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Abstract

2018 Elsevier Inc. This article combines a sociocultural model of classroom talk with a linguistically-oriented model (systemic functional linguistics) to explore what characterizes effective asynchronous online discussion in higher education (HE). While the benefits of discussion are commonly accepted in face-to-face learning, engaging students in effective asynchronous discussion can often be 'hit or miss' due in part to the shift to interacting asynchronously. This hybrid mode of spoken-like/written-like communication demands skills which are rarely made explicit, often with the assumption that students (and lecturers) are proficient. The combined framework presented here enabled macro- and micro-understandings of discussion forums through an array of resources in the SFL model and the talk type descriptors to map linguistic features of knowledge constructing talk in an Australian postgraduate HE context. The notion of 'listening' (or attending to others) is proposed as a crucial condition for whether discussion progresses beyond simply 'posting'. Consequently, this article provides much needed insight into the murky space of asynchronous discussion forums.

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Abstract

This article combines a sociocultural model of classroom talk with a linguistically-oriented model (systemic functional linguistics) to explore what characterizes effective asynchronous online discussion in higher education (HE). While the benefits of discussion are commonly accepted in face-to-face learning, engaging students in effective asynchronous discussion can often be 'hit or miss', due in part to the shift to interacting asynchronously. This hybrid mode of spoken-like/written-like communication demands skills which are rarely made explicit, often with the assumption that students (and lecturers) are proficient. The combined framework presented here enabled macro- and micro-understandings of discussion forums through an array of resources in the SFL model and the talk type descriptors to map linguistic features of knowledge constructing talk in an Australian postgraduate HE context. The notion of 'listening' (or attending to others) is proposed as a crucial condition for whether discussion progresses beyond simply 'posting'. Consequently, this article provides much needed insight into the murky space of asynchronous discussion forums.

Keywords: asynchronous discussion; co-constructing knowledge; effective online discussion. Systemic Functional Linguistics; talk types; higher education

1 Introduction

The exponential growth of online learning options has been a boon to higher education (HE) where flexibility and convenience has enabled wider participation for increasingly diverse students than would be possible with face-to-face delivery alone. However, the rapidity of uptake of technology-enhanced learning in HE has raised concerns about the ease with which students can ‘connect to learn’ while equivalent shifts in pedagogical practices may still be lagging (Haythornthwaite & Kazmer, 2004; Goertzen & Kristjánsson, 2007; Salmon & Angood, 2013). While the ‘anywhere, anytime’ mode of delivery can attract interest from prospective students, this may have implications for the sociality of ‘learning to connect’, or the opportunities to develop a sense of belonging to a learning community through quality in relationships between group members who may never (physically) meet. How individuals perceive these relationships and their social positioning therein can influence their level of commitment to the community, resulting in either connecting or isolating effects (Delahunty, Verenikina, & Jones, 2014). The opportunities for building relations arise through effective and knowledge constructing interactions, in which negotiation of identities (i.e. who we are and what we do) and forming social alignments are seen as part of the learning process. This also highlights a paradox of ‘flexibility’ – that it provides just as many opportunities *not* to engage with others as it does to engage (Hughes, 2007).

Learning online occurs in a space where the potential for interactivity is disrupted by the mode of delivery (Wegerif, 2013). Terms such as ‘read-only participants’ or ‘lurkers’ tend to put the onus for engaging onto students, which raises questions of what is appropriate for online learning (Salmon, 2005) and, of particular interest for this article, the role of interaction for engaging learners from a range of different backgrounds who choose to study online. In terms of learning as a transformative social practice however, ‘lurking’ type behaviour problematizes the quality of the collective learning experience and can have a ‘profound effect on both collective thinking and individual thinking’ (Mercer & Howe, 2012, p. 13).

Developing learning communities in online contexts relies on interaction, and a lack of interaction can hamper the forming of social relationships. Interaction has been demonstrated to have multiple benefits for the online learner: it is important for reducing feelings of isolation that arise from being physically and geographically separated (Rovai & Downey, 2010, p. 145); it promotes an atmosphere of inquiry and application of new understandings (Garrison et al., 2000; Garrison & Cleveland-Innes, 2005; Garrison, 2007); it provides opportunities for negotiating identities (Ivanič, 1998; Hughes, 2007; Kwon, Han, Bang, & Armstrong, 2010; Delahunty, 2012) and for negotiating stances (Delahunty, Jones, & Verenikina, 2014). Interaction in online learning contexts can also influence student motivation (Vonderwell & Zachariah, 2005), confidence (Herrera, Mendoza, & Maldonado, 2009), satisfaction levels (Palmer & Holt, 2012), and the rate of attrition (Stone, O’Shea, May,

Delahunty, & Partington, 2016). Asynchronous interaction has been shown to be most effective when learners participate in mediated discussion and meaningful activities (Delahunty, Jones & Verenikina, 2014). Arguably, when interaction forms the social practice of a learning community, an improvement in the quality of the learning experience should also be expected.

1.1 Complexities of asynchronous discussion for sociality and learning

From a sociocultural perspective, learning is intrinsically social requiring the active involvement of both the more and the less experienced when negotiating new concepts. However, the reality for adults participating in online learning contexts, often juggling other commitments as well as study, is that asynchronous discussion can seem an extra ‘burden’ for which they may not have the time, energy nor the inclination to sustain (Exter, Korkmaz Harlin, & Bichelmeyer, 2009), particularly if it does not appear to directly benefit their learning of the content (Owens, Hardcastle, & Richardson, 2009).

Developing a social space in which online learners gain a sense of belonging and feel enabled to co-construct ideas is no easy task, and effective asynchronous discussion can be elusive. This may be due to inappropriate task design (Kreijns, Kirschner, & Jochems, 2003), mandatory participation requirements (Arend, 2009), or risk aversion by educators towards implementing new technologies (Howard, 2013; Kreijns, Vermeulen, Kirschner, Buuren, & Acker, 2013). Motivation to participate can also be influenced variously by previous educational experience (Bonk & Kim, 1998), individual-focused learning goals (Owens et al., 2009), assessment weightings (Pelz, 2010), or visibility of the instructor (Lapadat, 2007). In addition, the *kind* of talk which unfolds in discussions can affect participation (e.g., long monologues, inappropriate academic style, lack of audience awareness), often with uncertainty about how written-like or spoken-like language should be in this ‘hybrid’ mode of discussion (Lander, 2014, p. 50). Even so, asynchronous forums are the preferred method of discussion for educators in higher education due to the ability to revisit, reflect on and revise writing, resulting in responses which are usually more carefully crafted than those in synchronous modes (Mancilla, Polat, & Akcay, 2015; Kim, Park, Yoon, & Jo, 2016). Among other things, interactions need to be purposeful and relevant as well as require an atmosphere where new understandings can be mutually and ‘safely’ negotiated with a degree of communicative expertise. These combined factors form the focus of the analysis presented in this article, which aims to explore the complexities of meaningful asynchronous discussion through which interpersonal relations are enacted simultaneously with co-constructing knowledge.

Language and ways of communicating effectively are complex. Sociocultural approaches consider the role of language in learning as *first* a social function before becoming internalized as knowledge, skill or understanding (Vygotsky, 1978). As social function, language is a semiotic tool for making meaning through which we

construe our experiences in the world while simultaneously enacting social relations with those with whom we are communicating. Whether spoken or written, language constructs our world, being at one and the same time a *part of reality*, an *account of reality* and an *image of reality* (Halliday, 1989, p. 98) (*italics added*). Many years later Halliday described language as ‘the most complex web of meaning we know of’ (2009, p. 60). The social function of language in face-to-face interactions is often taken for granted; however, when discussion shifts to asynchronous modes, reduced opportunities for interactivity and immediate feedback present challenges for engaging in discussion effectively, in which reciprocity is seen as fundamental to the quality of relationships and helps to develop the sense of contributing to a learning community. Just as there is a qualitative difference between spoken discussion and written discussion, so too is there a difference between asynchronous ways of communicating where language is no longer fleeting as a spoken utterance, but rather becomes permanent in the written text: a conversation written down.

