Learning in a mediated online environment

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Abstract: The research described here uses three interconnected studies, which investigated students' use of e-mail discussion lists. The contributions from the study have both procedural and conceptual dimensions. The procedural contributions identify and illuminate sets of pedagogic practices that are presented as a means by which online learning environments might be improved. Conceptual contributions are those that have been identified as elaborating the kinds of interactions and activities that are likely to either secure or frustrate learning. A number of current beliefs were also confirmed. The findings have implications for teaching and learning through pedagogic practices that underpin online learning arrangements.

Keywords: mediation; online learning environments; e-mail; pedagogy.

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1   Introduction

This paper integrates and synthesises findings of a study into online learning environments. Online learning is a 'hot topic' (EdNA, 2004) that has proponents, adversaries and spectators. In diverse ways, the research effort to date into online learning has attempted to identify the potential of online learning arrangements for facilitating learning. This paper contributes to and extends the contributions of this earlier work in ways that are distinct and may well represent a fresh analysis of elaborating and evaluating both online learning environments, specifically the use of e-mail discussion lists, and their pedagogic properties.

The paper commences by presenting an overview of the activities that comprised the conceptual and practical inquiries constituting this research (Ruth, 2004). The purpose

of the study is presented, followed by a succinct summary of the research processes. The proposed procedural and conceptual contributions are advanced. A synthesis of contributions is presented and the implications of these findings are then discussed. The paper concludes with some suggestions for potential studies that could follow from and expand on the findings of this investigation.

The research proposed that student-teacher and student-student interactions must be fostered in order for effective online learning to occur. The specific focus of this investigation was on how asynchronous communication technologies, such as e-mail, contribute to an interactive learning environment in particular ways that have generated particular kinds of pedagogic practices and which facilitate rich learning. This underlying argument requires greater understanding of relationships and outcomes between and among humans and nonhuman artefacts than has previously been available. The research was initiated by a concern that, despite the widespread uptake of online learning within higher education, there was insufficient empirical evidence that the kinds of communication processes and pedagogic properties inherent in electronic networking were fully understood. In other words, the investigation sought to establish what pedagogic principles apply to the use of e-mail discussion lists within online learning environments to secure effective learning.

This investigation therefore sought to determine what new understandings could result from stepping outside the roles of 'advocate', 'acceptor' or 'refuser' (Heidegger, 1977) in order to understand, in greater depths, the basis for and means by which students interact and engage in activities for learning in online learning environments and the degree to which these contribute to rich learning outcomes. Questioning the use of technology has led to new ways of understanding online learning – its physicality, its potential and its role in education in the future. The research addresses the question of "what is involved, when we say what people are doing and why they are doing it?" (Burke, 1969).

In order to understand the pedagogic possibilities of engaging and interacting in an online learning course of study, the elements of and relationships among Burke's Pentad (i.e., scene, agent, act, agency and purpose) were deployed to analyse how online learning environments, with particular focus on asynchronous communication, work for the student and the teacher, and assist in the identification and establishment of pre-conditions that must be met for teaching online to result in learning online.

1.1 Description of the pentad

Burke's (1969) dramatistic analysis using the Pentad is proposed as a valuable methodological tool for investigating how concepts within learning theory offer an understanding of electronically mediated learning. Using a Burkean methodological frame allows specific attention to, and elaboration of, individual elements such that any discussion of learning (what is done – an act) cannot proceed without attention to scene, where people are learning, in tension with one or more pentadic elements, who they are, how they are doing it or why. Burke (1969) proposes five terms or pentadic elements that assist in understanding this central question above. These elements contribute to our understanding of the interactions students engage in and how learning progresses through these interactions.

> "Act, Scene, Agent, Agency, Purpose … any complete statement about motives will offer *some kind of* answer to these five questions: what was done (act), when or where it was done (scene), who did it (agent), how he did it (agency) and why (purpose)." (p.xv italics in original)

While each element can be used to describe in detail what we refer to as a 'learning environment', Burke elaborates this through the tensions that are manifest between the elements. Different combinations of pentadic elements, particularly in dyads, (two interrelated elements), provide more a comprehensive analytical frame than many other frameworks.

