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Movers and shapers: teaching in online environments

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Keywords

teaching, online, movers, shapers, environments

Disciplines

Education | Social and Behavioral Sciences

Publication Details

Delahunty, J., Jones, P. & Verenikina, I. (2014). Movers and shapers: teaching in online environments. *Linguistics and Education*, 28 54-78.

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Abstract

This paper reports a study-in-progress examining interactions in the asynchronous discussions of a post-graduate TESOL (Teaching English to Speakers of Other Languages) distance subject, focusing on the impact of scaffolding collaborative knowledge construction. Two complementary theories were used: sociocultural theory, which views interaction as essential to the knowledge building process, in particular dialogically between expert-novice, and students as equals; and Systemic Functional Linguistics (SFL) which highlights language as a meaning-making resource deployed in social interactions and allows insight into the unfolding construal of knowledge and the interpersonal relationships being enacted. The results confirmed the significant role of the instructor in shaping dialogic opportunities that move learners towards new understandings. Close attention to the unfolding language choices of the participants provides a logogenesis of the online discussion texts, offers fresh insights into the nature of adult learning, and into the complex relationships between the intersubjective and experiential in online learning environments.

1 Introduction: Online discussions: to co-construct knowledge?

The provision of communication technologies in e-learning packages should not be assumed will equate to productive use of discussion in the learning process. In other words, simply making technologies accessible is no guarantee of effective learning outcomes (Liu et al., 2007), and problematises the extent to which discussion is facilitated for online pedagogic purposes.

Although programs using a constructivist perspective seem to be better equipped for building a learning community (Liu et al., 2007), many instructors are not aware of the different pedagogical requirements for online teaching and learning. It may be that online instructors need to be *more* available to monitor discussions and answer questions, to resolve misunderstandings, to consistently guide discussion towards learning aims, as well as to organise and facilitate a variety of ways to interact, such as real-time chat, asynchronous forums or blogs. This is in addition to ensuring individual and timely feedback crucial to online students (Bailey & Card, 2009; Koh & Hill, 2009) as well as modelling the skills and values of the particular learning community (Biggs & Tang, 2007). Modelling communicative skills also must involve taking into account the lack of usual face-to-face meaning-making cues, such as gesture, facial expression, voice variation, interactive immediacy for clarification and so on. Indeed, nurturing a positive and inclusive learning environment requires both communicative skills and interpersonal awareness to mitigate any potential for misunderstanding that may occur in the absence of usual meaning-making cues.

In our literature review (Delahunty, Verenikina & Jones, 2014) we found that readiness to embrace online education may be strong at the bureaucratic level, however this is not necessarily shared by those at the face of implementation. Adequate institutional support and preparation in times of shifting delivery modes are often felt by faculty staff to be lacking, affecting attitudes towards the change in practice that online pedagogy requires, particularly around the use of discussion, with the issue of risk-aversion towards implementing new technologies or new applications being a factor for consideration (Howard, 2013). Due to staff also often managing multiple roles or being employed on a part-time or casual basis, the use of discussion in online classes may present as an additional organisational and pedagogical bugbear. A contributing factor may be the uncertainties of what to do with tutorial-like discussion which, unlike the transience of verbal discussion, remains permanent as graphic representations. The pull towards some form of assessment (and flow-on to workload) may be understood as meaning being no longer fleeting, but rendered as an object (Martin, 1992, p 513), and hence discussions are able to be revisited at a later stage and evaluated. These issues allude to some of the challenges faced

when adapting to a different pedagogic approach and the shift in mindset required, involving not just challenges on mental energies but also demands on available time.

On the other hand, we found that where the value of discussion for online groups is embedded into pedagogical practice, there is much debate around compulsory or voluntary use of discussion. Numerous decisions need to be made around how discussion may be incorporated into the natural flow of the online class with consideration of the purpose of discussion, its integration into learning aims and activities, the dynamics and size of the group, the likelihood of diversity in languages, cultural values, time zones, as well as the role of the educator in managing, sustaining and supporting students through discussion, to name a few. Another salient point is that when interaction rests solely in one's 'performances' in the asynchronous communications, meanings then are totally committed to this modality, rather than distributed over a number of different forms of communicating. This is perhaps a paradox of online discussion, in that there is potential both to create knowledge, *and* misunderstanding.

1.1 Background and motivation for the study

In light of the above issues we were interested in the impact on online discussion when the instructor took an active role as mediator. This paper reports the findings from one of three online TESOL postgraduate subjects as part of an ongoing study. Each of the instructors chose varying degrees of involvement in the discussion forums – one was actively present, another was minimally involved but observing, and the third didn't 'go there'. During interviews the instructors indicated that they had continuing, and unresolved, concerns around the most effective use of discussion forums. Some were in regard to fostering discussion, particularly if students resisted, as one instructor pointed out, "... let's not use the word 'interact' for a minute - students who *post* comments on the forums, but *don't* interact with others". Another issue was a tendency for students to withdraw from the forums when the instructor became involved - "it causes a lot of students to just not join in at all when they think the tutor's there watching, looking". One instructor found student forum activity was moderately useful as "a definitive or hairsplitting" exercise, especially as a 'reward' for active students hovering between grades. Whether to assess discussion also raised the issue of simply counting the number of postings (less time consuming), versus consideration of the content. As one instructor commented this often took an inordinate amount of time because "some [students] would put reams on there ... not waffle, but ...". She lamented, "How [to assess]? ... *how many? how much? the quality?*".

The above concerns were instrumental in two of the instructors opting out of active involvement in the discussions, with one of these opting out altogether. For the purposes of this paper, the focus is on the third subject (hereafter referred to as 'Case I'). Case I instructor was actively guiding the discussion forums, which had a token assessment weighting of 5% given for participation. Looking across the different kinds of discussion that evolved from the three cases, the role of the online instructor, as mediator, was the point of departure for Case I in terms of the productiveness of discussions, as well as the quality of the online experience (gleaned from student interviews and a survey).

The challenges and responsibilities for the online instructor are extensive. A significant challenge is to create as many opportunities for dialogue as possible (as occurs in face-to-face tutorials). To optimise student involvement asynchronous discussion needs to be guided in a way that leads to new collective understandings (of content, self and others). Another responsibility is to foster a social climate in which trust and cooperation develop good collaborative relations, which also contributes to effective use of discussion for learning. Indeed, meaningful engagement with learning content is important for boosting student confidence which is inspired also by teacher modelling, especially if great enthusiasm is displayed for their subject (Delahunty et al.,

2014).

In education it is generally held that co-construction of knowledge is a necessary component of contemporary pedagogic practice (Gibbons, 2006; Scardamalia & Bereiter, 2006), therefore the online discussion forums become the focal point for how this is enacted, as these represent the main opportunity for learning as social activity. Being involved in discussions also reinstates some visibility rendered by the mode of delivery (i.e. the lack of physical presence). Hence, discussions become important opportunities for negotiating identities, crucial for adult learners (Knowles, 1980; Knowles et al., 2012; Delahunty et al., 2014). In other words, online participants become visible as they reveal something of who they are through what they write (Ivanič, 1998). Language use therefore, or making meaning through the interactions that occurred, provide insight into how new understandings can be both dialogically supported and co-constructed.

As the discussions generated in Case I were qualitatively different to those of the other two cases, the aim of this study was to examine what supported co-construction of knowledge in online discussions between the instructor, and the postgraduate students. To understand this, attention is given firstly to the moves of the instructor to foster meaningful interaction, and secondly on how this impacted on student participation in terms of involvement and conceptual development (i.e. new understanding or knowledge). To guide the analysis of the online discussions, the following research questions framed the core goals of the study:

1. What is the knowledge under construction in the forum dialogue, and what supported this?
2. How do participants' interpersonal contributions foster or inhibit forum interaction?
3. What is the role of the instructor's mediation in the online discussion?

Thus in examining Case I, this paper encompasses the effect of instructor mediation on the quality of online discussions and the level of student involvement as part of the learning process. This will contribute to understanding better some of the complexities of teaching and learning, and dialogue among adult learners in virtual classrooms. In a rapidly changing educational world, answers to these research questions will be useful for informing the design of online learning sites by making visible some effective mediating moves and those linguistic features of interaction which indicate students have made progress towards new understandings.

A rationale for our approach to the analysis and interpretation of the discussion forum data follows, articulating the central concepts of this study namely, of teaching. These are extended in the theoretical framework and the methodology of analysis.

2 Learning through joint dialogic activity: a learning *and* language perspective

Language is a tool for carrying out joint intellectual activity, a distinctive human inheritance designed to serve the practical and social needs of individuals and communities ... (Mercer, 2000, p 1)

A core assertion of sociocultural theory is that learning does not occur in social isolation and that language mediates social and psychological processes. As such language is more than a resource for information exchange; it is a tool that allows individual and collective thinking (Vygotsky, 1978; Mercer, 2000). Language, because of its role in mediating social and psychological processes is one of the most valuable resources in online learning particularly when "collective, communicative intelligence" (Mercer, 2000, p 6) results from engaging in group discussion. According to Vygotsky (1978), when each individual contributes from their own mental

resources, a level of thinking beyond their own mental capacity then becomes possible. For this to occur however, an environment conducive to collaboration is necessary; that is, one in which interlocutors can jointly contribute under the guidance of expert other(s), which is best achieved in a climate of “uncritical acceptance” of the others’ stance (Mercer, 2000, p 33). In addition there is an interplay of prior utterances which provide background to the position a speaker/writer engages with, comprised of “contradictory opinions, points of view and value judgements” (Bakhtin, 1981, p 281). Thus during collaborative interactions the discussion forum texts represent ‘meaningful creations of the human mind’ as, in the process of making sense of the world, the authors “bring something new to the world, transforming that world and ... simultaneously transforming oneself” (Stetsenko, 2004, p 501). However, despite Vygotsky’s interest in language as central to the acquisition of knowledge, a theory of language remained undeveloped (Minick, 2005).

Halliday noted the tendency across many learning theories to approach learning “from outside the study of language” (1993, p 94) despite the integral role of language development and use in the educative process. To address this, Systemic Functional Linguistics (SFL) provides a theory of language as “an interactive event, a social exchange of meanings” (Halliday & Hasan, 1985, p 11). SFL takes a multifunctional approach to language use, which enables it to tackle the ‘ferocious’ complexity of language (Halliday, 2009) through its extensive range of analytical tools, including the construct of pedagogic genres (Christie, 2002). A core assertion of SFL is that the role of language is not only to get things done, but to assist individuals in making sense of the world, experientially and interpersonally, and how to deal with this in practical ways (Halliday 1978).