For asynchronous discussion to be effective, educators need to be cognizant of the complex relationship between interpersonally and experientially oriented dialogue moves and be aware of language choices through which the academic content is collaboratively negotiated. In other words, such moves entail knowing how to effectively facilitate knowledge co-construction while simultaneously enacting roles and relationships within the online group so that learners feel they are being listened to and their contributions are valued. When the social function of language (taken for granted in face-to-face interactions) is glossed over in the shift to asynchronous, the result will be ‘hit or miss’ dialogic experiences. Effective communication can often be difficult to achieve, in part because of the assumption that students *and* lecturers have adequate communicative skills, tools for negotiating intellectual content, and experience in asynchronous ways of interacting. An additional challenge lies in the incongruence of the mode for discussion - where the expectation for interaction exists, but where such communicative skills are often not made explicit. Thus, the aim of this article is to explore what characterizes effective asynchronous online forum discussion, with particular focus on how community building and co-construction of knowledge occur.

1.2 Theoretical framework

Coffin, Painter, and Hewings (2005) argue that linguistic analysis of online discussion is important for developing a knowledge of practice, particularly in the process of developing new pedagogies. For example, one aim of this article is how knowledge is built through asynchronous dialogue. Linguistically this can be analysed through *lexical* and *expansion* relations. Lexical relations are concerned with tracking ideas, such as those that unfold across the discussion texts like chains of words; they are related because they are repeated or because they have similar or contrasting meanings. Adding to this are logical relations of expansion (logicosemantic relations) - resources for describing links made *between* ideas, indicating how understandings

are expanded and hence how new knowledge is developing (or has developed) (Halliday & Matthiessen, 2014). Explicit understandings of how knowledge is co-constructed and the conditions under which this occurs is essential for informing strategies and practices that will enhance the online learning-teaching experience.

The present study used a combined framework of two complementary approaches to achieve the depth of understanding required: a linguistic theoretical perspective of language use in context – Systemic Functional Linguistics (SFL) (Halliday & Matthiessen, 2014), and principles drawn from Mercer’s three-part typology of talk (Mercer, 1995; Mercer, 2000; Mercer & Littleton, 2007; Mercer & Dawes, 2012)—disputational talk, cumulative talk and exploratory talk. Disputational talk describes the tendency for unproductive disagreement (e.g., “yes it is” – “no it’s not”) and individual decision making in collaborative activities. Cumulative talk describes uncritically building on others’ ideas to avoid “anything disruptive” (Wegerif, 2008, p 356). Exploratory talk describes “a joint form of co-reasoning in language” (Mercer & Littleton, 2007, p 62) and is ideal for maximising the joint construction of new understandings (see Appendix A). SFL will be discussed more fully in Section 2.2; however, both SFL and Mercer’s talk typology are important theoretical models for this study as they position dialogue as core to the learning process. This article builds on a previous study, which used a multidisciplinary approach to explore the role of the instructor in fostering online discussion (Delahunty Jones & Verenikina, 2014). In the present article, I focus on linguistic features in ‘talk’ types, using a range of descriptive categories available in the SFL model. The term ‘talk’ types is retained, as the focus of this article is on the nature of interaction where there is an expectancy for ideas to unfold and develop in a dynamic sense, rather than as a series of monologues (typical of written modes). Asynchronous discussion can be seen as a hybrid mode of text – dynamic and unfolding like speech, yet existing as a written artefact that is able to be revisited, evaluated and modelled. The combined framework of SFL and talk types enabled mapping of the linguistic realizations of knowledge constructing talk, which can be used to inform development of online pedagogical design and best practice.

2 The study

The focus of the present study was the asynchronous discussion forums in three units of study (or ‘units’), which are different subjects undertaken as part of a university degree course at a large Australian regional university. Forum activity in each unit was investigated concurrently over the same 15-week academic session. The purpose of the study was to explore the characteristics of ‘talk’ that had occurred in the asynchronous discussion forums of each unit. A qualitative multiple case study design was used which enabled in-depth descriptions and interpretations of each unit of study as the discussions unfolded in an authentic online classroom environment (Stake, 2006). While analyses focused on interactions in the asynchronous discussion forums, the broader research project undertook a multi-perspectival approach where the

textual data from discussions was complemented with data from interviews with lecturers and academic learning designers, interviews with students enrolled in each unit of study, and a student survey.

The present study investigated three online units from a postgraduate TESOL (Teaching English to Students of Other Languages) distance education course. Each unit of study was delivered fully online with no face-to-face component. Selection criteria for units on which to focus were identified prior to recruitment activities based on the principle of maximum variation of forum dimensions, and to ensure adequate and suitable data from the discussion forums would be collected. Essential criteria were that forum discussion be orchestrated by either the lecturer or through activities designed into the content of the unit and that there be evidence of activity in the forums. The other criteria were:

- a unit containing a forum for which there had been a lot of discussion in past iterations of the unit (whether or not the discussion is assessed or not)
- a unit where the lecturer is actively involved in forum discussions (whether or not the discussion is assessed or not)
- a unit with a lot of forum activity amongst students (even if the lecturer is not active in the discussion forums)
- a unit where the forum discussions form a significant part of assessment (with or without active involvement of the lecturer).

Only those units in the TESOL course which met the essential criteria and at least one other criterion were considered. Five units of study met these criteria, and the lecturers of each unit were invited to participate; one declined. Students were recruited from four units, however only data from three of these units will be reported in this article. The fourth unit lacked reciprocity between participants and thus provided no linguistic evidence of relationships being negotiated nor of knowledge being co-constructed. Given the limitation of space in this article, and because it became clear that forum participation in this unit was very similar to another unit (Unit S), it was decided that it would not add anything of significance and was therefore excluded from analysis. Following analysis of the data, these units were henceforth referred to as Units A, L and S. This labelling reflects how forum participation unfolded differently in each of the units, for example, in Unit A forum participation was driven mainly by *assessment* (at 40% of the total mark), in Unit L by the *lecturer*, and in Unit S by the *students*. For consistency, pseudonyms for each lecturer match the unit they facilitate, i.e. Lecturer A, Lecturer L, and Lecturer S.

2.1 The participants and data

The participants included both students and lecturers from the three units, and the study met all human ethics requirements of the university. Pseudonyms are used for

all participants. At the time of data collection, student participants were residing in various parts of Australia and around the world, such as Japan, South Africa, UAE, and Germany. There were a total of 19 participants: five students from Unit A, five from Unit L, six from Unit S, and the three lecturers.

The data from Units A, L and S contributed to understanding the impact of the different drivers of interaction on the forums, i.e. assessment, the lecturer, or students/peers. As most students were working either full-time or part-time, as well as having other commitments, different levels of participation in the study were offered in recognition of time constraints. Full participation involved consent to analyse contributions to discussion forums, completion of an online survey, and one semi-structured interview. Interviews were conducted by the researcher at the end of the semester and after results had been finalised to minimise disruption to students' learning and maintain an arm's length distance with their participation in the research. Also the researcher had no associated roles with any of the units. Interviews were via Skype or telephone and the researcher transcribed them verbatim and sent the transcript to each participant for member checking before analysis commenced. Interview questions were designed to elicit perspectives on support and connections, sense of community, and interaction on the forums, with opportunities for other comments or issues to be raised. Lesser levels of participation were offered for students to opt out of the interview and/or the survey. The data collected in this study gave considerable scope for describing the trajectories of forum participation, with partial data sets augmenting the analyses, and summarized in Table 1. Enrolments were typically small (in Units A and S a total of eight students each; Unit L a total of nine). Of the 25 enrolled students across the three units, 16 participated in this study. For the purpose of this article only discussion forum data and student interviews will be drawn upon.

Unit A (Assessment-driven forums)		Unit L (Lecturer-driven forums)		Unit S (Student-driven forums)	
Pseudonym	Participation level	Pseudonym	Participation level	Pseudonym	Participation level
Lecturer A	Full	Lecturer L	Full	Lecturer S	Full
Ben	Full	Mary	Full	Cathy	Full
Alice	Full	Amanda	Full	Jenny	Full
Vicky	Full	Will	Full	Levi	Full
Wendy	Discussion only	Paula	Full	Susan	Discussion only
Sharon	Discussion+Survey	Beth	Discussion+Survey	Rachel	Discussion+Survey
				Marilyn	Discussion+Survey

Table 1: Data collection summary: Students and Lecturers <NEAR HERE>

The researcher was responsible for all preparation of the data for analysis, coding and linguistic analyses. Excel® was the predominant software used for data storage, coding and linguistic analysis. Where necessary, the researcher enlisted the help of two colleagues who assisted with coding categories, and one who was an expert in SFL, for cross-checking and advice on any issues with analysis or interpretation. The

method of data analysis is explained in the following paragraph in more detail, but in brief this involved:

- preparing each corpus by removing non-content related posts
- identifying broad units of meaning / generic patterns (text ‘chunks’)
- coding units of meaning to talk types
- applying fine-grained linguistic analyses to language used in each talk type.