Burke (1969) describes a number of these pentadic interactions, particularly the scene-act, the scene-agent, and the act-agent ratio in order to elaborate how each element interacts with others. These interactions are important, because similar acts may be undertaken for different purposes and indeed by different agents.. In terms of the scene-act ratio, the primary concern is, in effect, that the 'scene is a fit 'container' for the act' (Burke, 1969 p.3), in other words, whether the scene reflects, and provides space for, the act. More specifically, the act cannot occur outside its scene (whatever that scene may be) or else is modified and no longer constitutes the same act. Further, Burke utilises the militaristic maxim 'terrain determines tactics', meaning essentially that the 'scene' (terrain) allows certain 'acts' (tactics). In terms of a mediated environment, some acts have no form or possibility outside the environment. For example, sending an electronic message is premised on a mediated environment. This maxim (terrain determines tactics) and Burke's use of it essentially dictate that the possibilities of what an individual can do is, in part, bounded by what is available and doable within the particular setting. Thus, a student in a class (i.e., agent in a scene) may not be able to ask nor answer 'authentic' questions (Nystrand, 1997, p.38) due to the rote nature of learning encouraged in some situations or some other feature of the environment. Likewise, asking and answering questions in a textually mediated environment takes on different characteristics, which lack the spontaneity and immediacy available in a co-physical environment. This is because delays in inter-personal interactions occur which may disrupt the flow of conversations and, when individuals are not co-present, the social cues of body language and facial expression are absent.

The power of multiple perspectives, such as found in interrelated elements is an explicit statement of the concerns that centre on a consideration of learning mediated by text in an online environment. This consideration proceeds from the assumption that no single perspective can provide the kind of analysis required to begin to comprehend students' participation in online learning environments.

2   Interconnected studies or mediational means of research

The practical investigation comprised a case study framework of three interconnected studies, which investigated students' use of e-mail discussion lists (for full details see Ruth, 2004). The first study incorporated and analysed data measuring participation in quantitative ways. It established the rates at which students participated in ten courses with an online component (either complementary to or substituting for face to face interactions) at an Australian university. The study permitted the selection of four courses for further investigation. This selection was based primarily on the volume of e-mail, that is, the total number of messages sent to each list, and the proportion of enrolled students

who subscribed to the list. This process secured four very different lists for analysis in the subsequent two studies.

Study Two incorporated qualitative data about learners' interactions in the form of the messages sent to the four e-mail lists in the courses selected for investigation in Study One. Messages were categorised by sender, time, date, and other descriptive features and were then analysed for their purpose as well as other communicative features. This study began to elaborate the activities and interactions students engage in, in an online learning environment, through the use of Burke's (1969) Pentad.

Study Three was a survey of subscribers to the four lists. The survey addressed issues associated with interactions such as the respondents' perception of the lists, their frequency of engaging with the list and a set of questions concerning their communicative abilities. The survey highlighted the students' perceptions of the environment and in some ways, their intentions and purposes for being involved in the online learning environment.

Collectively, the three studies permitted a deep exploration of what constitutes participation in an online learning environment, the kind of interactions that occurred and elaborated the pedagogic properties of these four courses. The investigation is contextualised within sociocultural theories and utilises Burke's Pentad to elicit understandings of motives for engaging in online learning environments.

3 Contributions to learning

Although not advanced as a set of generalised principles, the contributions from the study of the four courses and the students who participated in them can be seen as having both procedural and conceptual dimensions. The procedural contributions can be seen as identifying and illuminating sets of pedagogic practices that are presented as a tentative means by which online learning environments might be improved. These include attention to the framing of the environment (in this case, e-mail discussion lists) and a rethinking of active learning within an environment not conducive to high levels of participation by all students (vicarious interaction). Conceptual contributions are those that have been identified as elaborating the kinds of interactions and activities that are likely to either secure or frustrate the learning of targeted knowledge, as well as the processes through which these interactions were identified. These include a rethinking of Vygotsky's Zone of Proximal Development and an agentic view of learning. A number of current beliefs were also found to be confirmed. The findings have implications for teaching and learning in the form of pedagogic practices that underpin online learning arrangements.

3.1 Framing

Framing, that is the way the course is presented to students, appears to be highly influential on the evolution of the focussed use of lists by students during a semester. The term framing was used to denote the parameters of the scene that comprises the discussion lists and also the activities that are considered appropriate in directing learners to engage with the knowledge to be learnt. The framing sets the boundaries for what is possible and allowable within the learning environment. Extensive positive framing appears to have a positive effect on the students engaged in the learning environment.