In this study of online interactions a Hallidayan perspective then is that language as an “act of meaning” is also learning, and that meaning is “at once both action and reflection” (Halliday 1993, p 101). Meaning is constituted always by the interpersonal and the experiential – that is, the relationships being set up between listener/speaker, writer/reader, and the aspect of experience being represented through what is being talked about. Interpersonal first, because meaning-making is quintessentially social, and later, the ability to reflect on experiential meaning enters through what Halliday describes as the ‘interpersonal gateway’ (1993, p 103) through which meaning becomes at once doing *and* understanding. This principle aligns with Vygotsky’s theorising that knowledge development occurs first within social relations (interpsychological) before it becomes internalised as new understanding (intrapsychological) (1978, p 57). It is these complementary principles of learning and language which inform the theoretical framework adopted by this study.

2.1 Dialogic inquiry: a theoretical framework

Following Wells’ (1994, 1999) discussion of the complementarity of Vygotsky’s sociocultural theory of learning development and Halliday’s SFL theory of language, this paper draws on the notion of ‘dialogic inquiry’ to understand the role of language in the learning process as it unfolds in online forums. As Wells (1999) points out, although Vygotsky and Halliday’s foci reflect their different perspectives, both theories posit language as central in mediating interactions between the individual and the group for generating new meanings (Wells & Arauz, 2009; see also Gibbons, 2006). The complementary roles of these two different approaches for examining online interactions lie in this central premise of language, or more specifically dialogue, as the crucial semiotic tool for learning. Together they form a robust framework for understanding the dialogic processes as learning is co-constructed amongst instructor(s) and students over the lifetime of the learning relationship. With language as the mediating tool used for social interaction, for thinking and reflection, as well as for sharing our perceptions, it can be fittingly described as the “tool of

tools” (by Dewey, 1925/1958 in Elkjaer, 1999, p 86).

The interconnectedness of sociocultural theory and SFL has been exploited in face-to-face contexts by researchers such as Wells (1999), Gibbons (2006), Hammond & Gibbons (2005), Williams (1999) and Chappell (2010) and do not need to be rehearsed here. However this combined framework yet to be applied to online adult learning environments. The central position of language in the sociocultural and SFL approaches offers insight into some of the characteristics of knowledge construction in online discussions through dialogic inquiry, and into the nature of mediating discussions for adult learners.

3 Methodology

The study used a qualitative case study approach because it is well suited to the clearly defined boundary of the online subject which runs for 15 weeks, as well as a range of data sources enabling thick description in interpretation of the data (Lincoln & Guba, 1985; Stake, 1995).

3.1 The site and participants

The site of the study was a postgraduate TESOL distance education subject with full online delivery at an Australian regional university. The overarching distance program consisted of core subjects for each of the different postgraduate awards (i.e. Graduate Certificate, Graduate Diploma and Masters) as well as elective subjects which were available to students regardless of which award they were enrolled in. Case I was an elective subject which focused on second language literacy. The participants recruited were the subject instructor and five of the nine enrolled students, located in Australia, Japan, Dubai and Germany. Four of the student participants were halfway or near completion of the Masters of Education (TESOL) course while also employed full-time (one student had two full-time jobs). The fifth student was undertaking a Graduate Diploma and working part-time. All except one had studied by distance prior to this subject, all identified themselves as teachers and indicated English as their first language. Neither the students nor the instructor had ‘met’ prior to this subject in previous online classes. The instructor had facilitated this subject for five years and had also been involved in teacher training in ‘traditional’ distance education for many years prior to full online delivery. She also had a number of years of experience in a variety of face-to-face teaching contexts. Students in this subject were encouraged by the instructor to engage in discussion, and to support this, a 5% assessment value was placed on one online contribution of the student’s choosing, which could be either a discussion post or a contribution to a class blog. Only one student chose the ‘blog’ option. Apart from this, the researchers were not privy to which posts were submitted for assessment.

3.2 Methods of data collection

Data was collected from multiple sources to enable a deep understanding of the context of this particular online group. Overall data included the texts from the discussion forums¹, a semi-structured interview (by Skype or telephone) with four of the five students, the instructor and subject designer, an online survey (students only) and collection of the pedagogic artifacts of the subject, such as subject outlines, instructions, tasks, study guides, announcements, etc. This paper mainly presents analysis of the texts of the online discussions and includes only some quotes from the instructor and student interviews to add their voices to the text analysis. Interview transcripts were checked by each participant and pseudonyms allocated.

¹ Note: At times it was necessary to consider the contributions of non-consenting participants to this study during analysis, particularly when these made a significant contribution to the collaborative discussion. Therefore on the rare occasion that these are included in the paper the non-participants have been de-identified (e.g. ‘Student6’) and the texts have been edited to retain original meaning, but are not exact replicas

² -‘message’ being defined by Martin & Rose (2008) as a unit of discourse realized by a clause, or by a projecting clause and its

Research met human ethics requirements, which included de-identifying the data and the researchers maintaining an arm's-length distance. Arm's-length distance was achieved by delaying data collection until after students had completed the subject and received final marks. This provided a clear demarcation between students' role in the research and their academic standing in the subject. In addition this minimised any influence that research participation might have had on the 'natural' dynamics of the class discussions (Halliday, 1993), as well alleviated any intrusion into students' study time.

3.3 Data organisation

The main source of data for this paper is the discussion forum texts. These comprise individual 'posts' that either initiate a new topic or attach to an existing one as a response. In total there were 18 threaded discussions (or *interaction clusters*) over a period of 82 days.

An initiated post becomes an *interaction cluster* when the 'reply' function is used, creating a cluster of responses in various arrangements around the initiated topic. After reading each of the interaction clusters, only those which displayed dialogic progression of a topic (i.e. where multiple contributions were made to discussing a topic) were chosen for analysis. Data were collected from five interaction clusters which met this criteria. The remaining thirteen clusters were deemed not appropriate for this study focusing on dialogue for building knowledge, as we considered them 'non-dialogic' clusters. This means that they did not contain dialogue *per se*, which can occur when the forums are used as a repository to upload files, resources or links, but will appear on the forum as a 'discussion topic' would. However, because their purpose was to share resources rather than generate discussion, any responses to them were found to be minimally negotiary, such as *You're a star!* or *Thanks for the link*, and thus, were not relevant to this paper.

Of the five interaction clusters, four were instructor-initiated and the other student-initiated. To capture the teaching and learning relationship only the instructor-initiated discussions were considered for closer analysis. These provided a glimpse into the common knowledge which contributed to the 'long conversation' that characterised the teaching-learning relationship (Mercer, 1995). The term *teaching-learning* used here as inclusive of content and the way the instructor works intersubjectively to help students understand the content.

3.4 Data analysis

Data analysis involved combining methods from sociocultural and SFL approaches to analyse dialogue in the learning process. This study adopted a systematic approach through the significantly different lenses of sociocultural and SFL theories which created a clear focus. This focus underpins all the steps of data gathering and interpretation. Such approach provided a clear and transparent focus for the data collection and analysis both to the researchers and to the participants.

Sociocultural analysis focuses on learning as a developmental process, while the various tools of SFL enable more detailed analysis of the language in use during the learning process. This combination contributes to a richness and robustness in data analysis as it allows for the complexities involved in dealing with language use in the context of online teaching and learning to be understood from the points of alignment between both theoretical approaches. Coding, using categories based on sound sociocultural theoretical principles, provides insight from an educational perspective into the online learning context through support strategies employed by the instructor as expert and the impact this had on learners' developing understandings. All researchers were involved in the iterative process of coding. SFL provides a more nuanced

understanding of the functions of language as meaning-making choices, namely the linguistic resources being used to co-construct knowledge simultaneously with enacting social relations - from broad generic moves to instances of texts in the process of teaching and learning.

Sociocultural approaches are a commonly used and cited learning theory in the domain of online design and instruction (for example, Jonassen & Land, 2000; Palinscar, 2005; Swan, Garrison & Richardson, 2009; Chen, Maton & Bennett, 2011; Oztok, 2012). When framed within educational theory, SFL with its capacity for robust analysis of language in use, is made more meaningful for educators. It was felt that this combination would retain the richness of analysis that draws on the strength of both theories, that is, a theory of language combined with a theory of learning. The complementarity of the theories in practice through the 'meeting' points of alignment will also contribute to triangulation in the findings and validity to the results. This necessarily involved employing different approaches to organising and analysing the data, firstly for coding the learning process (using sociocultural methods) and secondly, applying SFL analysis to the coded texts. The data analysis process will now be outlined.

3.4.1 Determining the unit of meaning for analysis

Before proceeding, there were some issues around what constituted a unit of meaning for analysis prior to coding. Approaching the online forum discussion as discourse, we consider the forums in the subject as a text. The following reflects how some of the idiosyncrasies of online discussion texts were resolved in preparation for coding and analysis. In determining a 'unit of meaning' the individual posts were not considered an appropriate unit because several different topics or ideas could be offered in a single post. In addition, negotiations around an idea in online discussion could extend over several posts or different interactants. We therefore needed an approach from a discourse, or text, level of analysis (Martin & Rose, 2007).

3.4.1.1 Forum-chat and forum-chunk units of meaning

After several readings of each interaction cluster it became apparent that the units of meaning for analysis resembled broadly two kinds of 'talk' - defined as *chat* and *chunks* in face-to-face conversational analysis, where these indicate when interactants 'take the floor' for "extended turns at talk" (Egins & Slade, 1997, p 227). This was not an entirely unproblematic approach to online interactions, as essentially each post to an asynchronous discussion *is* taking the floor, and as noted by Blanchette, there are different 'rules' in online environments because "one participant can neither interrupt nor prevent another from making a comment" (2012, p 78) as is possible in face-to-face talk. However, the kinds of distinctions offered by *chat* and *chunk* segments can be adapted to online interaction, providing the basis for determining a unit of meaning for analytical purposes. To reflect this we renamed them *forum-chat* and *forum-chunks*.

In the online discussion texts forum-chat could categorise social exchanges such as greetings and signing off (*Hi Will, Hello everyone, glad to see hear some news; Cheers, warmest regards*), or acknowledgement and thanking (*You've made some valid points Mary; thank you for these comments*). In other words, these formed important interpersonal links used by both instructor and students, even if not contributing directly to the topic of discussion. However, their regularity was noted as often occurring before a participant 'took the floor' or 'left the floor'. Forum-chat was a useful way of distinguishing the predominantly interpersonal meanings, and unlike face-to-face chat, it emerged as part of the structure in the discourse functioning as a bridging element, which would not be as frequent, as necessary or as linguistically visible in an ongoing face-to-face conversation. This could be characteristic of the asynchronous mode as even though each text is managed by the individual author in isolation from their target audience (both spatial and experiential isolation), there is an expectation that it will be read and responded to

(Martin 1992), hence the interpersonal emphasis.