Preparation of data for analysis involved several readings of each forum corpus to identify: 1) independent posts - those which initiated a topic but had no responses, and 2) interactions between two or more people - ‘interaction clusters’, either through the mechanism of *Reply* (which creates conversation threads) or through being referred to in another, but separate, post. Posts unrelated to the content, for example instructional or administrative (e.g., reminders or announcements), were removed from the data sets. Preparation for analysis commenced from the remaining forum data, summarized in Table 2.

	Unit A Assessment-driven	Unit L Lecturer-driven	Unit S Student-driven
Corpus size	~73,000 words	~12,000 words	~13,500 words
Total number of discussion topics:			
• started	157	18	29
• <i>with</i> responses (i.e. interaction clusters)	67 (43%)	17 (94%)	1 (3%)
• <i>with no</i> responses	90 (57%)	1 (6%)	28 (97%)

Table 2: Summary of forum data statistics <NEAR HERE>

Each independent post and interaction cluster was then organised into broad units of meaning through identifying ‘chunks’ of text, adapted from Eggins and Slade’s (1997) work on conversational analysis. ‘Chunks’ involve the speaker holding the floor to tell ‘their story’, or in this instance the student or lecturer adding their perspectives to the discussion. Essentially each post to a discussion *is* taking the floor because participants can “neither interrupt nor prevent another from making a comment” (Blanchette, 2012, p. 78). Meaningful chunks can be described as segments of the story being told which entail participants’ representations of the world (experiential) and their reactions to it (attitudinal response). A shift in meaning flags the beginning or end of a chunk. Each corpus was read line-by-line to identify the units of meaning, followed by an inductive process of categorising and reflecting on how the ‘stories’ unfolded and were organised, and iterative development of the evolving categories and descriptors. Through this process, a generic structure of the online discussions emerged: a macrogenre of Topic and Mediation (for more on this, see Delahunty, Jones, and Verenikina, 2014). These were composed of stages, and for each stage a functional descriptor was developed to guide categorisation of the text chunks (see Appendix B). Stages in Topic were: (Abstract) ^ (Orientation) ^ Bridging ^ Issue ^ Evaluation ^ (New Understanding) ^ (Coda). Stages in Mediation were:

(Abstract) ^ (Orientation) ^ Instruction ^ Steering ^ (Coda). (Note: bracketed indicates the stage did not occur in every instance; ^ denotes 'followed by'). The process of categorising text chunks was important for gaining a broad overview of each of the discussion forums and for identifying a generic structure.

Analysis then proceeded to code the text chunks, as the unit of meaning, to determine the nature of talk occurring, guided by the descriptors for 'talk types' (Mercer & Littleton, 2007, pp. 58-59). The descriptors were adapted over several iterations to reflect the nature of talk in these higher education forum discussions, as the original descriptors emerged from face-to-face interactions in school classrooms. The iterative process ensured consistency in coding before further analysis commenced. The broad categories and their subtypes of talk types identified in this data are (a) *independent talk* (characterised by individualised decision-making, competitiveness, few attempts to work collectively, or not responding to another's invitation to continue an interaction); (b) *cumulative talk* (positive but uncritical building on others' ideas, common knowledge accumulated over time); and (c) *exploratory talk* (high level of responsiveness, reciprocity, respect and evidence of shared purpose; building on others' ideas). These types offer an extension to Mercer's (1995, 2000) classroom talk types that account for the nuances of asynchronous talk, where separation of the reader/writer reduces the potential for interruption, yet maintaining an expectation for discussion to unfold dynamically. Hasan (in Halliday and Hasan, 1989) offers the terms *phonic* and *graphic* to capture the roles of all participants in the communicative event and the potential afforded by the channel for the speaker to be interrupted by an addressee. Interactions using the phonic channel (e.g., face-to-face discussions, phone conversations) are more favourable for dialogue and are afforded by the active sharing in the process between present participants. When the channel is graphic, opportunities for instant feedback are not possible, as writer and reader are separated; instead, separation tends to create interactions which are monologic. Herein lies a paradox – asynchronous forums can be described as incongruent communicative events as a 'discussion' *per se* is expected to be dialogic, however in written form there is often the tendency towards monologic.

2.2 Discourse analysis using SFL

Systemic Functional Linguistics (SFL) views language as a resource for making meaning. As a theoretical model of language, SFL offers an array of resources for comprehensive analysis of language in the context of use, through fine-grained work at the level of text, to the generic social purposes of text and the learning context (Halliday & Matthiessen, 2014; Martin & Rose, 2007). To achieve the aim of this article, this micro-macro approach allowed depth of insight into the nature of the asynchronous discussions, as learners construed their experience simultaneously with enacting interpersonal relations in the co-created, unfolding texts, which constituted the forums. Explanation of the specific resources of SFL used in the analysis follows.

2.2.1 Appraisal: enacting intersubjectivity, identity and community

Appraisal is an interpersonal resource in the SFL model, which is concerned with how language is used to make evaluations of things, of people's behaviour, or expressions of emotion, as well as how these evaluations are scaled up or down in terms of positivity or negativity (Martin & White, 2005). Appraisal categories can describe how participants interact to co-construct a sense of community. Of particular interest for this study is how this is managed over several linguistic and discourse moves in an asynchronous discussion. The three domains of Appraisal are Attitude, Engagement and Graduation. Attitude identifies the use of affect (feelings, emotional states), judgement (of morals/ethics and social values), or appreciation (evaluation and reaction to things). Engagement is the extent to which other voices are included or excluded and how solidarity and social positionings are negotiated in the dialogue. Graduation realizes the strength of what is being said, i.e. how language is used to turn up or tone down meaning, or to sharpen or blur the focus. All three domains involve language choices through which individuals enact their roles as learners, professionals and teachers-in-preparation, and in so doing construct a social practice (which may or may not develop into a learning community).

2.3 Building knowledge through dialogue: lexical and logical relations

Firstly, lexical relations describe the level of cohesion across ideas and topics, that is, how ideas unfolding in a text can be tracked to see how meanings are co-constructed. Effective discussion over a number of moves and participants requires a good level of cohesion—language choices where joint focus become evident as students make sense of ideas or consider alternatives in the process of building common understandings. Analysis of lexical relations, or *chains* of linked ideas, involves tracking the frequency of lexical items over time and the relations built up between them. These are known as relations of repetition (indicating joint focus), contrast (for considering alternatives) and synonymy (recasting ideas to make sense of them). Cohesion in asynchronous discussion creates continuity in the flow of ideas and improves the potential for discussion to move towards constructing new understandings (Martin, 1992).

Secondly, logical relations are important linguistic indicators of conceptual development and evidence that new understandings are being negotiated. These are also known as expansion (or logicosemantic) relations. They identify language which is knowledge constructing as learners make conceptual links across related topics. These links occur as elaboration (relations of restating or clarifying); extension, when information is added or varied (relations of adding/varying); and enhancement, when extra information is provided by qualifying it in some way by reference to changing perspectives, time, place, manner or cause (enhancing relations).

While the linguistic analysis used is of itself a 'robust and validated analytical tool' (Lander, 2014, p. 43), the combined framework and methods provided additional

validation through triangulation of analysis, necessitating multiple opportunities for the author to cross-check categories, as well as frequent dipping in and out of the data sets and literature. Thus to explore what characterized the online environment for encouraging building community and co-construction of knowledge, the findings focus on linguistic features in the unfolding discussions, bringing in other data sources (i.e. interview data) where appropriate. For the purpose of this article, linguistic analyses were only applied to coded chunks within interaction clusters; however, in the findings I also consider the impact of independent posts on fostering sociality and knowledge construction.

3 Findings and Discussion: Thinking together in asynchronous interactions

The interest of this study is on how knowledge constructing talk unfolds in asynchronous forum discussion. While discussion of the coding of talk types in detail is beyond the scope of this article, it is worth noting that the student-driven (S) forums were composed almost entirely of independent posts, and according to the coding descriptors there was no evidence of cumulative or exploratory talk (refer to Appendix A). To a lesser, but still substantial, degree, independent posts accounted for 57% of assessment-driven (A) forum activity (i.e. 90/157; refer to Table 2).