Positive framing included information such as "The mailing list provides a forum for discussion about <course content>. All students are expected to subscribe to this list". This was found to be more conducive to participation than describing it as a 'self-help' group and suggesting "Why not subscribe to the list and join in the discussions?"

It is noted in this study that the types of interactions favoured by students tend to revolve around course-specific objectives. That is, their learning activities were focused on achieving the course objectives and gaining a pass mark for the course. Thus, gaining help (i.e., working towards a 'pass' mark) for both novices and more advanced students can be a specific form of assistance that students require. 'Framing' essentially identifies that specific acts are allowable and thus intended for learning. It can assist in creating a setting that can guide students towards the intended learning outcomes.

The framing of lists appeared to influence both the number of participants who engaged in the environment and the number of messages that were facilitative of learning. This suggests that framing is one of the more influential aspects of the environment upon student participation. That is, it offers a way that ensures the effectiveness of what is essentially an independent learning process.

However, because students engaged in electronically mediated environments necessarily exercise autonomy and agency in directing their learning-related activities, the program design and enactment needs to guide the students' activities through effective framing. Thus, framing should seek to guide and assist students' engagement in activity towards the targeted learning.

3.2 *Vicarious participation as a pedagogic act*

The types of interaction were analysed in terms of the agent's level of participation. Full participants were those students who read and posted messages as well as responding to other students' messages. On the other hand, some participants interacted vicariously by browsing messages, either awaiting answers to questions that had already been posted or searching the collected messages for information about their current problems. As a result, their learning was supported vicariously through their observing activities of other students (that is, co-agents). In effect, they employed a form distal interaction and participation, rather than being central participants. These individuals for whom interaction is more with the artefact than with their peers thus displayed a variety of interaction that has been seen as less valid and, indeed, not part of the learning environment (Graham and Scarborough, 1999), particularly where participation equals performance and visibility equals presence. Moreover, those participating more fully are *seen* to be engaging in the kinds of cognitive activities that are likely to be conducive to developing rich learning. However, Hatano and Inagaki (1991) and Sutton (2001) describe vicarious interactors as capable of learning from sitting on the sidelines. In this research, it was found that the vicarious interactors gained significantly from this form of engagement, particularly when similar questions arose for multiple students and many students regarded multiple postings of these questions as negative.

Thus, the research suggests that the browsing style of interaction (alternatively known as 'lurking') as exhibited by non-participative students establishes them as part of the scene, and that browsing messages is a legitimate and active form of pedagogic practice. This is important because non-participative students, while not visibly contributing in the form of posting messages to the list, are nevertheless actively constructing knowledge based on the interactions of other students. Many of the students were aware of the

different ways of enacting participation as either interacting directly with peers and tutors, or interacting indirectly. This was posited as being similar to Lave and Wenger's (1991) notion of peripheral participation where individuals interact in "multiple, varied, more- or less-engaged and -inclusive ways".

The relationship that students who interact vicariously have with the list appears to function more with the technology as mediator than technology as facilitator. This means that rather than the technology facilitating contact between peers, the technology functions to come between the individual and their peers; the screenface (Ruth, 2005) becomes opaque. This relationship is more complex and perhaps incorporates a distinct form of negotiation by the vicarious interactor with the technology. This may relate to Wertsch's (1998) discussion of mastery and/or appropriation, whereby vicarious interactors may have mastered the technology, but not appropriated its value. For some individuals in the study, the technology took on a more transparent role in their interactions, the layers of mediation, in effect, merging into the screenface in a seamless meld of technology. For others in the study, the layers of mediation (e.g., the agent acting in the role of learner, with previous experiences of learning acting with a computer connected to the Internet providing access to learning material) were less transparent, and thus disrupting for them.

Regardless of how vicarious participants interacted, whether by reactively awaiting answers to questions or actively searching the accumulated messages, they reported gaining in their learning from utilising their own particular learning patterns within the online environment. With each successive engagement, these individuals progressed through a process of 'participatory appropriation' (Rogoff, 1995, p.142) that is, it prepared them for subsequent interactions and activities associated with their intended learning but still within their own zone of learning capability (see next section).

