have a good [Wi-Fi] connection, need to attend the class from the Kitchen and they have their mum cooking, there's a TV on and they can't do much, and it is a bit discouraging for them to put their camera on and having to deal with many things going on. Same thing with the microphone if they are in a place with a lot of noise, for example, if they live in a small house." (Student 5)*

The following section contains a more in-depth discussion of the findings.

5 Discussion

The findings revealed a variety of student motivations underlying their attendance and engagement in classes, in addition to several contradictions occurring within and between elements of the activity system.

5.1 Student Motivation and Engagement

The selection of quotes in Tables 2 and 3 reveal that a wide variety of motivations exist in a classroom [also known as 'poly-motivation'] [30, 31], driven by either intrinsic or extrinsic motivation or both. In our study, we identified that while some students engaged in classes due to the content/topic being delivered or their desire in broadening their knowledge, others engaged, or merely attended classes, due to extrinsic factors such as course finance and attendance recoding. Research shows that students who are intrinsically motivated achieved higher grades, showed higher levels of persistence, and processed reading materials more deeply [22, 23], compared to those who are extrinsically motivated.

The findings also indicate that some students only engaged in classes if their peers showed some level of interaction, and/or if the instructor was "enthusiastic" about the session or had prior experience in using the specific tool to deliver the session [4, 27]. We argue that peer interaction in our research refers to learners contributing to the class and not the development of a 'learning community'. Research shows that feeling part of a learning community positively influences student engagement [32]. In some instances, this was observed in this research, and in other instances, the findings do not support this argument. In fact, it was found that such learning communities resulted in some students missing classes because they were certain that their 'friends' would catch them up with the content.

Interestingly, some International students were driven by the opportunities associated with engagement in terms of enhancing language skills, learning, communication, and broadening their networks. However, one must take into account when the research was conducted as studies have shown that near the end of the semester and/or course, students become results-focused [33] and may not be driven by such opportunities.

Furthermore, students who have undertaken the MSc course straight after Undergraduate study (i.e. graduated from Undergraduate study in the same year/did not take a 'gap' year), whether Home or International, indicated that it was the 'norms' that governed their behaviour that drove them to attend and engage in classes.

Our research has alluded to the importance of 'managing student expectations' [34] as students have a set of expectations based on their educational experience to date, as well as from messages made by the University regarding teaching (*i.e. expectations are influenced by the socio-cultural environment and norms*). It appeared that the disparity between their expectations and the actuality of blended and online learning affected how students approach their studies and their motivation to engage in classes as expectations influence what is and what is not tolerated/seen as appropriate.

On the other hand, in some student responses, it was difficult to distinguish whether students were intrinsically or extrinsically motivated, and that both types were found to co-exist. One must also highlight the importance of 'motivation for what purpose?',

as the student may exhibit intrinsic motivation for one aspect of the course, while not another. This reflects what is and what is not valued and that motivation varies based on contextual and situational factors. This, in turn, sheds light onto 'what does it mean that some students were engaged?', 'what do they appreciate?', and 'what were their expectations?'. For example, two students may state that they are motivated to study, but deeper analysis would reveal different objectives; one may be driven by wanting to obtain a 'good' degree outcome but with the least possible learning, while another may be genuinely curious about the subject and their inherent enjoyment and interest [23]. In line with AT, this suggests that students may appear to share similar understandings of the object by demonstrating similar behaviours on the surface, but on a deeper level, the object is meaningful in different ways. This demonstrates that each student can have multiple and competing motivations that remain unresolved and increase the complexity of the activity system. This could be explained by the Argyris' [35] theory-in-use and theory of action espoused. Although this was not investigated in much detail in this research, it could explain some of the findings.

Going back to the discussion on Moore [17] and Hillman et al. [18] in Sect. 2, this research highlights a number of entities influencing the activity system and we propose an extension to their discussion. We argue that the type of interactions and engagement between the entities are either direct or indirect.