The findings first consider the impact that a lack of *attending to* others had on the kinds of talk that occurred. *Attending to* others is the equivalent of 'listening' and 'being listened to' in online environments and is a contributing factor as to whether knowledge constructing talk proceeds. Following this, the findings move to discussion of independent talk and its effect on opportunities to co-construct knowledge, followed by linguistic characteristics of cumulative and exploratory talk. The high proportion of independent posts in Units A and S prompted reflection on Mercer and Littleton's (2007) notion of 'dialogic space' where 'everybody listens actively'. In keeping with SFL theory that meaning-making is a system of choices, the choices made *not* to respond, or to *not attend to* others will be discussed first in Section 3.1 to draw attention to the impact of independent talk, discussed in Section 3.2.

3.1 *Attending to and not attending to* others: asynchronous 'listening'

Listening in asynchronous contexts can be understood as *attending to* others in which the function of reading and writing assume listening and responding stances. As already mentioned, the lack of responses to discussion threads initiated in Units S and A indicates a high percentage of learners' contributions not being attended to. Excerpt 1 shows that while Cathy attended to Susan's contribution, as it was written in a way which was 'inviting' further interaction, Susan did not reciprocate. Cathy was *not attended to* by Susan (nor by anyone else), and this 'silence' left Cathy's invitation hanging - a situation which removed any possibility of further interaction and

rendered Cathy's contribution 'disengaged' (Eggins & Slade, 1997). The text is provided, followed by analysis:

Hi Susan, I just wanted to send you a quick email to say that I really enjoyed reading the description of your ESL students ... I really admire you for making the effort to learn more about your students' needs ... thanks again, Cathy

Analysed lexis in bold	Appraisal analysis of lexis and Explanations
Hi Susan , I just wanted to send you a quick email to say that	Engagement (engaging / aligning with others) Conversation-like: using names, personalising, addressing Susan directly
I really enjoyed reading the description of your ESL students ...	Attitude: Affect: satisfaction Graduation: Force (raised) Enjoyment/satisfaction is emphasised by 'really'
... I really admire you for making the effort to learn more about your students' needs ... thanks again, Cathy	Judgement: social esteem: tenacity Graduation: Force (raised) Admiration for Susan's resolve is emphasised by 'really'

Excerpt 1: Appraisal analysis of unreciprocated attempt to establish interpersonal relations (Unit S, Forum 5)

The impact on Cathy was revealed in the interview – she had clearly expected a response and expressed disappointment when this was not reciprocated. Where reciprocity is lacking, students may feel their contributions have 'fallen on deaf ears'. This was a factor in Cathy's decision not to try again (Note: analysed lexis in interview quotes hereafter in **bold**; analysis follows quote):

I posted a comment saying ... 'oh that's fantastic, I really admire that' ... and then didn't hear anything. And I just thought 'OK' ... yeah, there didn't seem to be interaction *between* students. So ... you know, **I didn't really bother too much more after that**. (Note: *italics* signifies emphasis by interviewee).

[Appraisal analysis: emphasised **Judgement: tenacity (negative)** i.e. self-critical of her own lack of resolve to persevere]

Another student in the same module commented on the kind of interactions experienced, with negative language choices repeated, thus emphasising the effect that lack of reciprocity had on her perception of the social value of the forums (negative lexis underlined):

There was no contact. I posted a little introduction – but there was no personal response to me. A couple of other people did the same thing – there was no response to them and nobody else made any contact. We never 'spoke' (for want of a better word) to each other about the course or [never] asked each other any questions, or

[never] checked anything with each other, and a couple of times I would look at what other people had done for a reflective task to make sure I was on the right track. So **you couldn't call it 'interactive' by any stretch of the imagination** (Nina, Interview, Unit S).

[Appraisal analysis: **Appreciation: social value: valuation (negative)** i.e. repetition of negative lexis emphasises Nina's negative evaluation of the social value of the forums].

Independent talk tended to reinforce patterns of non-engagement, as it reduced opportunities for interaction, and hence for co-constructing knowledge. Even though contributions were being made to the forums, discussion is simply not possible without reciprocity. When there is a sense of not being listened to or acknowledged, sustained engagement in discussion is unlikely. The choice made *not to attend to* others or their ideas can help in understanding how the discussion forums unfolded differently in each of the three units.

3.2 Independent talk

Independent talk describes individual pursuit of own interests, where students may endeavour to keep identities separate, with individualistic rather than cooperative focus on collaborative activities (i.e. tasks for discussion). Independent talk characterised Unit S, where there was no lecturer facilitation of the discussions and posting a response did not require any collaboration between students. As already mentioned, in Unit A the proportion of independent talk also was high which may reflect the individualistic pursuit of grades, given the high assessment weighting on participation (40%). This may account for an element of competitiveness and tendencies toward individual, rather than group-focused talk. For example, one student (Sharon) in Unit A posted all required tasks to the forum but responded to no one. Another student (Ben) tended to combine a number of tasks into one long post, with each of his contributions exceeding 1000 words, as well as being written in an academic style with extensive use of technical terms, quotes and references (average length of posts in Unit A forums, not including Ben's, was 267 words). Responding in a discussion-like manner to a contribution more akin to an academic essay can be difficult and time-consuming for students to read and make a considered response. It was not surprising that of the 14 discussions started by Ben, only four had responses. Ben's audience was clearly the lecturer,

I was probably thinking ultimately it's the tutor who's the intended audience and in the back of my mind 'it's being assessed and being evaluated' (Ben, Interview, Unit A).

Reluctance to venture into 'unknown territory' could also be a characteristic of assessable forums, where the lecturer-as-audience may be distracting, as expressed by one student,

some of the theory type things we were covering ... I just couldn't understand it, so I was really conscious of 'he's [the lecturer] gonna think me a dope' (Alice, Interview, Unit A)

Independent talk often functions as displays of individual-focus responses to a task, rather than on discussion *per se*. It shows little evidence of 'listening' or being 'listened to'. When there is a lack of reciprocity between participants the opportunity for further interaction is effectively closed down.

The following sections describe talk related to knowledge construction. Working within the sociocultural tradition, Mercer has offered different ways of looking at knowledge constructing talk, known as cumulative talk and exploratory talk. Linguistic analyses of language use in these types of talk provide a way of understanding nuances in the different kinds of knowledge being dialogically constructed in asynchronous online learning environments. As there was no evidence of cumulative or exploratory talk in the student-driven forums of Unit S, it will not be included in the following discussion. However, it does illustrate an important point - how the potential for jointly building knowledge was *not* realized.

3.3 Cumulative talk

Cumulative talk indicates the accumulation of ideas that occurs as interactants build uncritically on each other's ideas and is important for creating positive interpersonal relations. Cumulative talk can be identified in the online discussions through lexical relations, when ideas were repeated, contrasted, or compared in the process of making sense of the topic.

3.3.1 Joint focus on ideas

Joint focus on a topic is crucial for students to engage in effective cumulative talk. Joint focus creates cohesion through lexical relations - when ideas are repeated throughout the interactions, contrasted with another idea, or when meaning is unpacked or ideas recast. These dialogic moves can be understood through their lexical relations (of repetition, contrast, or synonymy), in which the flow of common ideas are organized in lexical 'chains' between interactants and across discussions. When lexical chains are broken, this indicates that these ideas are no longer in focus. Figure 1 provides an example of a brief discussion between five students in Unit A over two weeks on their 'views on language and culture' showing the lexical relations that sustained joint focus.

Figure 1: Sustained joint focus: lexical relations in a discussion of repetition, contrast and synonymy (Unit A, Forum 2)

Repetition of *cultural norms* (or *culture*) (18 instances) indicates sustained focus on the topic. When alternatives were proposed these became offshoots to the main topic, such as contrasting relations of *cultural norms that are not English* and *cultural norms of English* (6 and 7 instances, respectively). Relations of synonymy were apparent when students made sense of something by finding a similar meaning, or unpacking the concept aligned to current understandings. For example, one student related the idea of *learning cultural norms* to her experience of being in France and knowing some 'schoolgirl' French. In other words, learning cultural norms was understood as synonymous with knowing the language. Thus, each contribution to discussion added to the common understandings of cultural norms.