As a consequence of the research, vicarious participants are seen as affecting their own development through a kind of epistemological action that is supported by others' contribution to the e-mail discussion list. In this way, the artefact comprising the e-mail list provides an ongoing form of mediation, which is accessible to learners. This finding has analogies elsewhere. As Biggs (1996) has reported, despite the apparently passive classroom behaviours of students from Confucian heritage cultures, they are still able to learn richly and deeply. Biggs' (1996) findings were used to suggest that it was clearly a mistake to believe that only through the kind of engagement that is privileged by Western schools (i.e., students actively engaged in problem-solving tasks) could rich learning be secured. Indeed, he showed that learning through apparently passive engagement with knowledge could result in rich learning. Here, an analogous finding is revealed: the actions of vicarious learners in their peripheral form of participation and use of available artefacts provide a pedagogic practice that can render rich learning outcomes.

Vicarious strategies of engagement may well be as conducive of rich learning outcomes as more apparently active and engaged forms of interaction. That is, desired learning outcomes can be achieved through diverse forms of interaction, with different levels of apparent activity playing particular roles depending upon students' readiness or need.

3.3 *Zone of learning capability*

Laurillard's (1993) conception of teaching at tertiary level was presented as a conversation between agents – teachers and students. This kind of knowledge

co-construction was a strong feature of the discussion lists and is indicative of the 'serious epistemic roles' (Nystrand, 1997) that students need in order to engage in deeper learning activities. Deeper learning activities involved in conversations are an indication of a shift, from teachers to students (Piburn and Middleton, 1998), in the accountability for constructing knowledge. Students may then become engaged within their Zone of Learning Capability, which is analogous to Vygotsky's (1978) 'Zone of Proximal Development'. However, in the Zone of Learning Capability the student is enabled to take the actions necessary to facilitate their own learning rather than being led to a pre-determined point of knowledge. It emphasises students' epistemic motivation and agency. Epistemic motivation, or the desire to know (Hatano and Inagaki, 1991), is central to understanding the Zone of Learning Capability, because the Zone of Learning Capability describes the motivation to learn rather than a state of development of skills or knowledge. In this study, it was found that students' multiple ways of working provided insight into the range of techniques that students used to facilitate their learning, that is, that many students involved in the discussion list took actions that facilitated their individual learning style.

Conversations are distinct patterns that occur within an online environment (Kear, 2001) and their presence is indicative of participants' desire to learn. Consequently, conversations need to be fostered through the mediational form that is employed to connect students to their peers and teachers. However, although learning may arise through conversations, there can be no guarantee that the kind of learning that will occur would be directed to the learning targeted by or intended in the course. A teacher in face-to-face situations may be aware of the ebb and flow of interaction between students, between those for whom the Zone of Learning Capability is small and those for whom there is a greater leap to achieve the construction of knowledge required to be learnt. Conversations are central to this developmental process, as highlighted by Laurillard (1993) above, because the interplay between questions and answers through which conversation is manifest visibly displays the co-construction of knowledge between participants. Dialogicity through conversation is central to students' ability to engage in knowledge co-construction, because meaning is continually structured and restructured through negotiation between participants. These requirements are no less important in the electronically mediated environment and may become more important because of the reduction in other social cues.

As seen in the context of this investigation, students have multiple ways of interacting with the e-mail discussion list, and these variations in the ways students interact need to be accounted for in designing and planning for an online learning environment. Therefore, while it may appear important to manage and direct the students' interactions to the kind of learning activities that can support the achievement of the intended learning goals, students who do not engage at this level may still be 'actively' participating in knowledge construction, within their zone of learning capability.

Individuals as agents engaging with artefacts and peers can extend the concept of Vygotsky's Zone of Proximal Development. Therefore, this concept is not restricted to something that is the province of and requires the support of a more expert other. Instead, the individual as active agent working distally with artefacts and peers is able to extend the scope of the potential learning to their Zone of Learning Capability.