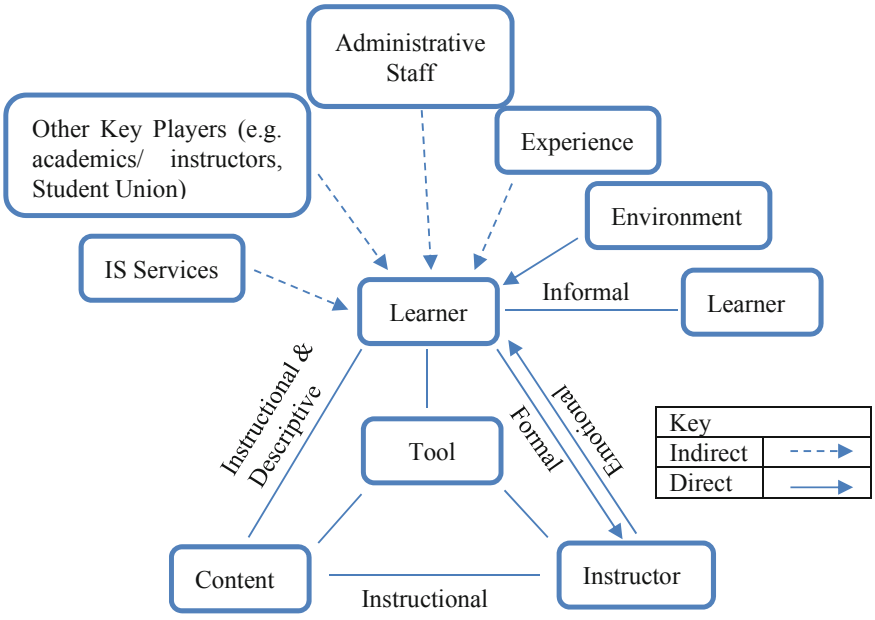

Fig. 4. Proposed model of the entities and the relationship between them that influence the learning environment, whether online or blended

Our findings reinforce Engeström's [1] argument that an activity is a historically, socially, and culturally contextualised phenomenon. We argue that motivation is a

dynamic entity, influenced by a number of contextual factors (e.g. peer support, the lecturer, task, etc.), and students will most likely exhibit various degrees of the motivation continuum [23] throughout the semester.

5.2 Tensions and Contradictions

Primary Contradictions

AT suggests that a subject has 'motivation(s)' towards achieving an 'object' [1, 2]. When asked about motivations, a variety of responses were obtained. This created tensions as some students' engagement was dependent on peers' level of interaction and/or the interaction of the lecturer. This finding complies with the literature and other studies that have highlighted that students value interaction in a class, which is usually evident in traditional classrooms.

Another primary contradiction witnessed was that the 'object' was different among students. For some students, the object was deep understanding of the concepts/ topic, while for others, its was more surface-level understanding and the aim of passing the module. The former approach involved 'studying for understanding', and the latter involved 'studying for the assessment'. An analysis of the log statistics for each student revealed that those who were more prepared to invest reviewed almost all course material and participated in all the quizzes or learning opportunities available on the LMS, compared to those who invested minimal effort to meet the requirements of the course.

Secondary Contradictions

With respect to the blended learning aspect, tensions experienced were related to the delivery method chosen by the lecturer. Due to some students not being able to join physically (for reasons such as self-isolating, shielding, Visa issues, quarantine, etc.), the lecturer decided to deliver the class to all students simultaneously, instead of arranging separate classes. The literature refers to this approach as a 'hybrid classroom'. Although, compared to other methods, students believed this was a successful model of delivery, some students attending the class virtually experienced tensions associated with the fact that they could not hear other students attending the class physically as they were more inclined to speak to the lecturer in the classroom rather than to the Zoom platform.

Other tensions included the availability of pre-live session material and timetabling, and the availability of necessary information that could influence decision-making with respect to attending classes face-to-face in a blended learning environment.

All students identified benefits regarding the tools used in both an online and blended learning environment, such as those associated with Zoom/Zoom breakout rooms, Padlet, feedback mechanisms, Moodle/Moodle Books, and discussion forums. Some students believed that the 'breakout rooms' imitated face-to-face interaction which allowed them to undertake group activity, with the fundamental difference of the activity occurring online. They also appreciated the "*variety included in the course overall*" (Student 3). For example, some modules relied heavily on pre-recorded material, while others consisted of designing Moodle Books that included a range of different activities. Furthermore, Padlet and discussion forums allowed students to discuss their thoughts with their peers and undertake "*a mini research on a thought-provoking question or topic*" (Student 4).

Having said that, tensions were evident in terms of break-out room student composition and the non-contribution of some students. Nevertheless, the opposing argument here is the advantage of working with students with different skill sets, abilities, background, and experience, in order to enhance skills and challenge students further [7]. This also raises the significance of the lecturer role in facilitating discussions in break-out rooms.