In contrast forum-chunk segments involve the speaker holding the floor to tell ‘their story’, or as in this study, to add their perspectives to the discussion. Extended talk such as this usually entails the speaker’s representations of the world (experiential) in relation to the topic being discussed, and their reactions to it (attitudinal response) (Eggins & Slade, 1997). A shift in meaning flags the beginning or end of a forum-chunk segment which could also be understood as one or more messages². As we shall see these segments unfolded as predictable stages, allowing the reader to become attuned to what was likely to follow. However, while forum-chunk segments could be identified in both the instructor and student contributions, the results showed that these were performing quite different functions: the instructor was clearly ‘mediating’ and the students were clearly responding to being ‘mediated’.

The forum-chat/chunk segmenting provided distinctions which were useful in focusing on the different but important structures in dialogue which incorporated the predominantly interpersonal (but nonetheless important) elements, with those of teaching-learning (detailed in Table 9). This enabled the unit of analysis to be determined in preparation for the different coding that would reflect the particular character of the online teaching-learning environment constituted by the instructor’s dialogic teaching moves and students’ responses.

Table 1: Forum-chat / chunk segmenting to determine the unit of analysis

FORUM CHAT segments (interpersonal)	Examples from the forum data determining the unit of analysis
before ‘taking the floor’	<i>Hello Everyone ...</i> <i>Great to hear from you ...</i> <i>Hi everyone, sorry for the late start ...</i>
‘leaving the floor’	<i>... Once I’ve worked out what time EST will be here in Dubai, I’ll see if I’ll be awake to chat!</i> <i>Regards</i> <i>... I’m glad you found the information useful but hope that you never have to put it to use!</i> <i>Good luck ... and thanks for your comment!</i>
social exchanges	<i>... I am a primary school teacher ...</i> <i>... I’m very much looking forward to this subject ...</i> <i>... I’ve been a bit slow this week, mainly due to my laptop having a major heart attack and the hard drive dying a quick and unexpected death ...</i>
Forum Chunk segments	
Task oriented (students)	<i>My thoughts about reflection are that it’s a necessary part of my learning ...</i> <i>I’m still coming to terms with ‘literacy’ ...</i> <i>I do not fully agree with this concept, as many of my students do not have access to technology at home ...</i>
Teaching-learning oriented (instructor)	<i>Perhaps the specific cultural associations of different languages with the word ‘literacy’ are also important here when teaching second language students ...</i> <i>We could discuss how best to support our students in developing their writing and whether technology can help or hinder us with this ...</i>

3.4.2 Sociocultural coding schemes

The initial data coding which was concerned with understanding the pedagogic context broadly, drew heavily on approaches informed by sociocultural theories. Coding was applied to forum-chat/chunk segments, with categories checked and rechecked against the data, the descriptors and the co-text from which the texts were lifted. Firstly, coding categories which captured the dialogic support provided by the instructor were established to reflect the broad perspective of teaching

² -‘message’ being defined by Martin & Rose (2008) as a unit of discourse realized by a clause, or by a projecting clause and its projected clauses. Example of projecting/projected clause *Labbo states* [projecting] // *that whenever new technologies appear ...* [projected]

goals and purposes for learning. Support strategies were identified as those in which the instructor required students to act purposefully, according to the socially meaningful goals of the discussion (Stetsenko, 2004, p 504). The categories which emerged were *prompting*, *focusing*, *questioning*, *directing* and *organising*, adapted from the concept of scaffolding as found in Gibbons (2006), Hammond and Gibbons (2001) and Mercer (1995). When the instructor steered discussion three elements ‘worked’ together. These were *prompting* which is a way of encouraging broader thinking of a topic through offering various stimuli; *focusing* is a trajectory for discussion towards teaching-learning aims; and *questioning* is to propose, or stimulate thinking about, alternatives and can arise from ideas presented in the interaction(s). When instructing, *directing* and *organising* enacted elements of the instructor role, i.e. *directing* enables the instructor to provide guidelines for discussion tasks, protocols etc, while *organising* reflects the how the instructor arranges the teaching-learning space.

Secondly, to understand the effect of the instructor’s support on students’ learning regarding how (or whether) they co-constructed knowledge in the discussions, an instrument was used which already demonstrated it could capture the social construction of knowledge (following Hendriks and Maor, 2004, see Appendix A). As Hendriks and Maor’s study also sought to track the social progression of knowledge in online interactions, it suited our purposes, and for this reason it was valid to apply the instrument to our study. In doing so, the iterative process helped ensure the validity of the instrument for capturing the progression of knowledge. This resulted in student contributions being coded according to five levels of knowledge progression: the lowest indicator was *sharing and comparing information*, which then moved to indications of *experiencing cognitive conflict*, *negotiating meaning*, *testing/modifying the new meaning*, with the highest indicator being *applying newly constructed knowledge*. Table 10 provides a summary of this process which resulted in a total of 181 forum-chunk units of analysis, 34 being instructor-oriented support, and 147 learner-oriented:

Table 2: Coding results for instructor-oriented and learner-oriented messages

Teaching: Coded occurrences of scaffolding:		TOTAL 34
Prompting		15
Focusing		4
Questioning		4
Directing		6
Organising		5

Learning: 5 levels of social construction of knowledge:		TOTAL 147
1. Sharing / comparing information		124
2. Experiencing cognitive conflict		12
3. Negotiating meaning		8
4. Testing and modifying the new proposal		1
5. Agreeing and applying newly constructed knowledge		2

Importantly, this coding occurred before any linguistic analysis commenced. To establish validity between methods we needed to code the discussion texts using theoretically informed sociocultural methodologies, before applying the appropriate SFL tools to determine linguistic indicators for what characterised and contributed to effective online discussion.

3.4.3 SFL: linguistic analytical tools

Once coding of the texts was completed through the iterative process as described, linguistic analysis could commence. We were interested in seeing the cumulative nature of knowledge construction that occurred as the discussions moved through the teaching-learning stages, identified by Hendriks and Maor (2004). SFL as both linguistic theory and descriptive analytical tools, allows close attention to simultaneous meaning-making of construing knowledge and

enacting interpersonal relations in the unfolding language choices, and enables a visibility and level of detail which adds richness to understanding the online teaching-learning relationship.

The process of linguistic analysis was firstly from the broad concept of Genre which explains how teaching-learning as social process was dialogically executed through the scaffolded support given by the instructor. To analyse knowledge construction in the interactions we drew on the SFL resources of expansion relations (or logicosemantic relations) which provide descriptive categories for the conceptual links made by learners that indicate progression in their understanding. To analyse the interpersonal efforts to align and engage with others, which occurs simultaneously with construing knowledge, we drew on the resources of Appraisal. These analytical tools will now be explained in more detail.

3.4.3.1 Genre

Genre enables an overview of the moves made in particular contexts for configuring meaning, in this case how the social purposes of teaching and learning through discussion were dialogically ‘assembled’ – achieved through recurring stages and phases of support given by the instructor, and subsequently as students respond in appropriate and predictable ways, as would be expected when participating in discussion of this kind. Genre is described by Martin (2009) as,

how a given culture organizes ... meaning potential into recurrent configurations of meaning, and phases meaning through stages in each genre we cannot achieve our social purposes all at once, but have to move in steps, assembling meaning as we go, so that by the end of a text ... we have ended up more or less where we wanted to go (p 12).

Elements in the structure of a genre can be identified as language patterns occurring as shifts in meaning choices - choices made to reflect particular semiotic purposes. In this study the expected semiotic patterns would be those which reflected the purposes of teaching and learning. To reflect this descriptive labels were given to the instructor and student moves according to two functions: *Mediation* (to reflect the teaching moves of the instructor) and *Topic Discussion* (to reflect the learning moves of the students). These shape a possible structure of the online discussions representing configurations of meaning (Martin & Rose, 2007) in the online teaching-learning process. (See Appendix B for the statements which characterised the functions of the stages and phases).

3.4.3.2 Appraisal and intersubjectivity in discussions

Appraisal is a resource from the interpersonal metafunction of the SFL model which identifies evaluative language use. Appraisal allows insights into how participants convey attitudes, adopt stances, construct their textual personas, or manage social positionings and relationships. Attitudes can be positive (+ve) or negative (-ve) *affect* (feelings), *judgment* (of moral / ethical behaviour), or *appreciation* (aesthetic assessment of things / ideas). Appraisal can also identify the extent of *engagement* with others such as whether or not a participant opens the dialogic space to others’ positions (*heteroglossic engagement*) or the extent to which it is narrowed or closed down (*contract* or *monoglossic*). In addition *graduation* resources provide more meaning potential through upscaling (↑) or downscaling (↓) the intensity of attitudinal positionings (e.g. *somewhat* upset vs *very* upset; *a few* problems vs *a multitude* of problems), or when focus is sharpened or blurred (e.g. *a true* apology vs an apology *of sorts*) (Martin & White, 2005). In online environments interpersonal meaning embedded into interactions has the potential to build rapport and create an atmosphere conducive to learning *as well as* to isolate or exclude. When the interpersonal is not attended to or less practiced in an online environment, opportunities for open discussion and, potentially, for learning are reduced.

3.4.3.3 Knowledge expansion and logicosemantic relations

The conceptual links being made in interactions show where relations between additional information and related fields are made, and indicate prior knowledge has been expanded. These relations reveal much about unfolding and evolving understandings. This is analysed through the SFL system known as logicosemantic (or expansion) relations. Logicosemantic relations can be described as restatement or clarification when a contribution adds more (*elaboration* [=]), for example, *So, what I meant by this was*; of addition or variation when adding new information (*extension* [+]), for example, *I too had a similar experience when learning an L2*; or relations of semantic development when adding extra information (*enhancement* [x]), for example *It wasn't until after I started teaching that I realised how to put all that theory into practice!* (Eggin, 2004; Martin, 1992). These relations can provide understanding of knowledge progression operating both at the broader level of an entire forum jointly constructed by individual contributors, as well as within individual texts to identify a particular learner's conceptual development.

4 Findings and discussion

4.1 The role of the instructor

... I see my role as an online tutor as teaching my subject, in being a support for my students so that they know how to progress through a course in a staged manner without feeling overwhelmed by the content, and looking at how they're learning as well as what they're learning and being able to facilitate their ability to reflect on those aspects (Instructor I interview, 2011)

The first discussion topic was initiated by the instructor, with nine of the ten enrolled students responding. The interaction cluster was comprised of 14 posts and extended over 24 days. All students (except for one) responded directly to the instructor, who in turn responded to all students, but not necessarily as individual posts (such as combined replies: *Great to hear from you Beth, Paula and MD; Welcome Mary and Will!*).