Repetition and contrasting lexical relations also become evident when discussing a controversial topic. A task in Unit A, for example, required students to respond to two readings, with one of these presenting some contentious ideas on English as a global language. In this discussion there was a higher number of contrasting relations as divergent opinions emerged. Joint focus was evident through repetition of lexis such as *Pennycook*, *Graddol*, *myth of English*, *English*, *Germany*. Between these 'chains' of repetition, contrasts were also made, such as Pennycook's *abrasive tone* contrasted with Graddol being *immensely readable and objective*. Some examples are provided below.

Pennycook was just too contemptuous for me ... (Vicky)

Pennycook was rather extreme ... Graddoll's perspective is both logical and interesting (Wendy)

The Pennycook article was really confusing ... Graddoll is extremely readable (Alice)

Excerpt 2: Contrasting relations – student reactions to readings of Pennycook and Graddoll (Unit A, Forum 2) <NEAR HERE>

In an example taken from Unit L, students collaboratively constructed a definition of 'literacy'. Repetition, such as *reading, writing, speaking, communicating* indicated similarities across their initial (literal) definitions. As the discussion continued the term was unpacked as students' understandings evolved. Through relations of synonymy, or recasting ideas, the initial skill-focused definitions became more generalized (abstracted) to an understanding of the term which was jointly constructed as: *Literacy is: a broad term / an evolving system of communication / complex / influenced by many factors*. The lecturer acknowledged this move away 'from a very basic literal definition' via her summarising comment at the end of the discussion. Progression in construction of the definition was largely achieved through relations of synonymy as students jointly contributed to unpacking the definition (using literal terms) and then to repacking in more abstract terms.

3.3.2 Extending ideas

Making logical links between ideas and expanding them also characterised cumulative talk and contributed to building common knowledge. Ideas can be extended through either addition or variation [+], often signalled by terms such as *and, also, but, however, alternatively* etc. In these forums, proposing a new perspective to others' ideas were 'softened' interpersonally by agreeing with, acknowledging or using interpersonal metaphor (such as *I think*) before proposing something new, as Excerpt 3¹ indicates.

<p>Alice:</p> <p>...This is probably where it's good to be a newbie. As I haven't taught before, I think [interpersonal metaphor] that I would be very open to fitting in with whatever approach was required ...</p>
<p>Wendy responds to Alice:</p> <p>Hi Alice [naming], I have similar thoughts [agreeing] about 'fitting in with whatever approach was required' [acknowledging]. Regardless of where you teach it is necessary to follow the institutional norms or requirements. In saying that though [+], teachers are generally encouraged to bring their own flavour or style to the classroom also. I think [interpersonal metaphor] that a happy balance can be easily achieved in most situations</p>

Excerpt 3: Proposing a different perspective incorporating interpersonal meaning in Unit A (Forum 4) <NEAR HERE>

Clarifying ideas also contributes to building common knowledge. When one interactant restates or summarizes what another has said, this is analysed as elaborating relations [=]. Elaboration helps make sense of or unpacks the idea, and can also simultaneously signal alignment (as a form of acknowledgement). Often, although not always, elaboration was evident towards the end of an exchange such as in Excerpt 4 below:

¹ Note: Legend for Excerpts 3 to 7: Analysed lexis in **bold**; Annotations shown within [square brackets]. Expansion relations symbols: [+] Relations of Addition / Variation; [=] Elaborating relations (restating/clarifying ideas); [x] Enhancing relations: of cause [x cause], of time [x time], of manner [x manner]

Alice:

I'm not sure what place Toh's questions would have in an expat teachers' classroom. In some instances it may be appropriate for local English teachers to pose questions such as this, but [+] [Alice adds her position] is it ever really a teacher's place to introduce and encourage language policy debate in the classroom?

Wendy responds by restating Alice's position:

[=] I agree with you about Toh's article - **encouraging such debates seems to be stepping out of the teacher's role** a little bit ...

After extended discussion on different approaches to understanding culture Alice summarises the discussion to date:

[=] ... In other words I guess I'm reiterating the same as most of the previous responses, **a balance between the 2 approaches is required** in the classroom

Excerpt 4: Elaborating relations [=] showing how ideas are extended (Unit A, Forum 5) <NEAR HERE>

From these findings, cumulative talk in asynchronous forums requires purposeful discussion of clearly defined topics either driven by assessment as in Unit A, or driven by the lecturer as in Unit L. The main characteristic of cumulative talk is its 'relatively uncritical acceptance of what partners say' (Mercer, 2000, p. 33). This is helpful for accumulating content knowledge and is also important for 'continuity of shared experience' (Mercer, 1995, p. 33). Much of the talk in the asynchronous discussions reflected this, as echoed by one student,

[the comments I made] ... were supportive, positive comments ... rather than evaluative. I didn't think that was my place to do that (Ben, Unit A, Interview)

Not upsetting the status quo may be a reflection of asynchronous discussions where group members may not have met face-to-face; therefore, the need to mitigate any possibility of misunderstanding is greater (Hull & Saxon, 2009). However, in order to construct new understandings, talk needs to move beyond cumulative (uncritical) talk, into what Mercer (1995, 2000) considers the more educationally valuable terrain of exploratory talk where there is synthesis of ideas, and thus knowledge transformation.

3.4 Exploratory talk

Exploratory talk is defined as

... dialogic space - in which ideas can be publicly considered, examined, tested and employed in a way that avoids individualistic and competitive qualities ... it is talk designed for the pursuit of common tasks, the sharing of relevant knowledge, the joint construction of new knowledge and the improvement of understanding (Mercer & Littleton, 2007, p 136).

Building knowledge dialogically can be recognized when conceptual links are made between ideas that move beyond additive information typical of cumulative talk.

Exploratory talk captures an ideal heuristic model of discussion which foregrounds reasoning in the process of constructing knowledge, where ‘all participants are striving, in a committed but unselfish manner, to establish the best solution’ (Mercer, 2000, p. 173). Here, the expansion relation of enhancement [x] shows how meaning is expanded when it is qualified in some way such as by reference to time, place, manner or cause (Eggins, 2004). Within this SFL system, the relations of enhancement indicate a more sophisticated way of making conceptual links and became obvious when students were grappling with new ideas or perspectives. Enhancing relations often signal a ‘surge’ in knowledge building (Jones, 2010). In other words, ideas are reframed into new contexts.

3.4.1 Grappling with new concepts: Relations of enhancement

A surge in knowledge construction may become evident when students voice some kind of discord or cognitive conflict (Hendriks & Maor, 2004). In this study, there was often a surge after a stretch of cumulative talk. To illustrate, in a discussion on information technology and its impact in the classroom (Unit L), students contributed collectively to common understandings, each time adding [+] their ideas or perspectives. The final contribution to the discussion revealed a level of discord or cognitive conflict as the student proposed a critical perspective with justification, as shown below:

The final contribution by Amanda to a discussion on the impact of IT in the classroom:

I read your observations with great interest and of course agree that **the trend** [=] [restatement / generalising ideas from preceding posts] seems almost inevitable. The reading about Media Literacy, too, gave much food for thought. Cordes’ comment ... **however true** [x of manner], **made me wonder** [x of cause] whether we are set on a path of inevitable, irreversible polarisation, globally. What **made me mull over this** [x of cause], is that in South Africa, there is a small percentage of schools ... that enjoy access to the kind of technology we are reading about. The majority of schools ... simply do not have this technology ...’

Excerpt 5: Enhancing relations showing cognitive conflict (Unit L, Forum 10)

<NEAR HERE>

The reality of her own context enabled Amanda to question the validity of the reading [x of *manner*], which in turn acted as an external agent causing her to wonder and mull over [x of *cause*] what had been previously discussed, in relation to the reality of South African schools. In other words, what had been presented in the discussion thus far, did not resonate with this student’s experience, realized in the text as enhancing relations [x] (complete analysis in Appendix C). The process of grappling with or reasoning shows the conceptual links Amanda made between the literature, the preceding contributions to discussion, and her own experience.