3.4 Influence of agents

It was found that although the success of an online learning environment depends on the agents, these must include both students and teachers who create a pattern of participation and engagement through their presence. Hayles (1999, p.29) describes this as "an epistemic shift toward pattern/randomness and away from presence/absence". The pattern emerges in the interactions and the messages sent between co-agents: that is through conversations. The presence of an agent is mediationally constituted by their interactions. So for instance, the 'dedicated' tutor and/or student who posted numerous messages to the list was visible in the environment and consequently shaped the interactions. The online learning environment has personal-dependent dimensions, and the characteristics of independence and interdependence of online learning environments suggest a strong emphasis on the individual and their agency in accounts and evaluation of the success of online learning environments. Thus, students who were interacting (i.e., asking questions) created the learning environment through their interactions. Teachers, therefore, were reported as being highly visible to the students, who actively sought out patterns such as status hierarchies in the messages with which they could interact. There was, in the study, often more value placed on the teacher's messages than those from other students. The teacher's presence is perhaps more important because their pattern, their interaction, is potentially more facilitative of learning. The students' perception of the activity of teachers on the list appears to be influential in their (students') negotiation of the learning environment. For instance, both seeing messages from the teacher and knowing that a reply is highly probable may induce students to seek answers to questions they have through the list.

The variation between the ways in which teachers participated directly influenced the success of the discussion list and students' perceptions of the learning potential. A higher level of teacher interaction enhanced the epistemic authenticity of the learning environment and the co-construction of knowledge through the dialogicity that is made available to students within the learning environment.

Because the presence of individuals was only evident in the messages they sent, vicarious interactors may not appear to be present on the list. However, many of the students recognised the diverse ways of interacting with the discussion lists and the impact that would occur with equal participation by all students. Thus, the various ways of interacting that the students exhibited were facilitative of their relationship to the learning environment, rather than being a deluge of interactive possibilities that could potentially overwhelm students with too many options. The agent in a virtual scene became a vague concept because of the mediationally constituted presence discussed above. Consequently, a vague teacher presence, as was evident in the 'self-help' discussion lists, negates much of the learning potential for students. For students, teacher presence exists to provide assistance with problems that may be outside their Zone of Proximal Development where they need assistance to reach the solution, but within their Zone of Learning Capability where they can ask questions to assist in reaching a solution. A teacher, whose presence is minimal, was shown to impede the learning processes of these students. Indeed, success of these online environments was dependent on the agents, both teachers and students, although teacher influence was reported to be greater.

Given the nature of online learning arrangements, the pedagogic practices of the learners are centred more on their readiness and capacities as they enact these arrangements, than on those practices intended by designers and teachers. Hence, the

concept of pedagogy here resides as much within students' activities as with those who design and enact arrangements with specific intentions for electronically mediated learning courses.

3.5   Confirmation of current beliefs

That these students took advantage of the 'anywhere/anytime' potential of online learning environments emphasises the potential utility of online learning as a highly accessible pedagogic practice. Students were able to engage by sending messages every day of the week and every hour of the day. For the majority of students, access to the learning environment was from their own home computer, but also from university, their workplace and friends' computers. This means that students are working in an essentially familiar space, one that they may appropriate and make their own. This further facilitates their appropriation of the technology and of the learning environment.

The artefact comprising e-mail discussion lists constitutes a significant form of scaffolding that students can access at will, and for relational purposes according to their particular needs at a given time, including their readiness. This form of scaffolding takes learning guidance beyond interpersonal interactions, and acknowledges human-artefact interactions as a form of proximal guidance.

Students who subscribed to the discussion lists also demonstrated higher rates of successful completion of their courses than those who did not subscribe. Thus, participating in an online learning environment *is* predictive of learning the kinds of knowledge that are assessed through courses. There is a positive influence of subscription in terms of completing and passing courses and getting help with assignments, with a greater proportion of subscribed students passing than non-subscribed students.

Further, those students geographically and/or temporally separated from the university, that is students who enrol in external mode because of distance or time constraints, appeared more likely to be subscribed than students co-located. This means that the perception of online learning environments as equivalent of distance learning appears to have some foundation, although they offer greater scope than simply providing opportunities for external students. The provision of an online learning environment for these externally enrolled students has a positive effect on their ability to interact with their peers. Therefore the findings of the study go a long away to support existing knowledge about online learning. Yet, more than simply confirming what is known, the study identified new bases from which to consider online learning.

While active engagement with learning materials, peers and teachers is associated with rich learning, there are different kinds of engagement other than generating and answering questions that can lead to rich learning outcomes. So the principle of engagement for different purposes at different times stands, but is extended.

4   Future directions

Beyond confirming many current beliefs of online learning, this investigation has contributed to the growing understanding of online learning environments. Five core areas, each related to one or more of the principal findings listed above, are identified as requiring further inquiry.