The interview comment which begins this section provides a glimpse into the agency of the instructor to provide a supportive teaching-learning environment. Students were encouraged to contribute to forum discussion, with a 5% assessment weighting as added incentive. Given the token assessment value, a positive social space was nurtured which entailed balancing instructor 'duties' with developing positive interpersonal connections. This began with a lengthy initial post in which the instructor enacted various aspects of teacher support. These included setting out expectations for forum participation, making connections between her credentials, interests and the subject content, providing explicit instructions on how the forums should be organised, and introducing the first task with stimulus to kick-start the first discussion. The scaffolding moves became evident from the outset and were coded as *instructing* through *directing* and *organising*, and *steering* discussion through *prompting*, *focusing* and *questioning*. These, together with examples from the dataset are shown in the table below (which we will revisit in Section 4.1.3):

Table 3: Scaffolding moves by the instructor

Instructing:	Directing	I ask that you reflect on what you understand and mean when you use this word and suggest articulating your thoughts in writing by posting your response(s) here by way of an introduction
	Organising	Please click on 'Reply' so that we can conveniently group our responses within topics
Steering:	Prompting	My research interests and experience ... relate directly to my interpretation of what it means to be a fully "literate" person in the 21 st century
	Focusing	Another interesting point mentioned in your course notes reads ...
	Questioning	Do any members of this group speak another language and wish to share 'equivalents' for the term "literacy" in this other language?

Of note, the instructor's message foregrounds the interpersonal, which has the effect of

softening the impact of necessary ‘housekeeping’ tasks. Although these are ‘duties’ expected of the instructor as leader and facilitator, a more abrupt message would have quite a different impact on the social atmosphere. In order to draw students into discussion the instructor uses various strategies to open dialogic space to help create a sense of cooperative learning so students feel free to contribute. Firstly, language choices such as *we*, *us*, *our*, promote a sense of inclusivity,

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 ...

The process of developing social connections and identities also involved modelling by the instructor, when sharing some personal (even if credential-related) information. Such opportunities are important to allow online students a glimpse into the identities of their virtual instructor,

At the same time as tutoring online, I work as a Head Teacher ... at my local TAFE ...

My research interests and experiences in the area of language acquisition, relate to teacher education multimodality and communication in the new media ...

In addition the instructor reinforces what is valued, at both the interpersonal and content levels. Such validations come from positive acknowledgement and comment on some of personal experiences shared by students in relation to the topic being discussed³,

Thank you for sharing your changing ideas on literacy ... and also for the relevant and personal anecdote concerning your son ...

Thank you so much for your detailed and informative account of achieving functional literacy in a second language, Will ...

And thank you also for this valuable contribution to our discussion, Paula! Lack of fluency and/or literacy in the lingua franca is definitely not helpful for one's self-esteem ...

The instructor's attentiveness to nurturing an atmosphere conducive for open discussion was important for kick-starting the interactive process, particularly given that students were unknown to her and to each other. In addition her contributions would create a protocol for online communication skills, which as permanent texts, could be referred to, evaluated, and modelled.

4.1.1 Cultivating an interpersonal climate for learning

Foregrounding interpersonal relations from the outset, helped the instructor to create a non-threatening atmosphere, simultaneously with establishing her role as mediator to support discussion through instructing and steering. Any issues that may have arisen from lack of physical presence in online interactions were countered by the instructor. Firstly she steers students' attention to the benefits of participation through giving a positive evaluation of forum discussion. The resources of Appraisal⁴ enable us to analyse some of the key attitudinal meanings in the evaluations she makes and the interpersonal ‘softening’ she employs. The following table details the analysis (with an interpretation following),

Table 4: Evaluative meanings in instructor's introductory post

Evaluative meanings:	Interpersonal effect:	Instructor text examples:
interpersonal metaphor	Expands meaning potential; less direct	I have found
Graduation force ↑ quantification Graduation force ↑ intensification	upscaled	that <u>one</u> of the <u>most</u>
Attitude, appreciation: social value	positive evaluation	<u>valuable</u> introductory activities to this subject

³ Note: these are very similar to a feedback move in triadic dialogue

⁴ For a more detailed explanation of Appraisal see Martin and White, 2005

Evaluative meanings:	Interpersonal effect:	Instructor text examples:
Graduation force ↑ intensification	upscaled / accruing in strength	is not only but also ...
Engagement: heterogloss	Inclusive language	... <i>one where we</i> meet each other ...
Graduation force ↑ intensification	upscaled through repetition	... <i>one where we</i> comment on our present understanding of the word 'literacy'

Interpersonal metaphor expands the meaning potential, if we understand *I have found* as an implicit recommendation grounded in the instructor's expertise (of which we are assuming at this point – only later does she disclose her credentials). The meaning implied could be *take my word for it*, and there is an assumption that students will do just that, particularly when emanating from the 'expert' (consider the different interpersonal effect if this was posted by a student). The invoking of this recommendation is reinforced through upscaling the social value of discussion (*one of the most valuable ...*). Emphasis on the benefits accrues through upscaling intensity (*not only ... but also ... one where we meet ... one where we comment*) to engender in students similar positive feelings towards participating, but at the same time, avoiding saying so directly.

Creating a positive interpersonal climate also involved the instructor paying close attention to how she used language intersubjectively, in order to facilitate discussion. This was particularly evident when she gave directions, which not only provided clarity but were softened by their indirectness. The following excerpts show how the instructor achieved this, often using modality to reduce the obviousness to these adult learners that they were being told what to do (contrast the directive, *Post your responses to the forum*),

Table 5: Instructor's intersubjectivity when giving directions

Giving directives:	Interpersonal effect:	Instructor text examples:
interpersonal metaphor	less direct	I ask that you reflect on what you understand when you use this word and then
Modality	less direct	<u>suggest</u> articulating your thoughts in writing by posting your responses here ...
Interpersonal metaphor	less direct	I thought therefore
Modality	less direct	that this <u>would be</u> a timely topic that <u>may well be</u> helpful for you ...
Modality	less direct	<u>We could</u> discuss how best to support
Engagement: heterogloss	inclusive language question opens dialogic space	<u>our students</u> in developing their writing and whether technology can help or hinder <u>us</u> with this ?

The purpose of the forums is clearly for dialogue - discussion as a reciprocal experience. The dialogic space was opened through developing interpersonal instructor-student and student-student relations as well as the instructor positioning herself as involved in these activities (through inclusive language as mentioned). The examples given are typical of her agency to teach. Given the token assessment value, this would seem an appropriate way to negotiate relations with her adult learners (Knowles, 1980), preferring to entice them into involvement interpersonally, rather than compelling them by being more direct.

The interpersonal strategies preferred by the instructor, as highlighted through Appraisal analysis, renders her teaching efforts interpersonally agreeable, and indicates the expert-novice relations *and* collegiality on offer, perhaps as an inducement for adult students to become involved in discussions they perceive as potentially beneficial. The instructor's strategy of encouraging participation acknowledges the adult's self-concept as an independent decision maker (Knowles et al., 2012), important for developing intrinsic motivation which will facilitate learning, and foster deeper engagement. It is significant therefore that all but one of the students contribute to the first discussion, significant because as postgraduate learners, theirs was the choice to participate. This establishes a good foundation in the preliminary shaping of the learning

environment. Such interpersonal ‘work’ can determine how dialogue progresses, and for setting a climate in which sustained opportunities are created for students to be inducted into new ways of talking and thinking (Mercer, 1995).

4.1.2 Shaping interaction towards the goal of learning

Shaping interaction to achieve the goals of the subject requires scaffolding to guide the discussion as well as to induct students into discussion as a collective undertaking. As already discussed, such shaping requires careful linguistic choices by the instructor to frame the interaction firmly without appearing to do so too obviously. This is best exemplified again, from the introductory discussion, where we revisit the support strategies employed by the instructor, but for the purpose of seeing how experiential content is introduced for negotiation. Here the instructor confidently and expertly steers the discussion through problematising the concept of ‘literacy’ in a series of knowledge giving statements to elicit open-ended responses. She does this via a number of interpersonally oriented language choices (underlined),

We [inclusive] can perhaps [modality] explore our [inclusive] digital literacy with an online Chat session – any takers [informal] for Feb 22nd ? (organising)

... not even [concessive conjunction] among European languages that are close to English are there equivalents for the word, ‘literacy’ ... (focusing – through problematising the concept)

presenting a range of notions around ‘literacy’ to stimulate exploration of its meaning

These interests relate directly to my interpretation [personal pronoun] of what it means to be a fully “literate” person in the 21st century [open-ended]... (prompting)

One interesting and relevant [opinion adjective] definition in your topic notes ... another interesting [opinion adjective] point is ... (focusing)

and providing entry points into the discussion, while simultaneously steering its direction

... see Anna Wierzbicka and her work [command] (prompting)

I ask [interpersonal metaphor] that you reflect on what you understand and mean when you use this word (directing)

Do any members of this group speak another language and wish to share equivalents ...? [question opens up the discussion] (questioning)

It can be seen from the above examples that the support strategies of *directing*, *organising*, *prompting*, *focusing* and *questioning* (as introduced in Section 3.4.2) are for different teaching purposes, with particular emphasis on encouraging students to contribute to the discussion. These can be understood as teaching phases of *Mediation*, or how teaching is carried out in the online discussions, which effectively shaped the discussions. How the instructor employed these is illustrated as phasing of support in Figure 1 below, which provided students a variety of ‘entry points’ into the discussion, and thus a range of discussable options from which to choose.

Figure 1: Mediation of the first topic showing phases of instructor support as entry points into discussion

In later forums, the need for instruction lessened indicated by decreasing instances of directing and organising moves, with steering discussion being the main activity of the instructor. Here the agency taken up by the instructor becomes evident as she takes advantage of each opportunity to guide students into productive discussion. This occurred when setting a new task or when incorporating a whole-class steering move into an individual response to a student, as set out in Table 6,

Table 6: Instructor agency of whole-class steering incorporated into individual responses to students

Steering in responses:	Instructor agency effect:	Instructor text examples:
prompting	<p>Dialogic space opened through</p> <ul style="list-style-type: none"> Affect: satisfaction Engagement: <i>heterogloss</i> <p>Whole class-oriented prompting to stimulate broader thinking through problematising and drawing attention to</p> <ul style="list-style-type: none"> Engagement: counter Engagement: <i>heterogloss</i> Contrasting through relational process 	<p>I'm pleased you are interested in our Chat session since this is one of the ways in which we can see how literacy is changing</p> <p>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 ...</p>
focusing	<p>Extending on student ideas i.e. providing additional information and directing towards a relevant resource by adding new 'voices' into the mix</p> <ul style="list-style-type: none"> Graduation: quantification Engagement: <i>attribute</i> 	<p>Another perspective on reflection is the idea of adding a ninth intelligence to the traditional eight of Gardner!</p> <p>... Hatton and Smith (1995) discuss the higher cognitive levels of reflection ...</p>

The instructor builds an element of expectancy for the students by providing consistent support. Building clarity through steering and instructing moves, which provide unambiguous directions and various stimuli, is shown to be important for equipping students to contribute productively to discussion. The findings show that instructor mediation is crucial for effective shaping of the interactions for learning purposes. At the same time provision of this support confirms the instructor's role as 'expert other' as she facilitates the forum discussion.