Enhancing relations can also identify reasoning skills, which are claimed to be important in exploratory talk. These may come to light through engaging with a contentious topic, such as in Unit A, where discussion on stereotyping was triggered by a reading. Through a process of cumulative contributions, one student then

reflected on these and reframed her understanding of stereotyping. Linguistically this was realized by Wendy through enhancing relations [x] of cause, shown in Excerpt 6:

Reframing an understanding of why teachers stereotype by Wendy:

We may stereotype our learners partly **because** [x of cause] it helps us reduce **an unmanageable reality to a manageable label** [=] [clarifying]. When our students fail to interact in the way we expect them to, we readily explain their behaviour in terms of culture and cultural stereotypes. A critical awareness of the complex nature of cultural understanding and the problematic aspect of our investigative tools may help us open ourselves to alternative meanings and possibilities, thereby restraining our rush to stereotype the Other.

Excerpt 6: Enhancing relations as part of a reasoning process (Unit A, Forum 3)

<NEAR HERE>

The discussion on stereotyping had the effect of eliciting personally held values, revealed as negative evaluation of stereotyping and of those who stereotype (in posts prior to the excerpt above – see Appendix D for full analysis), which simultaneously revealed a strong group alignment with the notion that ‘TESOL teachers should not stereotype’ (see Delahunty, 2012). While the majority of students were united in their stance on the practice of stereotyping (i.e. a long stretch of cumulative talk), the excerpt shows how Wendy shifted the discussion by trying to understand the logic behind the tendency to stereotype.

Interestingly, despite opening up new possibilities for the discussion to move towards a more critical understanding of stereotyping, Wendy’s ‘invitation’ to shift perspective was not taken up. Subsequent contributions returned to additive comments (i.e. cumulative talk), and reverted to responding to the original task question rather than building on Wendy’s proposal.

While the unsettling of ideas has potential to expose gaps in understanding, students need to be kept engaged in the process, particularly if these represent productive ‘struggles’ in the process of acquiring knowledge. Learners also need to become increasingly confident to voice these struggles via the public domain of discussion forums.

3.4.2 Challenging ideas to explore new understandings

While challenging moves occurred, they were infrequent in both Units L and A. In both units, students were generally more inclined to critique ideas external to the group members, such as from readings or experiences, for example,

I’m **not sure I agree** with this quote from the review of Schon’s work ... (Mary, Unit L, Forum 3)

However, some challenges to other’s ideas occurred in the later forums of Unit A. Effective challenge exchanges occurred mainly between two students – Vicky and Wendy who, as revealed in the interview, had previously been classmates on campus. The following excerpt shows challenge and justifying moves made between Wendy

and Vicky as adversative additions [+]. Wendy's justification to Vicky of her changing conceptual position over time is emphasized through the enhancing relation [x] *of time*, (particularly if we imagine her response without it) and demonstrates a healthy shift in perspective.

Forum 11 Vicky quotes Wendy to challenge her position:

Hi Wendy, I was just reading your additions and I thought number 2 'Extroverts are more successful language learners' was a generalisation that I have come across a lot ... there seems to be this assumption that learners who are more assertive and vocal in class will learn language more successfully ... **however** [+] it has been my recent experience that more introverted students have also been more successful in language learning ...

Wendy responds though justifying her position as shifting:

Hi Vicky, well **when** [x of time] I wrote that **it was not something that I definitely agreed with but** [+] rather **something that I think is partially true** ... **although** [+] [justifying] the more vocal students I taught ... generally had a higher English proficiency level ...

Excerpt 7: Successful challenge move (Unit A, Forum 11) <NEAR HERE>

Challenging the ideas or stances taken by peers appears to be difficult in asynchronous discussions. The lack of challenging moves may also be because some task designs 'funnel' opinion towards the common idea(s) or stance.

3.4.3 Changing perspectives

In exploratory talk, we would expect to find evidence of changing perspectives. Linguistic evidence of changing perspectives can be understood as a combination of interpersonal language choices (e.g. self-judgement) and experiential (e.g. processes of self-realization, place or context) and demonstrate how learners construed their experience simultaneously with their attitudes. This was most noticeable when students reflected on their own practices in what appeared to be self-critiques but from a 'relatively detached perspective' (Mercer, 2000, p. 103). In Unit L this often occurred as critiques of their teaching practice, realized linguistically as self-judgements of their capabilities, such as,

I could recognise them in the samples **but** [+] **I wonder if I could recognise** the same characteristics in my own reflective writing (Paula, Unit L, Forum 3)

I **haven't been very successful** in taking my students to the level of 'dialogic' reflection, and terms like 'stepping back', 'mulling over' and 'looking at possible alternatives' gave me a focus. (Amanda, Unit L, Forum 3)

[Appraisal analysis: **Judgement: capacity (negative)**].

At times, students themselves recognized and shared a new understanding, realized linguistically as mental processes such as,

But [+] **I have realised** [mental process] **how limited** [x of manner] the definition is, particularly in my current teaching position (Amanda, Unit L, Forum 1)

I have realised [mental process] **how much more** [x of manner] I do that in my classes ... for example **before I'd studied** [x of time] the course on teaching English in international contexts, my understanding of the complexity of the role of culture was superficial (Amanda, Unit L, Forum 3)

I somehow assumed [mental process] that this ... would be happening in many schools **but** [+] **once I left** [x of time] **I remember** [mental process] being surprised to discover that it was localised to my area. (Mary, Unit L, Forum 3)

While the discussions in Unit L comprised a much smaller corpus, proportionally there was more evidence of exploratory talk. The presence of the lecturer who mediated discussion could account for this (Delahunty, Jones and Verenikina, 2014). The lecturer's role demonstrates the positive influence of an active, participating lecturer on guiding students to co-construct and acquire new understandings discursively through providing clear instructions and modelling desired discussion behaviours. Lecturer L's facilitation style was much more active than Lecturers A and S, and had a positive effect on how discussions unfolded in this unit. This can be accounted for through the combined effect of a participating lecturer who fostered a safe space for students to interact, was active in maintaining the momentum of discussion and, by being active, she modelled the kind of participation she expected from students. As a result, there was more evidence of students in this unit being confident to grapple with new concepts and to voice their changing perspectives and practices, exemplified in the following response,

I find **now** [x of time] that when I approach a text/listening exercise/topic, I am **alert** **to** [mental process] the perspective students bring to the situation, and reflect more deeply on **how best** [x of manner] to bridge the gap ... (Amanda, Unit L, Forum 3)

Returning to the aim of the article – to understand what characterizes asynchronous discussions that support co-construction of knowledge – triangulating data analysis using a linguistic approach and the adapted framework of Mercer's (1995, 2000) talk types has allowed some informed interpretations in relation to each of the three units. The multi-disciplinary approach enabled different characteristics of the asynchronous talk types to be identified using linguistic categories from SFL, which also provides a metalanguage for discussing asynchronous discussion. These analyses enabled mapping of the knowledge constructing talk types of cumulative and exploratory talk to linguistic choices and provides much needed insight into the murky space we call 'asynchronous discussion forums' (see Appendix E). A linguistic-based understanding is essential for exploring how language choices can influence the opening-up or the closing-down of 'dialogic space' and hence the potential for co-constructing new understandings (Coffin et al., 2005).

4 Conclusions

From the findings it became clear that the student-driven discussions - where participation was voluntary, and where there was no guidance (nor indeed lecturer modelling) for how to interact productively - resulted in independent posting behaviours which are not conducive for engaging in discussion. It was also evident that building interpersonal relations was crucial for creating a 'safe' space in which to explore ideas, and where attending to others through reading and responding demonstrated 'asynchronous listening'. Social alignment was fostered through addressing others by name, acknowledging what they have said through complimenting, agreeing with or showing support. Cumulative knowledge is co-constructed largely through re-stating, clarifying or refining ideas collectively which also reflects individual perspectives, which can be added to, or alternatives presented in a respectful manner. Challenging and justifying moves were shown to be tricky in online discussion; however, when successful such moves can enable developing understandings and shifts in perspective to become visible, which is important in any learning situation. Where there was little or no modelling or moderation by the lecturer, opportunities for building interpersonal relations and co-constructing knowledge were impeded.

The notion of exploratory talk offers much to aim for in co-construction of knowledge through asynchronous discussion. While Mercer and Sams (2006) argued that children may not be exposed to this kind of discussion outside of school, the same could be said of postgraduate learners, and even more so when discussion modes are asynchronous. There is much potential in a well-designed task for new understandings to be collaboratively explored, and even more so when a skilled lecturer is mediating. However, if discussion around the task is not mediated, students tend to revert to the safety of what they already know, and the opportunity to co-construct knowledge may be lost.