4.1 Elaboration, illumination and analysis of learning environments

As already highlighted, Burke's Pentadic Analysis provides a solid foundation for analysing online learning environments and provides the kind of comprehensive analysis necessary for the further development of pedagogically sustainable learning processes. The Pentad's elegance provides a simple heuristic for analysing processes that are central to learning activities. The holistic nature of the Pentadic elements ensures comprehensive attention to components of the learning environment that may be neglected using other frameworks. Potential studies following from this one include similar analyses of online forums and of electronic systems that are used to manage learning (i.e., Blackboard). These analyses may find similar patterns to those found here, although the implications for students may well be fundamentally different. These differences and similarities may provide bases for the effective implementation of a learning environment for specific disciplines and diverse student groups. Focuses for the future include conducting similarly framed research on learning environments offered by other institutions, that rely more heavily on proprietary software. These analyses may further extend understanding of online learning environments.

4.2 Learning as agentic positioning

As demonstrated by this research project, learning environments impact upon student outcomes and student perceptions of the environment. Teachers' influence on shaping outcomes for students through the framing of the learning environment accounts for and emphasises adults' abilities and their need to act agentically in facilitating their learning. Understanding the full implication of 'framing' on learning requires approaches from both the teacher's and the student's understanding. Participatory practices of students are diverse and as such require investigating and elaborating. As elaborated here, teachers use participation and interaction interchangeably and yet student perception appears to view these activities as very distinct. Agentic positioning allows individually constructed understanding of activities to be elaborated within the context of a particular environment and its framing. Investigating agentic positioning, that is the interaction between the intended use of an environment and the enacted use by various agents, requires elaboration of each agent's perceptions. Focuses for the future include elaboration of teacher purposes for mandating 'participation' and the consequences arising from the enactment of those intentions.

4.3 Redefining active learning

Vicarious learning and its role in mass produced educational endeavours requires detailed exploration. Hatano and Inagaki (1991) and Sutton (2001) have commenced this process. However, with the realisation that not all students engage similarly through outwardly active learning comes the potential to harness greater diversity of learning resources. There may also be impacts upon the demands of teachers through recognising that participative patterns of students are diverse. Increasing awareness and deeper appreciation of the distinction between outwardly active learners and vicariously active learners is yet to be developed. Future research needs to incorporate this awareness and appreciation towards redefining 'active learning' to include those individuals who are 'vicariously' active.

4.4   Zone of learning capability

The zone of learning capability, as a form of active learning – in both outwardly active or vicariously active forms, requires detailed investigation. Vygotsky's Zone of Proximal Development has provided rich research concerning social learning. However, much of this relates to childhood development although the concept has been equally applied to adult learners. The Zone of Learning Capability, postulated here, may prove a valuable addition to understanding learning processes, particularly for adult learners. Testing the limits of the Zone of Learning Capability is another area yet to be fully explored. As the zone of learning capability is more descriptive of motivations to learn than ability or development, it appears a more personally agentic view than Vygotsky's Zone of Proximal Development. Future focuses for research include developing a deeper appreciation of how adults approach learning situations and how this influences the activities in which they engage. Such research will need to be related to agentic positioning and to the redefined understanding of active learning.

4.5   Learning with/against technology

The screenface (Ruth, 2005) is currently an underdeveloped concept, yet is central to electronically mediated learning. Further research, perhaps best accomplished through a phenomenographic approach with individuals of various skill levels, may provide insights into ways individuals appropriate, master, accept or reject information technology. The screenface represents the individualisation of the interface, at once both transparent and opaque. The screenface and the interfaces to programs are interrelated aspects of computer use. In much the same way that teaching and learning are interrelated activities, the screenface and the interface are interrelated views of computer use. Further focuses include the elaboration of the computer as multi-tool, one that can accomplish many tasks, rather than a simple tool that is used for only one or two tasks. This focuses the research effort on the screenface because this is 'where' an individual interacts with the computer. Individually appropriate understanding of technology will likely evolve from these efforts.

These areas provide possibilities for further understanding the dialogical and pedagogic benefits of these and other environments. The contributions of this research commence this development of understanding the dialogical and pedagogic properties of online learning environments and contribute to understanding the broader learning needs of individuals within higher education.

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