The high level of support shown in the first forum has the effect of producing a lively discussion in which eight of the nine students involve themselves. Shunting between *prompting* and *focusing* as described above, cultivates ‘reasons’ for students to interact – interaction, as we shall see, is crucial to the process of co-constructing knowledge. This also has the effect of maintaining student interest as well as gathering a momentum in discussion which becomes foundational to joint dialogic activity over the following weeks. The effect of instructor mediation

on students' motivation to be involved was mentioned during student interviews, for example,

I find it an extremely beneficial part of the learning process ... the discussion forum worked as well as having a real live person ...

The lecturer was responsive ... I would say just about everyone got a response of some kind ... the other thing about that class was the setting out of what was expected of you was very clear ...

I felt that she was always there guiding the conversation which was really good ...

4.1.3 Facilitating the potential for developing new understandings

We have seen from the instructor's mediation that 'social order' was created through the forum discussion. In this role the instructor fostered a safe space for dialogue and shaped interactions towards productive discussion of various topics. In addition another phase emerged from the discussion data, which could neither be described as teaching nor learning moves, rather as interpersonally-focused moves we called *bridging*. Bridging moves usually marked moving into or out of a different phase, and appeared in these forums with such regularity that they formed part of the generic structure of the online texts. These interpersonal moves were firstly modelling by the instructor and then replicated in student responses when 'taking' or 'leaving the floor', as an interpersonal way to ease in or out of some aspect of the discussion. The examples in Table 7 show how *bridging* occurred in both instructor and student posts,

Table 7: Interpersonal bridging moves in teaching and learning

Instructor moves:	Bridging:	Phase immediately following bridging:
bridging leading into steering phase	Thank you so much for your detailed and informative account of achieving functional literacy in a second language, Will!	[steering] All the more valuable to share with us since that language uses a different script :) (Forum 2 'Literacy in L1, L2, L3')
bridging leading into directing / steering	Thank you for this valuable contribution to our discussion, Paula!	[directing] I'm wondering whether you attempted the activities as well; e.g Activity 2? [steering] I think these levels of reflection involve delicate analysis? (Forum 7 'Reflective Practice')
Bridging leading to organising and directing	Thanks for your input AH	[organising] Maybe others might like to transfer discussion regarding technology and literacy to Forum Topic Four: Teaching writing. [directing] We could discuss how best to support our students ... (Forum 10 'The changing nature of literacy')
Student moves:	Bridging:	Phase immediately following bridging:
bridging leading to abstract phase	Hi everyone. I've been a bit slow this week mainly due to my laptop having a major heart attack and the hard drive dying a quick and unexpected death!	[abstract] My thoughts on about reflection are that it's a necessary part of my learning especially in the classroom ... (Forum 7 'Reflective Practice')
bridging (personal anecdote) embedded into issue phase	It seemed that because I couldn't speak/write very well in Thai then that was the basis for everything else I could do.	[issue] I felt as though no-one knew me because I couldn't express myself adequately ... (Forum 2 'Literacy in L1, L2, L3')
bridging leading to issue phase	I like how Amanda used the term 'process of discovery'	[issue] At the school I used to work at our staff was working towards using this discovery process in our classrooms ... (Forum 7 'Reflective Practice')
bridging leading to evaluation	I found it interesting that in Canada they removed handwriting from the syllabus.	[evaluation] I do not fully agree with this concept as many of my students do not have access to a computer at home ... (Forum 10 'The changing nature of literacy')
Bridging to leave the floor	I look forward to working and studying with you all ... I wish you all a very successful time studying ... Sorry, I've rambled too much ...	[leaving the floor] (Forum 1 'Introductions and Literacy')

Bridging seems to function here as a substitute for what often occurs paralinguistically in

face-to-face interactions (such as meaning-making through gesture, body language, voice tone etc) softening the impact of exchanges when moving from one phase to the next. This reiterates the importance of emotional support in the process of teaching - a social element which plays a crucial role in the internalisation of knowledge (Vygotsky, 1978; Halliday 1978; Holzman, 2009), and essential for the adult learner (Bonk & Kim, 1998). The indirectness of the instructor, coupled with attention to fostering interpersonal alignments were instrumental in building the interpersonal relations necessary for students and instructor to become collaborators in the community. This contributed to more meaningful involvement in the online discussions.

Through the consistency of instructor support there becomes greater potential for new understandings to emerge from the online discussions. According to Alexander (2008) effective facilitation of learning requires teaching methods to have structure, form, organisation and purpose, which reflects a degree of expectancy, or predictable ways of doing things. These are especially important in an online environment where there are reduced opportunities for immediate clarification, and increased potential for misunderstanding.

As we have seen so far, the agency of the instructor to teach through mediating the discussions and its momentum, forms the teaching part of an online discussion genre we have called *Mediation*. We can now say that mediating discussion was achieved through three broad stages: *instructing*, *steering* and *bridging*. The focus of *bridging* was interpersonal, while *instructing* and *steering* were teaching-focused. *Instructing* was operationalised through phases of *directing* (to provide clarity in discussion), and *organising* (to manage and coordinate), and *steering* stage through phases of *prompting* (to stimulate thinking), *focusing* (on the task and topic), *questioning* (to open up other aspects to the discussion), as shown in the diagram below:

Figure 2: Mediation: stages and phases of teaching support in online discussions

We now consider the effect of the instructor's mediation on patterns of student participation in the forums, or more specifically how the social purpose of learning is impacted by participating in discussions. The focus for analysis shifted to students' responses to instructor support. Emerging from the student data were patterns showing student agency to learn, realized as a genre we called *Topic Discussion*. This will be explored in the section following.

4.2 Student contributions to discussion

This section focuses on student contributions to discussions as a result of the instructor's mediation. The agency of the students to learn is reflected by their readiness to share perspectives from personal experiences related to the topic being discussed.

To understand the kind of knowledge being constructed, the forum-chunk segments were described using sociocultural categories (refer to columns 1 and 2 in Table 8 below). In a separate analysis, patterns in the generic structure emerged showing students' contributions as predictable and teleological in nature. As already mentioned, we generalised student agency to learn as *Topic Discussion*. Fulfilling the 'task' of topic discussion involved students moving through stages (already identified) of fulfilling the task (*task fulfilment* stage) and aligning interpersonally

(bridging stage) (see column 4). Fulfilling a task comprised phased moves through *abstract*, *issue*, *coda*, *evaluation*, and *new understanding* (see column 5 and explained in more detail below).

These phases reflected the nature of the knowledge being shared with a progression towards individual understanding. The sociocultural coding and the generic structure informed by SFL have been mapped together in Table 8 with examples from student data to illustrate also included:

Table 8: Social construction of knowledge: coding categories mapped to generic stages and phases of Topic

SOCIOCULTURAL CATEGORIES			GENERIC CHOICES (SFL)	
Social construction of knowledge progression:	Descriptors:	Forum-chunk segments – student texts	Stages of topic discussion	Phases of task fulfillment
1. Sharing/ comparing information; pooling resources	exchanging ideas, experiences	Anyway, it's only one day per week so I have time to think about it plus continue my studies ...	bridging	
	stating opinions (incl. social exchanges)	My thoughts on reflection are that it's a necessary part of my learning ... I think developing literacy is the 'hard part' of communication ...	task fulfillment	abstract
	presenting arguments	I personally think these technological advances are so influential they have changed our role as teachers ...	bridging	
	seeking opinions, suggesting	I'm wondering if it will ever get to the point when writing by hand will become a lost art, and people will look to their grandparents to see 'how it was done' ...	task fulfillment	issue
	agreeing	I'd agree with Paula's comment that a closer analysis of the fourth stage would be necessary to go beyond evaluation ...	task fulfillment	coda
	posing questions	I wonder if people will be considered literate because they can sign their name rather than just printing it?	bridging	
2. Experiencing cognitive conflict	counteracting	I'm not sure I agree with this quote ... if their were fewer constraints on teachers more would take the time to become reflective practitioners	task fulfillment	evaluation
	critiquing	I haven't been very successful in taking my students to the level of 'dialogic reflection' ...	task fulfillment	evaluation
	disagreeing	I do not fully agree with this concept as many of students do not have access to a computer at home	task fulfillment	evaluation
	restating an argument	Another point ... he talked about was that it doesn't matter how much you know ... but how well you can pass that information on to others ...	task fulfillment	evaluation
3. Negotiating meaning	to show compromise, propose and negotiate a new understanding	I somehow assumed that this ... would be happening in many schools and once I left I remember being surprised to discover ...	task fulfillment	new understanding
4. Testing and modifying the new proposal	testing against cognitive schema	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 ...	task fulfillment	new understanding
5. Agreeing and applying the newly constructed knowledge	having a new and deeper understanding; synthesising	I find now when I approach a ... topic, I am alert to the perspective students bring to the situation ...	task fulfillment	new understanding

Abstract refers to phases in the discourse where students gave an overview of their post, *orientation* ‘announces’ to their audience what they were going to present, the *issue* phase proposes a matter related to the topic, while the occasionally used *coda*⁵ is a summarising point made of the whole post. *Evaluation* refers to a phase in the discourse at which information was negotiated – sometimes simply shared, while at other times new knowledge was constructed (discussed further in section 4.2.2). The higher levels indicating knowledge construction (level 3 and above) were found in the phase of *new understanding*, which will also be explored later in the paper. The frequency of stages and phases observed during *Topic discussion* across the whole data set was comprised of 51 occurrences of *bridging* stage and 102 of *task fulfilment*. The *Task fulfilment* stage comprised *abstract* (13 occurrences), *orientation* (11), *issue* (32), *coda* (8), *evaluation* (27) and *new understanding* (11) (see Appendix C for a summary table). The hierarchical generic structure of student responses can now be identified, shown in Figure 3.

Figure 3: Topic Discussion: stages and phases of learning enacted in online discussions

4.2.1 Sharing information: pooling individual resources

Sharing information was the most prevalent contribution made to the forums and occurred as students included their perspectives in the discussions, but did so uncritically. This was an important part of gathering a range of different perspectives which added incrementally to the body of shared knowledge. This occurred in the phases of *abstract*, *orientation*, *issue* and specific kinds of *evaluation*.

The *abstract* and *orientation* phases gave some insight into the communicative proficiency of the learners, both in their audience awareness and in the logical structure which signposted the phases of meaning. For example, *abstract* encapsulated the point of the post which helped establish predictability in its direction such as,

My understanding of the term 'Literacy' at the moment involves ...

The pieces of technology that could be used to replace each of these items [i.e. pens, paper, books] are now available ...