It should not be assumed that students, nor indeed all lecturers, have the communicative skills needed to engage in effective asynchronous academic discussion (Salmon et al., 2017), which involves simultaneously enacting interpersonal relationships and knowledge building talk. Online lecturers need explicit guidelines so they can provide appropriate pedagogical input, monitoring and 'sensitive handling of the process over time' (Salmon, 2005, p. 203), and the technology itself cannot be a substitute for this kind of support. This article highlights a need for explicit, theoretically informed protocols and asynchronous discussion guides (Verenikina, Jones, & Delahunty, 2017a, 2017b), which are focused on 'expanding the capacity to participate in dialogue' (Wegerif, 2013, p. 5) as an important principle of good teaching practice. This also includes lecturers modelling and encouraging the type of talk that is desired in discussions. Careful online course design also can promote better discussion, such as being explicit about expectations for forum participation and designing tasks which stimulate motivation to participate.

Explicit awareness of the purposes and characteristics of different talk types may prove beneficial for time-poor educators involved in design and mediation of asynchronous discussions. These findings provide clear evidence that the shift to online teaching is *not* a way to cut teaching budgets. Clearly, the quality of learning cannot be maintained if lecturers have insufficient time to moderate the forums, which thus raises issues if unrealistic institutional expectations are placed on teaching staff about the time required for quality online teaching.

Mercer's talk typology principles (1995, 2000) applied to asynchronous discussion is a useful tool that can be applied in both design and practice. As Salmon (2005) argues, technology alone does not provide a natural progression to change pedagogical practices, and face-to-face pedagogy is not directly transferable to the online context. From the findings presented here, it is recommended that designing in opportunities for meaningful discussion is essential for co-construction of knowledge to occur, but in itself is not enough. Students studying online also benefit from opportunities to build sociality and the notion of being *attended to* is an important element of asynchronous discussion in which they experience acknowledgement of their presence as well as of their contributions. It is also recommended that some lecturer mediation is essential in the design, to ensure appropriate guidance and support at the point of need so that the knowledge being constructed is transformative and not just accumulative.

Finally, expanding the capacity of both students and lecturers to participate in dialogue is 'good education' (Wegerif, 2013, p. 5). This article has provided an explicit description of conditions under which effective (and less effective) asynchronous discussion occurred and makes a worthwhile contribution to the development of online pedagogy, with a particular focus on postgraduate learners. Indeed, an understanding of what language choices reveal as interactants attend to (or not) each other's postings to create 'dialogic space' are essential for designing, mediating and participating in asynchronous discussion. Insight gained from using this approach has informed ongoing developments in online instructional practices and design to facilitate and improve the quality and efficiency of knowledge building discussion. Indeed, from these findings, a set of online communicative strategies was developed, and has been trialled and incorporated into a guide for fostering online discussion (see Verenikina et al., 2017a), contributing to improved online pedagogies and best practice.

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Appendix A: Adjusted talk type codes and descriptors

Talk types – asynchronous forums	Descriptors / characteristics
Independent	Individualised decision-making <ul style="list-style-type: none"> ○ few attempts to pool resources ○ few attempts to offer constructive criticism ○ few attempts to make suggestions competitive atmosphere rather than cooperative dis/under-engaged under cooperative not attending to others / not being attended to, thus opportunities for discussion are closed down unreciprocated 'invitation' (an invitation for further interaction or acknowledgement is anticipated but not reciprocated – often, but not always as a question) not being attended to (i.e. opportunities for discussion do not eventuate - are closed down)
Cumulative	emphasis on interpersonal relations (to maintain status quo) evidence of active listening i.e. attending to through considered responses positive but uncritical building on others' ideas common knowledge constructed by accumulation: additions/variations, elaborations, but few evaluations joint focus (repetition)
Exploratory	everyone 'listens' actively', i.e. attending to through considered responses everyone is encouraged to contribute ideas and opinions are treated with respect there is an atmosphere of trust there is a sense of shared purpose people ask questions and share relevant information ideas may be challenged with reasons given for challenges contributions build on what has gone on before evidence of new understandings

Appendix B: Stages in online discussion and functional descriptors

Stage	Functional descriptors	Text chunk examples
(Abstract):	to provide a summary of the post in such a way that encapsulates the point of the post	<i>My thoughts about reflection are that it's a necessary part of my learning especially in the classroom.</i>
(Orientation):	to orient the listener / reader in respect to place, time and situation	<i>As I mentioned earlier my one day a week class has mixed levels and I am continually trying to think of ways where I can provide the most useful guidance to each level while not spreading myself too thinly</i>
Bridging	interpersonal way of 'taking/leaving the floor' – easing into (or out of) the discussion	[taking the floor] <i>Hello everyone, Sorry for my late reply but it's been a busy week!</i> [leaving the floor] <i>I look forward to learning more about this topic and how I can better assist my learners in the coming weeks!</i>
Issue(s):	presenting an event/experience in order to make an evaluative point or resolution	<i>For instance, some time ago when we lived in Thailand, I decided that I could manage learning the spoken language but I found the written form very daunting. I guess my motivation was not strong enough whereas my husband had to do it for his work</i>
Evaluation:	to reveal the attitude of the narrator to the issue / event / experience	<i>I think the semiotic approach sounds far more likely, as in our search for meaning, we need to be able to read far more than just words.</i> [self-evaluation] <i>I've been too immersed in teaching English to take that step, I'm very ashamed to say.</i>
(New understanding)	Presenting new/changed/developed understanding arising from the issue/evaluation, which is indicated as different to previous understanding	<i>I can think about different things that might help in my own teaching/learning but until I start to experiment and take the new knowledge on board then I haven't really progressed much</i>
(Coda):	to make a point about the text as a whole – it can be a functional device for returning the verbal perspective to the present moment	<i>Also brings me back to the forum postings of literacy L1 and L2 discussions and that to be literate is to 'function within a community'. This criteria is different for every community and also the needs of each individual</i>
Instruction:	to specify (implicitly or explicitly) action(s) expected from the recipient(s)	<i>I thought, therefore, that this would be a timely topic that may well be helpful for you</i>
Steering:	to guide/encourage the recipient(s) into discussion	<i>Although we are 'chatting' we are doing so in writing. Yet, our online chat writing is usually quite different from our letters, essays and traditional written texts.</i>

Appendix C: Linguistic analysis of exploratory talk – lexical strings and expansion relations (Case L)

This example of linguistic analysis relates to tracking ideas across a discussion using (1) lexical relations analysis (cohesion in the discussion is achieved through chains of words related by repetition, synonymy or contrast) and (2) expansion relations (links made between ideas)

LEGEND:

(1) Initial analysis – tracking ideas across the discussion – ideas (lexis) in the texts indicated by border

(2) Expansion relations showing how each contribution contributed collectively to the discussion: Addition [+], Elaboration [=], Enhancement [x] manner and [x] cause

Initial analysis: tracking ideas in the discussion		(1) Lexical relations analysis (showing cohesion in the discussion)		
Initiating Post to 'The changing nature of literacy' discussion forum (IC10)		Main idea "Technology" [repeated]:	Types of technology	Advancement of technology
I personally think that these technological advances are so influential they have changed our role as literacy teachers. At the rate technology is advancing I'm beginning to wonder whether or not we will have books, newspapers, pens and pencils in fifty years from now ... the pieces of technology that could be used to replace each of these items are now available (e.g. laptops , iPads , e-readers , mobile phones , etc.) at a fairly affordable price (Mary)		technological advances they (technological advances) technology pieces of technology	laptops iPads e-readers mobile phones	advancing fifty years from now
(2) Expansion relations: [+]	Responses: [adding a new idea]...Our group is taking steps to incorporate video , listening exercises from radio such as interviews and discussion topics and mp3 recordings of student discussions into our lessons. It may be basic but I think even finding your way around the computer in a second language is now always easy (try working it out when everything is in Russian or Chinese!) ... (Paula)		video radio mp3 recordings the computer	
[+]	[adding a new idea] I am currently teaching a Year 1 class ... and it is very surprising to see the range of technology that my children have access to. I have two iPads , three desktops , three laptops and a digital camera ... I have tried to incorporate technology into my teaching as much as I can this year. I have created a blog for my children to use, this is something new to them ... but they can not stop talking about it ... Using information technology in the classroom is an important aspect in today's society and it is going to be the way of the future . As teachers I feel it is our responsibility to incorporate as much technology into our classroom as possible ... (Beth)	range of technology Information technology technology	iPads desktops laptops digital camera a blog this (the blog)	today's society the way of the future
[=] [x] [x] [x]	I read your observations with great interest and of course agree that the trend [=] seems almost inevitable. The reading about Media Literacy, too, gave much food for thought. Cordes' comment ... however true [x], made me wonder [x] whether we are set on a path of inevitable, irreversible polarisation, globally. What made me mull over this [x], is that in South Africa, there is a small percentage of schools ... that enjoy access to the kind of technology we are reading about. The majority of schools ... simply do not have this technology ...' (Amanda)	access to ... technology CONTRAST do not have [access to] ... technology		↑ the trend (a restatement =elaborating relation)