Tertiary Contradictions

A number of students stated that they preferred to attend classes face-to-face due to the ability of going to the University Library or the ability to speak to a lecturer on a one-to-one basis straight after the session, which was not possible when classes were conducted online as a lecturer, for example, would 'end the session' immediately when the class ends. One solution students stated is requesting the possibility for instructors to say to students that they will be available at the end of an online lesson for 5–10 min for any queries. This strategy, although it may create further tension from the perspective of the lecturer (e.g. if they need to deliver another class immediately after the session, workload issues), is perhaps an attempt to imitate face-to-face delivery or aid in the transition.

Furthermore, some students mentioned that the blended learning environment provides them with a high degree of flexibility [9] in terms of reviewing pre-recorded lectures and materials. However, despite this feature being considered as an advantage, some students recognised this as a challenge because it removes the structure that would have normally been present if courses were delivered face-to-face (i.e. traditional learning settings). In addition, this meant that student motivation and engagement were dependent on deliverable deadlines as blended and online learning created an illusion that students could review materials at any time rather than studying/ working regularly. To resolve such an issue and provide structure to students, a lecturer "*could request timetabling to add a 'lecture' slot in student timetables*" (Student 3), where students will be able to view the pre-recorded material at that time. This also highlights that there is a need for students to understand the set-up of a blended and online learning environment and all components (e.g. lecture materials, quizzes).

Quaternary Contradictions

There is a debate regarding whether student cameras and microphones should be switched on during classes. While some students thought that it was necessary to have "*at least microphones on*" (Student 9), as it facilitates collaboration, interaction, and engagement, others believed that it would be "*inconsiderate to force such a rule*" (Student 5). This is because there are many reasons as to why students might not be able to switch on their cameras and/or microphones, and it is inappropriate to assume that their 'home' environment is the same as a face-to-face classroom environment [4].

According to Bednar and Welch [36], change does not only involve technological adoption or changes in an organisation, but also involves the disruption of work and community. Consequently, subjects need to 'control the process of transformation', and re-create and revise their perceptions and understandings to positively impact all those concerned in the activity system. Smart working offers a number of benefits that go

beyond saving on fares for commuters and accommodation costs. However, it is crucial that these benefits are communicated across the organisation in order to support meaningful practice.

It is noteworthy to emphasise that these tensions do not only depend on the nature of the delivery, but also on the 'type' of class being delivered and the nature of module undertaken (i.e. a technical module/topic, where students are learning a software/application, or a more theoretical module based on theory and case studies).

6 Conclusion, Limitations, and Future Research

With the number of blended and online learning courses and programmes continuing to increase [4–6], lecturers will need to be aware of the tensions and contradictions, or 'challenges', students experience in both forms of learning environments in order to improve the student learning experience. This research has highlighted several contradictions occurring at various levels of the activity system, and illuminated a wide range of student motivation that drive attendance and engagement. Our findings reinforce Engeström's [1] argument that an activity is a historically, socially, and culturally contextualised phenomenon. We argue that motivation is a dynamic entity, influenced by a number of contextual and situational factors (e.g. peer support, the lecturer, task, etc.), and students will most likely exhibit various degrees of the motivation continuum [23] throughout the semester. However, it is important to note some students may demonstrate similar behaviours on the surface, but on a deeper level, the object is meaningful in different ways, as explained and suggested by Argyris' [35] theory-in-use and theory of action espoused. We also emphasise the significance of managing student expectations as they are influenced by the socio-cultural environment and norms and were found to impact student motivation underlying attendance to, and engagement in, classes.

Although all students recognised that blended and online learning environments offer them a high degree of flexibility, almost all noted that this removes the level of structure that would have normally been present in a fully face-to-face environment. Hence, students appeared to prioritise certain tasks based on deadlines rather than regularly studying/ working, which in turn drove their motivation and engagement. An unexpected finding in our research is that students did not mention the importance of pre-recorded videos, but instead reported that their engagement was associated with the interaction in the class and that they highly valued classes that involved a high degree of interaction, even if no pre-material was provided for them to prepare.

Based on our data and analysis, we propose an extension to the discussion offered by Moore [17] and Hillman et al. [18], highlighting entities, and the relationship or 'type of interactions' between them, that influence blended and online learning activity systems (Fig. 4).

The limitations of this study include the sample size used and the focus on the context of a single course, during one semester. Therefore, research should continue to investigate these areas, further extending the sample to not only include students, but also lecturers in order to capture a full picture of the activity. This could ultimately lead to the identification of entirely new, or possibly, overlapping tensions in the activity system. In addition, it may be beneficial to extend the interviews to a larger cluster of

students (from different courses and disciplines) to provide better insights and allow comparisons. By understanding the learning and engagement process, lecturers may be able to enhance the quality of delivery in blended and online learning environments.

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