This phase often led to an *orientation* phase. *Orientation* functions as a way of students flagging to the audience that they have commenced 'taking the floor' to share a personal experience or idea, which is not unlike telling a story embedded into relevance of the topic. When students moved into the phase of *issue* this tended to emanate from sharing personal experience, or if not from personal experience, from relating the experience of another. This enables personal connections to the discussion topic and functions as another important way of collectively pooling resources. *Issue* allowed students to present an array of different concerns relevant to the TESOL profession.

These phases are important for ongoing collaborative construction of subject content, understood as one idea expanding upon another. As mentioned earlier, in SFL terms these are

known as expansion relations of *extension* (addition/variation [+], or *elaboration* [=]⁶). Expansion relations can occur both within individual student responses as well as at the broader perspective of the whole forum, in which each contribution adds to the collective knowledge. Table 9 provides some analysis to explain how collective knowledge was built, while Table 10 shows how issues were presented, sometimes through a process of problematising (i.e. proposing variations) which could be a catalyst leading to new understandings.

Table 9: Expansion relations of addition and elaboration to build collective knowledge

Expansion relations:	Co-text	Examples of expansion relations
addition [+]	As a multicultural society, Canada has become home to thousands of new Canadians every year	and [+] those of us born in Canada are often unaware or take for granted the complexities of our own language and the struggle many go through ... (Forum 2 Literacy in L1, L2 or L3 ...)
variation [+] and elaboration [=]	My experiences in Oman and Dubai	have been slightly different [+] in that English is widely used, seen, heard on the radio and TV, and taught in schools and at university [=] (Forum 2 Literacy in L1, L2 or L3)
addition [+]	I know this response is late but I found this topic interesting and wanted to respond ...	I was lucky enough to recently work at a primary school that valued teacher reflection [+] (Forum 7 Reflective practice)
addition [+]	I am currently teaching a Year 1 class in a new school this year	and [+] it is very surprising to see the range of technology that my children have access to ... (Forum 10 The changing nature of literacy)

Table 10: Expanding collective knowledge through highlighting issues

Expansion relations:	Co-text	Examples of expansion relations and issue
variation [-]	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 ... (Forum 1 Literacy (on learning an L2))
variation [-]	Those in the international business program tend to have higher level than those in other, more general courses,	but [+] none of my students could be classified as more than an intermediate level when it comes to language ability ... (Forum 1 Literacy)
addition [+] and elaboration [=]	I remember my first day in Japan ... it was up to me to make my way to the supermarket to buy food for that evening's dinner.... I was shocked by what I found ...	I was not able to read the labels of any of the food products nor was I able to read the signs in the aisle ... I ended up eating pasta for about 3 months before some of my students taught me some basic characters ... Japanese is an extremely complex language ... In addition [+] to reading and writing it took me a very long time to adjust to what I might call 'community literacy', or being able to function within Japanese society [=] ... (Forum 2 Literacy in L1, L2, L3)
elaboration [=]	There are some interesting aspects about learning a second language that I have gauged from studies and talking to learners. There is a complex mental process going on.	For instance [=] a friend who was doing a TAFE hospitality course explained how she had to read the text, convert that information to Russian, then back to English ... (Forum 2 Literacy in L1, L2, L3)

Collaborative discussion involved adding new [+] or more [=] information which contributed to the collective of knowledge (Mercer 2000). Indeed, it is worth to note that students felt confident enough to disclose personal aspects they felt related to the topics (as shown in some of the above examples), given that none had met prior to this online subject. However, while engaging in these kinds of discussions help build a sense of belonging to the learning community, for teaching-learning to be effective students must move beyond this level of discourse. The online forums need to be used to critically engage with ideas that students are encountering through readings and the topic guides, under the guidance of the instructor.

⁶ Refer to Section 3.4.3.3: Logicosemantic relations of elaboration and extension are: elaboration of concepts through relationships of restatement - clarification, such as when adding *more* information (represented as [=]), and extension which are relationships of addition or variation, when adding *new* information (represented as [+])

4.2.2 Making evaluations and transforming perspectives

The impact of the instructor's mediation became most visible at the *evaluation* phase in the discussions. Those contributions identified as evaluations, when mapped onto the social construction of knowledge (refer to Table 8), indicate a movement away from additive and contrastive relations discussed in the preceding section, towards forging new understandings. When students made evaluations this indicated the point at which they were seen to be grappling with new concepts (or beginning to). In other words, when they were experiencing some kind of dissonance in their current thinking, their language choices shifted to a more critical stance than that used when simply sharing information. However not all evaluations were indicative of knowledge progression as some still fell into the sharing/comparing information descriptor (e.g., *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 ...*), while others were identified at the higher level of experiencing cognitive conflict (e.g., *I could recognise them in the samples but I wonder if I could recognise the same characteristics in my own reflective writing ...*).

Linguistic analysis enabled more explicit distinctions between both types of evaluations, in terms of how they indicated a progression in knowledge. Firstly we noted that evaluations at the level of sharing information functioned to express an opinion, in order to justify, concur or extend an idea. The analysis showed that evaluation at this level was often through attributive⁷ relational clauses which give a quality to something, or someone, as shown in the examples below:

Table 11: Evaluation of qualities: sharing opinions

What is being <i>evaluated</i>	The quality being attributed
I think developing literacy	is the 'hard' part of communication ... (Forum 1 Literacy)
There's no doubt that the process [i.e. of learning a second language with a different script]	is enormously complex , and I feel I'm only just beginning to scratch the surface of these complexities... (Forum 2 Literacy in L1, L2, L3)
I have created a blog for my children ... this is new to them and spelling has created a bit of an issue, but they cannot stop talking about it ... <u>The enthusiasm</u> I have seen over the past two weeks	is amazing ... (Forum 10 Changing nature of literacy)
... considering the number of people that are saved every year because they	were fortunate enough to have been found in a 'triangle of life' that allowed them to survive ... (Forum 18 Health and welfare literacy)

However, when students questioned the status quo, their language choices shifted to some kind of discord in their thinking. This was most evident in a discussion on reflective practice, in which negotiating a new perspective was often as a critique either of self or of their own practices in conjunction with the topic. These kinds of evaluations indicate a consciousness of the need for self-improvement, with internal perceptual changes potentially leading to transformed practices. Changes in perspective were understood through a variety of linguistic resources operating simultaneously, e.g. resources for expanding knowledge *and* expressing attitudinal stances. Linguistic analyses therefore involved expansion relations and Appraisal (i.e. of attitudes, graduation and engagement), with some examples given in Table 12:

Table 12: Evaluation indicating transforming perspectives

Appraisal analysis:	Expansion relations	Explanation of linguistic resources	Examples
Judgement: capacity +ve and -ve	variation [+]	Self-critique: evaluations of own capabilities	<i>I could recognise</i> (+ve) them in the samples
Graduation: force (↑)		Force: intensity upscaled through repetition	but [+] <i>I wonder if I could recognise</i> (-ve ↓)
Engagement: contract		Counter-expectant through concessive conjunction 'but'	the same characteristics in my own reflective writing

⁷ In SFL these are understood through the system of Transitivity (from the Experiential/Ideational metafunction) called relational attributive processes – where a quality is attributed to (i.e. related to) something/someone (called the 'carrier' of the attribute), usually through (but not limited to) linking processes such as *to be*, *to have* (for more detailed explanation of Transitivity see Eggs, 2004; Halliday & Matthiessen, 2004; Martin, Matthiessen & Painter, 2010)

Appraisal analysis:	Expansion relations	Explanation of linguistic resources	Examples
Graduation: force (↑)	addition [+] elaboration [=]	Adding new information Intensity upscaled through repetition Re-stating an argument – connecting literature to own reality	Another important point [+] ... was that it doesn't matter <u>how much</u> you know ... but <u>how well</u> (↑) you can pass that on ... [=] So I'm sort of relating that to the mentor that I mentioned in the previous posting ...
Judgement: capacity –ve Graduation: force (↓)		Self-critique: -ve evaluation of own capabilities Force of self-critique downscaled / softened	<i>I haven't been very</i> (↓) <i>successful</i> in taking my students to the level of 'dialogic' reflection ...
Interpersonal metaphor Engagement: entertain		Attitudinal stance is less committed i.e. more open to other opinions (If ... then) opens up the dialogic space for negotiation	I think if there were fewer constraints on teachers then more would take the time to become reflective practitioners ...
Judgement: capacity +ve and –ve Engagement: contract		Self-critique: evaluations of own capabilities Counter-expectant through concessive conjunction 'however'	Having lived here for as long as I have, <i>I would consider myself</i> to be functionally literate ... however I am reminded on a daily basis of how far that I have left to go before I attain a level even approaching that of a native speaker ...

The analysis highlighted that as students were given the opportunity to critically evaluate their current situation, they were able also to consider negotiating a different perspective. In the context of TESOL teacher education, time for discussion on reflective practice seemed relevant for these students, and particularly helpful in progressing their knowledge beyond uncritical pooling of information. This involves an element of risk-taking but the willingness to disclose their changing perspectives could be interpreted as students' increased agency. This was indicated by their contributions, which show increasing confidence in self and in the dynamics of the group. These contributions also showed that conceptual links were being made between related ideas - a progression in knowledge development, which will be discussed further in Section 4.2.4. Grappling with new concepts in the 'public' space of the forums provides opportunities for negotiating formerly unresolved ideas, as well as being beneficial for the whole group. Such negotiation became visible at the point when exchanging information moved towards understanding something new. This was through evaluations which are described as *transforming perspectives* (to distinguish these from *opinion* evaluations).

4.2.3 Co-constructing new understandings

Evidence that students have constructed new understandings is a highly desirable outcome of online discussion. As described in the previous section we argue that forum-chunks coded as evaluation are important indicators of the changes in perspective necessary for growth in student understanding. We have also seen from Table 8 that the forum-chunks coded as *negotiating meaning* (level 3) and higher, also mapped onto the *new understanding* phase and also needed to meet the following descriptor:

presenting new/changed/developed understanding arising from the issue/evaluation being discussed, which is indicated as different to previous understanding (refer to Appendix B)

Of the 147 (student) messages, 11 were categorised as new understandings according to the above descriptor and 12 were evaluations indicating transforming perspective (i.e. coded as *experiencing cognitive conflict*). These can be considered the knowledge construction phases of discussion and represented around 15% of the total contributions. This indicated that discussions

had facilitated construction of new meaning, or at least that they provided a reflective space for students to articulate current understandings at various junctures in the process (i.e. being jointly negotiated, tested or modified). A discussion which exemplified joint construction of new meaning is provided in Table 13. The excerpts focus on the relevant messages within this particular discussion, showing the effect of cumulative contributions which broaden students' thinking about literacy. There are 15 turns taken, six are the instructor mediating and nine are student responses. The stimulus from the learning site was a reading, which summarised twelve approaches to literacy. The evidence of knowledge progression could be tracked over several moves and across different participants.