Appendix D: Linguistic analysis of discussion on stereotyping – Appraisal and Expansion relations (Case A)

This table shows an example of linguistic analysis of (1) the evaluative language used over the course of the discussion (using Appraisal); and (2) expansion relations (links made between the ideas)

LEGEND:

(1) Appraisal categories: **Judgement: social sanction** / **Judgement: social esteem** / **Appreciation** / **Force** / **Focus**

(2) Expansion relations: Addition [+], Elaboration [=], Enhancement [x]

	(1) Appraisal Analysis: Excerpts of student contributions to the discussion:
(2) Expansion relations	(#31) ... Certain stereotypes such as obedience to authority, passivity and lack of critical thinking are not unique to students from particular cultures but exist across cultures (Ben)
[+]	(#32) The main arguments of this paper ... is very narrow ... to suggest an entire “group” is obedient to authority and passive is ridiculous . Many factors contribute to a class environment where students feel comfortable and 'safe to contribute ... Stereotyping does no-one any favours , it brings the whole process down and is not effective (Sharon)
[+]	(#34) I think [interpersonal metaphor] people tend to stereotype about all types of other people, including those who come from their own 'cultural' groups ... Let's face it, culture is a powerful force, especially when it is very strongly traditional ... I believe [interpersonal metaphor] that TESOL teachers observe perceivable patterns in a process of trying to gain some understanding of their students in order to improve their teaching ...
[+]	(#35) We all know how easy it is to generalise ... and while stereotyping can be a very negative thing, it does incorporate observation of similarities in learners of similar cultural/experiential backgrounds ... no person is a clone of their culture, but certainly their culture is a major influence on their values and, in many cases, their learning process ... However having said that, the point that I find appalling in Kumaravadivelu's paper is the idea that the hugely diverse cultures and numerous peoples that form the geographical entity of Asia could be combined into one cultural and social entity by anyone, let alone TESOL teachers ... I wonder which Asians they are talking about – certainly not the ones I have in the classroom ... There are certain social behaviours in the classroom that one cannot help but notice set the various cultures apart ... Is this stereotyping or observation?
[+]	(#35) Yes, I wonder how TESOL professionals could possibly harbour such stereotypes of their students and this is something I also found quite shocking in Kumaravadivelu's article. When 'Asian students' are categorised in such a way , it destroys the cultural sensitivity that is fundamental to TESOL ... (Vicky)
[x] [=]	(#37) We may stereotype our learners partly because [x of cause] it helps us reduce an unmanageable reality to a manageable label [=]. When our students fail to interact in the way we expect them to, we readily explain their behaviour in terms of culture and cultural stereotypes. A critical awareness of the complex nature of cultural understanding and the problematic aspect of our investigative tools may help us open ourselves to alternative meanings and possibilities, thereby restraining our rush to stereotype the Other (Wendy)
[+]	(#38) I find it hard to believe that such stereotyping is so prevalent, particularly in the TESOL profession ... for teachers who so frequently deal with international students, to have those presumptions is awful ... it's hard for me to imagine anyone stereotyping to this degree . While it might be helpful for teachers to examine a learner's cultural background, there is never an excuse for generalising/assuming an individual's personal experiences – it could even prove to be counterproductive to teaching (Vicky)
[+]	(#40) ... in my limited experience in ESL classrooms I have been fortunate to work with a number of Asian students from several different countries ... the classroom interaction of each of these students appears much more related to the student's L2 ability and confidence ... rather than any 'culturally' predisposed passivity (Alice)
[+]	(#43) Having spent a great deal of time in south-east Asia I have seen that ... these stereotypes can exist not only in the field of TESOL but in other aspects of life [+ variation]. It is not uncommon to hear workers discuss of their co-workers, clients or students in a relatively stereotypical manner ...

Appendix E: Mapping Asynchronous Talk Types To Linguistic Descriptors

Asynchronous talk types	Characterised by	Examples:	Linguistic descriptions and SFL coding [in square brackets]
Independent talk: dis/under engaged; non-cooperative, individualistic contributions	Not attending to others / unreciprocated Inappropriate attending to	silence criticism – personal or misinterpreted	Disengagement (i.e. reduced opportunities for interactivity)
	‘Stand-alone’ contributions	lengthy, academic-like language, no links to others’ posts or their ideas	Closing down dialogic space to other voices [Engagement: monogloss] e.g. mismatch in audience/genre of online <i>discussion</i>
Cumulative talk: building uncritically on others’ ideas, with an emphasis on interpersonal	Attending to (creating a positive environment for dialogue)	naming : Hi Sharon Great to hear from you Paula inclusive language: <i>we us our</i>	Opening dialogic space to other voices [Engagement: heterogloss: dialogic expansion]
	Agreeing with	looking forward to chatting with you all I agree, It appeared to me also	Emotion showing social inclination [Appraisal: affect: inclination] Acknowledging – to open dialogic space [Engagement: heterogloss: attribute]
	Complimenting	Hats off to you for being so persistent I was so impressed by the table you created	Judging behaviour i.e. admiration of a person’s resolve [Appraisal: Judgement: social esteem: tenacity] Judging behaviour i.e. admiration of a person’s capabilities [Appraisal: Judgement: social esteem: capacity]
	Thanking	Thank you for this valuable contribution to our discussion	Opening dialogic space Evaluating the quality of something [Appraisal: Appreciation: valuation]
	Jointly accumulating knowledge	Joint focus on topics / content by repeating words/ideas Jointly unpacking meaning: literacy is a broad term / ... / complex ... Presenting an alternative position: Pennycook’s abrasive tone – Graddol is immensely readable and objective Adding to others’ ideas	Ideas/words related through repetition Ideas/words related through similarity Ideas/words related through contrast Expanding meaning by linking related ideas - i.e. adding / varying [+]
Exploratory talk: grappling with	Evaluating	Restatement: e.g. stereotyping = a manageable label Positive evaluation of others: You certainly leave me for dead ... / Hats off to you for being so persistent ... / I really like all of the comments and suggestions you’ve made ...	Expanding meaning by adding more information to related ideas i.e. restating or summarising [=] Judging behaviour i.e. admiration of a person’s resolve, capabilities [Appraisal: Judgement: social esteem: capacity]
	Attending to Agreeing with	see cumulative talk	see cumulative talk

Asynchronous talk types	Characterised by	Examples:	Linguistic descriptions and SFL coding [in square brackets]
new concepts, reasoning, critiquing, challenging	Complimenting		
	Thanking		
	Challenging others/ideas	(see Excerpt 6)	Expanding meaning by linking related ideas i.e. by varying (i.e. adversative) [+]
	Evaluating	self-critique: I haven't been very successful in ... evaluation of others' ideas: Yes I agree with you, however ...	Expanding meaning by giving extra information to related ideas [x] Judging behaviour i.e. admiration/criticism of a person's resolve, capabilities [Appraisal: Judgement: social esteem: capacity, tenacity] Evaluating the social value of something or its social authenticity / validity [Appraisal: Appreciation: valuation]
	Expressing new understandings	self-recognition of new understanding: <i>I have realised ...</i> developed over time: when I wrote that it was not something I definitely agreed with of manner: I have realised how much more I do that ... of cause: Cordes' comment ... made me wonder	Mental process Expanding meaning by giving extra information to related ideas: [x] (i.e. of <i>time</i>) [x] (of <i>manner</i>) [x] (of <i>cause</i>)