Table 13: Excerpt from a discussion showing collaborative construction of a definition of 'literacy'

Msg #	Turn-taker	Teaching-Learning moves	[Stages] and Phases *[TF]=Task fulfilment stage = phase boundaries	Excerpts from the interaction cluster	Sociocultural Coding categories
9	Instructor	Mediation	[Bridging] ... [Instruction]:directing	... I ask that you reflect on what you mean when you use this word ['literacy'] and then suggest articulating your thoughts ... by posting your response(s) ...	directing
15-18	Paula	Topic	[Bridging] ... [TF]:Abstract Issue Evaluation	... At this stage, I understand 'literacy' as a very broad term that is the next step from speaking and listening I imagine some cultures ... who have not had a need for literacy because of their nomadic and hand-on culture I think developing literacy is the 'hard' part of communication for instance some time ago when we lived in Thailand ...	1. Sharing information
24-25	Beth	Topic	[Bridging] ... [TF]:Abstract Issue	... My understanding of the term 'Literacy' at the moment involves being able to read, write and communicate effectively I have noticed that children with English as a second language who have difficulty in communicating ... also experience difficulty when writing ...	1. Sharing information
29-31	Student6	Topic	[Bridging] ... [TF]:Abstract Issue Evaluation	... I understand literacy as being an overarching term for reading, writing, listening, speaking and understanding different cultures have different ways of making meaning so to me, expressions and gesture are incorporated into literacy as well ...	1. Sharing information
33-34	Instructor	Mediation	[Bridging] ... [Steering]:prompting	... It's interesting most of you regard literacy as more than simply reading and writing – a reflection perhaps of our changing times and the term 'multiliteracies'? ...	Prompting
39-40	Mary	Topic	[Bridging] ... [TF]:Abstract Issue	... To me, literacy is also more than just reading and writing too. It's a system of communication that's constantly evolving I'm particularly interested in the latest developments in tools and technology ... and the impact these will have on literacy as we know it ...	1. Sharing information
43-49	Will	Topic	[Bridging] ... [TF]:Issue Abstract Evaluation	... none of my students could be classified as more than an intermediate level when it comes to language ability To me, the simple definition of 'literacy' is to read and write in a language Since coming to Japan however, I can see that literacy is somewhat more complex than that ... one's ability to read and write a language is much more valued than one's ability to speak ...	1. Sharing information 2. Experiencing cognitive conflict

Msg #	Turn-taker	Teaching-Learning moves	[Stages] and Phases *[TF]=Task fulfilment stage = phase boundaries	Excerpts from the interaction cluster	Sociocultural Coding categories
52-54	Instructor	Mediation	New understanding	... Therefore I can see how literacy would mean something different depending on the culture of the country in which you lived ...	3. Negotiating meaning
			New understanding	... Furthermore, I believe that a definition for the word 'literacy' depends heavily on the context in which it is used ...	3. Negotiating meaning
			Issue	... To be functionally literate or able to carry out the essential activities of daily adult life differs a great deal from being literate in a professional, academic or technical sense ...	1. Sharing information
			[Bridging] ... [Steering]:prompting	... I'm pleased you're interested in our Chat session, especially since this is one of the ways in which we can see how literacy is changing ... 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 ...	Prompting
			[Bridging] ... [TF]:Abstract Issue	... I'm still coming to terms with 'literacy' and a narrow definition of reading and writing is rather inadequate I have some ESL students who know grammar well and can read and write at high levels – yet their spoken English is very basic ...	1. Sharing information
			[Bridging] ...	... thank you for changing ideas on literacy SH, and for the relevant and personal anecdote ...	1. Sharing information
			[Bridging] ... [TF]:Abstract	... My response to the word 'literacy' a few years ago would have been 'the ability to read and write' ...	
			New understanding	... I have realised how limited the definition is, particularly in my current teaching position ...	
			New understanding	... I think the semiotic approach sounds far more likely ... we need to be able to read far more than just words ...	3. negotiating meaning
			New understanding	... I've become aware of the different schema that students bring with them ... to decode and interpret, and the role played by signs, sounds, faces and the environment ...	4. Testing and modifying the new proposal
72	Instructor	Mediation	[Bridging] ... [Steering]:prompting	... good to read how so many of us have moved on from a very literal and basic definition for 'literacy' ...	Prompting
76	Student8	Topic	[Bridging] ... [TF]:Abstract	... to me, literacy is about communicating effectively ... simply reading and writing does not make one literate ...	1. Sharing information
80	Instructor	Mediation	[Bridging] ...[Steering]:questioning	... hoping we can discuss literacy a little further in our chat; for instance, to what level do we need to be literate in these various domains?	Questioning
83-84	Student9	Topic	[Bridging] ... [TF]:Abstract	... I've always thought of 'literacy' as the ability to read and write also ... but over time I've amended this to include communicating in different contexts ...	1. Sharing information
			Issue	... however, the concept of semiotic systems highlights my narrow definition of 'literacy' as well as the difficulty in pinning it down to reading and writing ...	1. Sharing information

The *sociocultural coding categories* column shows that most of the interactions are sharing information as students build a collective understanding of the term 'literacy'. It is not until Turn

7 that Will indicates he is tackling the complexity of defining ‘literacy’ as a result of personal experience working in Japan, where he noted the higher value placed on reading and writing as “much more valued” than speaking. The recognition of this culturally influenced notion of literacy as different to his own caused him to rethink his current understanding, thus he re-negotiates a new meaning for literacy due to “coming to Japan” and seeing first-hand how “literacy is somewhat more complex than that [i.e. reading/writing] ...”. For Will, the discussion triggered consideration of the difference in value systems, that is, the influence of context when defining literacy. In light of his own experience such consciousness can bring about changes in perspective (Msg # 43-49), which was also confirmed in the interview. Will is also the first to broach the concept of being ‘functionally literate’ (Msg # 49) as synonymous with that of ‘semiotic approaches’, which he elaborates as *being able to carry out the essential activities of daily adult life*. This was a term introduced by the instructor earlier (not included in this table), and was also included in the reading. At Turn 10 Amanda discloses her own emergent understanding (*I have realised*) as she too expresses a shift in her understanding of literacy, particularly when applied to her current teaching situation. The concept of ‘semiotic approach’ seems to be a challenge Amanda takes up as she attempts to make the term personally meaningful by unpacking it as, *needing to read ‘far more than just words’*. This indicates her understanding is as yet, incomplete. However she relates the concept to her classroom of students, and by doing so, ‘tests’ her current knowledge against the strategies she has noticed her students using when communicating and meaning-making (Msg # 69). Her persistence indicates a motivation for greater understanding which as yet is beyond her. ‘Semiotic approach’ is also mentioned in the final turn of this discussion, in which the student indicates this as an issue which *highlights my narrow definition* [i.e. of literacy] (Msg # 84).

The oscillation between uptake and (perhaps) avoidance of the term ‘semiotic approaches’ suggests that although it was an idea of interest, it was one which challenged existing understandings. It could be understood as the beginning of appropriation, argued by Vygotsky as occurring when a new concept is deliberately introduced, and its introduction charts new paths for spontaneous development (1986). Indeed careful mediation of discussion can trigger connections between what is already known and new ideas or circumstances. In this particular excerpt providing something which was appropriately challenging fostered productive discussion in terms of collaboratively constructing a working definition; a progression acknowledged by the instructor as moving away from *a very literal and basic definition* (Msg # 72). Common knowledge was accumulated as students either added more information [+] or contributed to a deeper understanding, made visible giving *extra* information [x], shown in Figure 4:

Figure 4: Cumulative contributions to literacy definition

New understandings are certainly the goal in the teaching-learning process, and it is encouraging that the findings so far indicate the effect of deliberate mediation for moving online learners towards this phase. However, these findings would come as a surprise to the instructor who, when asked if the forums have been a place where developing knowledge could be seen, replied, “I would like them to be ... but I don’t think they have been” (Interview, 2011).

That this was not obvious to an involved and experienced instructor may seem curious. However it points to the need for an understanding of the finer points of meaning-making in how

language mediated learners' mental processes while they engaged in discussion. Focus now turns to evidence of new understandings through the linguistic resources learners used. This draws primarily on the SFL resource of expansion relations (or logicosemantic relations). Expansion relations show how conceptual development progresses from additive and uncritical sharing of information towards new understandings, through the linguistic links made between ideas, attitudes or perceptions.

4.2.4 Conceptual development and progression in understandings

To capture linguistic evidence for conceptual development in the forum discussion, the spotlight for logicosemantic analysis fell on the 23 forum-chunks which were coded as progression in knowledge. Knowledge progression ranged from *experiencing cognitive conflict* (Level 2) to *agreeing / applying newly constructed knowledge* (Level 5). The first and second columns of Table 14 below show the alignment between the sociocultural coding for knowledge construction (Column 2) with the generic phases of the learning process (Column 1) i.e. of *evaluation (transforming perspective)* and *new understanding* phases. For example, linguistic patterns in the forum-chunks coded as *experiencing cognitive conflict*, enabled categorization of these as evaluations students made which indicated their current perspectives were in a state of transformation. Logicosemantic (or expansion) relations were present in each of these instances. Table 14 shows the distribution of expansion relations in the forum-chunks. Notably, the most frequent of the three relation types (i.e. elaboration, extension, enhancement) were those of *enhancement* (35 instances), that is, relations in which one idea is qualified by another. The significance of enhancing relations is discussed in more detail in the following paragraphs. The lesser-used relations of extension arose when additional information was being provided (often through additives such as *however, but, yet, and*) while *elaboration* was used when clarifying concepts, but occurred infrequently in these forums.

Table 14: Knowledge progression: frequency of expansion relations across the discussions

Phases: Knowledge construction	Coding: Social construction of knowledge levels	coded forum-chunks	Expansion relations within coded forum-chunks		
			Elaboration	Extension	Enhancement
evaluation – transforming perspective	2. Experiencing cognitive conflict	12	4	9	17
new understanding	3. Negotiating meaning	8	-	5	9
	4. Testing / modifying the new proposal	1	-	1	1
	5. Agreeing / applying newly constructed knowledge	2	-	1	8
	Totals:	23	4	16	35

Due to the high representation of *enhancement*, discussion will now focus on this as indicative of students' progression in knowledge development as evolving understandings were made visible through discussion. Relations of enhancement are important linguistic indicators of conceptual development, which identify progression in understandings. This is because expansion of meaning is evident when qualifying concepts in some way through circumstantial relations such as by reference to *time, place, manner* or *cause* (Eggs, 2004). The following table focuses on the distribution of circumstantial relations across the 23 forum-chunks. This summary shows that students' increasing understanding was most often realized through enhancing relations of *manner* (14 instances) or *cause* (11),

Table 15: Enhancing relations occurring in phases of knowledge construction

Enhancement relation types

Phases: Knowledge construction	Coding: Social construction of knowledge levels	cause	manner	time	place	total
evaluation – transforming perspective	2. Experiencing cognitive conflict	8	5	2	2	17
new understanding:	3. Negotiating meaning	3	2	2	2	9
	4. Testing / modifying the new proposal	-	-	1	-	1
	5. Agreeing / applying newly constructed knowledge	-	7	1	-	8
		11	14	6	4	35

Progression in understanding was often evident through relations of *cause*, as different concepts were being linked during students' reasoning processes. These can often (but not always) be flagged by conjunctions such as 'therefore' and 'because' etc. Reasoning was most evident when students' changing perspectives were realized through critical evaluations, and demonstrates evolving internal mental development. Factors relating to cause often contributed to students' growing understandings, as shown in the following examples:

Table 16: Enhancing relations of *cause*: agent of knowledge construction

Knowledge construction phase	Student texts: examples	Causal factors
evaluation – transforming perspective:	I believe that a definition for the word 'literacy' depends heavily on the context in which it is used ...	context/culture as causal factor
	'dialogic reflection' and terms like 'stepping back' 'mulling over' gave me a focus in terms of my own reflective role ...	external cause
	I don't fully agree with this concept because many of my students do not have access to a computer at home ...	concept VS reality / personal experience
	the reading about Media Literacy too gave me much food for thought ...	external cause
new understanding:	what made me mull over this was ... the majority of schools simply do not have access to the kind of technology we are reading about ...	external cause
	many of the hardships that I have encountered have given me new respect for the students that I teach and the complexities of literacy itself ...	external cause
	I realise now that it was a very good learning curve because I know as native speakers it is very easy to forget that some students ... have been professionals ... in their own country ...	personal experience contributing to new understanding

Evolving understandings were also exemplified through making some kind of comparison, or when making visible a process of internal logic. This was often achieved through enhancing relations of *manner*. These provide answers to *how? in what way? by what means? or like what?* (Eggins, 2004), with examples given in the table below,

Table 17: Enhancing relations of *manner*: processes of internal logic revealed

Knowledge construction phase	Student texts: examples	Comments (↑ = upscaled intensity)
evaluation - transforming perspective:	... living here in Japan ... I am never expected to know or function as other Japanese are ...	Comparison
	... I often feel as if I am being judged by a different standard than other native speakers ...	like what? comparison
	Another important point I noticed was ... it doesn't matter how much you know ... but how well you can pass that on to others ...	internal logic (repetition - ↑)
	Cordes' comment ... however true made me wonder whether we are set on a path of inevitable, irreversible polarisation globally ...	internal logic
New understanding:	I realised how limited the definition is particularly in my current teaching situation	Internal logic
	I realise how much more I do this the further into my studies I go ...	Internal logic
	I find now ... I reflect more deeply on how best to maximise existing knowledge and how best to include myself in the process of discovery ...	(repetition - ↑)

Knowledge construction phase	Student texts: examples	Comments (↑ = upscaled intensity)
	... it is our responsibility to teach our children how to read images, how to search the internet, how to gather relevant information and how to use different modes of technology ...	(repetition - ↑)

An important aspect of making conceptual links to new understanding was bringing in relevant prior experience to help make sense of new concepts. This was most often expressed through circumstantial relations of time and place, as the following examples show,

Table 18: Enhancing relations: situating understandings through time and place

Knowledge construction phase	Student texts: examples	Comments
Evaluation:transforming perspective:	Since coming to Japan however, I can see that literacy is somewhat more complex than that ...	Time, Place
	Having lived here for as long as I have I would consider myself to be functionally literate ...	Place, Extent in time (as long as I have)
	Living here in Japan I am never expected to know or function as other Japanese are However I often feel I am being judged by a different standard than other native speakers ...	Place
New understandings:	That's where I realised that my own reflections might sit somewhere between a descriptive and dialogic reflection ...	Place
	I have realised how much more I do that in my classes the further into my studies I go ...	Place
	It wasn't until I came to Japan 13 years ago that I became aware of the complexity of becoming functionally literate in society	Time x 2 (until and 13 years ago) Place
	Furthermore, I can think about different things that might help ... but until I start to experiment and take the new knowledge on board then I haven't really progressed much ...	Time
	I find now when I approach a text/listening task, I am alert to the perspective students bring to the situation and reflect more deeply on how best to bridge the gap	Time

Enhancing relations show moments in knowledge construction where there was a surge in understanding. These moments are also important indicators for the instructor that students are ready to be moved (or return) to more difficult or more abstract concepts. Other indicators of new knowledge came from the students themselves, as self-recognition of newfound understandings, realized through mental processes, such as,

I realised ... / I didn't realise ... / I can see ... / I find now ... / I am alert to ... / I've become aware of ... / I can see.

At this point insight into the effectiveness of collaborative discussion for developing new understandings is drawn from student interview data. Student perspectives help clarify the findings and provide assurances that our analyses and interpretations of the interactions reflected the reality of these discussions. In particular it was important to understand the benefits to learners of mediated discussions. Thus this section finishes with the voices the four interviewed students in their responses to the interview question, *Do you feel you learnt from participating in the discussions?*

Absolutely! There is no doubt that it's an extremely beneficial part of distance learning because I think if this weren't a component we would be working completely in isolation ... and I feel I can sort of add to what they've commented and then, you know, my responses I feel are more comprehensive. So yes, I have learnt a lot (Amanda)

... I'd never really thought about literacy in the broader sense ... how it relates to the second language context ... the interaction really got me thinking about the broader sense of literacy rather than the quite narrow definition of it so the interaction really brought forward, in a sense what it would have done in face-to-face interaction in an actual classroom ... it made you think about the greater context, which I think is the point, isn't it? (Will)

Yes! ... oh yes! absolutely! Sometimes it can be as clear as anything written down ... I read everyone's ... I think

"yeah yeah, I understood that" and then someone else will come and say it a different way and I thought "oh God I missed that point completely" ... its like a classroom ... someone within the group makes a comment and it adds to the conversation and it clarifies, not just for yourself but others. (Paula)

I think its [i.e. interacting on the forums] pretty important, yeah ... like if we didn't have that online forum and the chat session it would have been all the more difficult just wondering if you're on the right track and everything (Mary).

5 Conclusion

This study has described in detail the logogenesis of the unfolding texts in the online discussions of a postgraduate TESOL class. This was achieved in a principled and theoretically sound manner, using a combination of two approaches – sociocultural and SFL theories, which enabled the study to identify key teaching and learning moves in online discussion forums and shed light on the complex nature of the mode of asynchronous communications for teaching and learning.

Key to making explicit the effective orchestration of online teaching and learning was through the notion of genre. The genre under focus here realizes the broad cultural purposes of teaching and learning through collaborative discussion, evolving as the pedagogic function of teaching adapts to different circumstances, such as to online contexts. Thus over time, like all genres, online discussion texts have evolved through serving particular social functions in the given culture. As this study has shown, mediated forum discussion contained predictable stages and language features (Martin, 2009; Christie, 2002). In online education, these purposes are shaped by shared understandings motivated by a desire to teach on the part of the teacher, and a desire to learn on the part of the student. Thus if the instructor's teaching moves do not unfold as expected, the students may feel a sense of frustration or incompleteness, and vice versa (Martin, 2009). This study confirms that the social construction of knowledge for online learners will be optimised when support is consistently provided and modelled by a 'present' instructor.

This study has also demonstrated clearly the effectiveness of instructor mediation for facilitating purposeful discussion, and of the importance of this being tempered with interpersonally-focused instruction. Nurturing a positive social space was effective in enticing adult learners to interact, rather than compelling them (Knowles, 1980; Knowles et al., 2012). Mediation of the content through instructing and steering (in conjunction with providing resources) facilitated content-focused discussion, simultaneously with social support which also acknowledged the value of experience, which for adult learners forms an intrinsic link to identity (Knowles et al., 2012). Social support was embedded in the interpersonal linguistic choices made by the instructor, which fostered mutual understanding at the same time as endorsing the social dimension as a valued component of learning, and was crucial for boosting willingness to contribute (Holzman, 2009). Development of their own communicative skills was assisted by the fact that students had at their disposal the instructor's texts as models, which were influential in nurturing a positive social space through interpersonally focused language (Liu et al., 2007). The effect on discussion was that talk was inclusive and productive, which allowed students a deeper exploration of topics that may not have occurred if interpersonal relations were fragile.

Although the instructor added new information when steering to stimulate broader thinking in the discussion, interestingly she did not enter into discussion of the topic content but relinquished a certain amount of control over the 'end product'. We can only surmise that she saw her role as providing an adequate level of support to engage students in discussion, and that once there, students would have a certain freedom (even if under her watchful guidance). This demarcation highlighted quite clearly defined roles, the instructor functioning in a role of support to foster open-ended discussion, and students in a role of responding to this, very much as learners (albeit, experienced ones), with teaching-learning reflected in distinct generic stages and phases. Clear expectancies are invaluable especially for busy adult learners who are more likely than

younger learners to want to know the purpose and potential benefits to learning before undertaking a task (Knowles et al., 2012). Thus clarity helps reduce time and energy 'wasted' over uncertainties, which would be far better channelled into the discussion itself.

This study demonstrated that students responded appropriately as collaborative contributors to group-focused learning with knowledge being socially constructed in the online discussions. Students were intrinsically motivated and their levels of engagement became evident as they felt confident to disclose personal views and opinions (Knowles et al., 2012), with positive interpersonal relations allowing the discussion to move to more critical stances, particularly when reflecting and speculating on one's own behaviour (or others'). This shift opened up the potential for discussion to negotiate transformed perspectives or practices (Wells & Arauz, 2006). Extended discussion of different topics also triggered different connections between already understood concepts - connections which perhaps had not been considered previously. These represented moments of new understandings where collective knowledge contributed to acquisition of individual knowledge.

Finally, the significance of this paper is its holistic approach to examining online teaching *and* learning. Insight has been gained into the impact of instructor mediation on student discussion in which students effectively contributed to building new understandings. Sociocultural perspectives provided a lens for interpreting the teaching-learning process, with Mercer and Howe (2012) arguing that,

one of the distinctive strengths of sociocultural theory is that it explains not only how individuals learn from interaction with others, but how collective understanding is created from interactions amongst individuals (p 13).

When combined with the strength of Systemic Functional Linguistics (SFL) for systematic description of language choices in the process of learning, the potential power of this 'marriage' is the ability to change orientation between meta- and micro-analysis of the teaching-learning relationship – from the broad perspective of teaching *and* learning, to close attention to the unfolding language choices. As learning and interaction are inseparable from their social, historical and cultural contexts, this theoretical combination provided considerable insight into the impact of support provided by the instructor in moving and shaping interactions. The value of 'thinking together' was reflected, as well as insight into knowledge co-constructed in a social space where learning happened in the 'talking aloud'. It is anticipated that these findings will contribute to further work in developing online communicative strategies and guides for instructors and learners to support productive online discussion.

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