

# CMC : Frameworks and Methodologies

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## 1 . Introduction

Rapid and ongoing developments in computer-mediated communication (CMC) technologies increasingly facilitate opportunities for language learners, educators, and educational institutions. Unsurprisingly, these opportunities have been taken advantage of in a variety of ways. Initially they were (and still are) used as a form of e-learning or communicative forums through emails, websites or blogs. Recently, widespread access to Web 2.0 technologies such as VoIP telephony (Skype, Google Talk, Messenger) or 3D avatar software (Second Life, Active Worlds) has become available.

Initial fervour over technological developments among users quickly led to the coinage of ubiquitous phrases such as meatspace, cybersquatting, and netiquette. As time has gone on, second language acquisition (SLA) stakeholders appear to be reappraising the practical application of technological opportunities as they have become aware of the downsides, or perhaps more appropriately, *concerns*, of effectively and productively using such innovations. Efforts to ameliorate these concerns have led to new philosophical frameworks and methodologies. This paper will outline the development of these frameworks and methods, and give a précis of what a researcher new to the field might consider.

## 2. Development and History

Language learning has traditionally been described in terms of location : foreign language (FL), whereby the learning is undertaken in a country where the language is not commonly used, or second language (SL) acquisition, where the learning takes place in a country in which the target language is commonly used in day-to-day transactions. Naturally SL provides the opportunity to absorb a more holistic range of target (such as paralinguistic or pragmatic) skills. The reason CMCs have become so meaningful for language acquisition is because they can facilitate communication in a number of forms, which together, can provide learners with more of the opportunities previously ascribed to the SL environment, despite being accessed in the FL environment.

### 2.1. Technological

It is easy to be caught up in the novelty of using technological innovations to communicate with others. Ever changing fads and quirks mushroom in the information technology sector, with various conferences and expositions given the kind of attention previously afforded to Cannes and Hollywood. Educators are no different, and with good reason. Technological innovations offer a variety of methods to facilitate language learning. But, as Warschauer (1996 : ix) warned, technology itself does not improve language learning, but rather, it is the manner in which it is utilized. There are a number of technologically related issues that would need to be ameliorated for a truly successful CMC project to eventuate.

#### 2.1.1. Multimodal literacy

Just like literacy defines ability to read and write language, multimodal literacy signifies the ability to understand and appropriately utilize a range of technologically

-modified communicative modes.

Despite technology fast becoming an integral part of most people's lives, exposure can elicit a range of abilities, and not all users are proficient. Or, proficient at some, but inadequate at others. Furthermore, as the penetration of technology in our society continues, the emergence of multi-modal skills in CMC use is becoming increasingly important, not only for the learner, but also for the instructor in the classroom.

Multimodal literacy, defined by Pegrum(2009) as 'understanding and interpreting the relationship and interaction between different formats of digital media', is both gateway and barrier to language learning - in the classroom at least (Guth & Helm, 2010). In a study of task-based language teaching (TBLT) course design reflection, Hauck(2010) explored the interrelationship between multimodal literacy and online communication and concluded that educators need to be teachers of the technology, not just facilitators, if their learners are going to be able to fully partake of the opportunities for language learning and intercultural development (ibid, 211). In other words, if teachers are going to expect their students to use technological applications (viz. CMCs) it would be appropriate to ensure that all students can utilize them effectively. Common sense, but nevertheless literature suggests that it remains a significant hurdle.

### **2.1.2. Appropriacy**

In a world that seems to rapidly churn out all manners of technological marvels and innovations, teachers need to be able to cherry pick the most relevant options for their classroom. Options that enhance, rather than distract, the learning process for their students.

In choosing a collaborative technology, instructors should determine how much, and what type, of student interaction is needed to complete group assignments and

facilitate learning (Parker & Ingram, 2011: 9). As referred to previously, functionality can be exciting, but it is only one part of the selection criteria. Timmerman & Kruepke (2006) point out that more features are not necessarily better. Function availability doesn't equate to student usage. Having too many tools - or tools with a steep learning curve - can impede, rather than facilitate, student learning (Falowo, 2007). Otherwise, as Loveless, Devoogd, & Bohlin (2001) point out, effective learning through integrated use of Internet Communicative Technologies (ICT) is likely to occur despite, and not because of, the role of the teacher. One example of this distractive quality is the recent usage of avatar-based ICTs (such as in *Second Life* or *Active Worlds*), after which some students concluded that they had been sidetracked by the novelty and that they might have gotten better return by just sticking to simplified chat forums (Deutschmann, Panichi, & Molka-Danielsen, 2009).

### 2.1.3. Accessibility

Despite the recent ubiquity of ICTs, accessibility remains an issue. Accessibility hinges on a number of aspects, such as ; age, location, and time.

Learners are of all ages, and accordingly ICTs may be utilized at all age levels. However, younger learners often need more teacher-centred pedagogy to participate productively in class, while older participants may feel marginalized with regard to technology. What this means is that age may affect how accessible the ICT is *perceived* by learners. Perception can be a powerful psychosomatic realization despite environmental factors that may indicate otherwise.

Parker & Ingram (2011: 12) point out that there are a variety of micro or macro issues that may affect participatory rates. Classroom ambience and social dynamics can affect the development of class community — an important factor for teachers to take into account considering their focus on collaborative tasks.

...if technology is truly experienced differently by different users, then the effects may vary by user as well, and studying its effects at multiple levels of analysis is a necessity. [One option] may be to examine how instructors can best move students beyond learning the chosen technologies to learning how to use their functions to collaborate effectively, no matter what technology is used (Parker & Ingram, 2011 : 12).

Some telecollaboration involves different time zones. Students in a Japanese secondary school have little chance to communicate live with peers, for example at a North American school, forcing them to fall back on delayed methods of telecollaboration. Class scheduling can exacerbate this issue.

Many students' access to ICT is restricted outside the classroom for a variety of reasons : bandwidth, hardware, parental concerns. Consequently, accessibility through either bandwidth or portal outside the classroom can often be problematic.

## **2.2. Philosophical frameworks**

Rod Ellis in a foreword to Thomas and Reinders(2010) elegantly details what he describes as interactionist theories that underpin the *raison d'être* of SLA within a CMC environment. He considers that most research to date in this field has been informed by 'negotiation-of-meaning sequences that support learning by providing comprehensible input, feedback and opportunities for learners to self-correct' (ibid). He goes on to point out however, that learners using CMCs have communicated in different ways from traditional classrooms, requiring researchers to understand and describe why this is so. Although the research to date may well be grouped in terms of 'interactionist theories', there are big differences within this purview.

Research into international exchanges with ICTs was initially framed in terms of cognitive approaches. More recently, this has been superseded by socio-cultural

frameworks (Lantolf & Thorne, 2007; Lamy and Hampel, 2007). A third approach has been to focus on tasks within the ICT moderated exchange.

### 2.2.1. Cognitive theories

The cognitive approach, championed by Chomsky's assertion that mind and matter were separated, considered information technology to epitomise the move of thought and rationalization from meatspace to cyberspace. Language represented rationalization, and thus, ICTs would empower people from different cultures to minimize their socio-cultural restraints and enable them to improve their language learning without socio-cultural 'hindrance'. These theories quickly dissipated from the realization that users' actions, and apparent thoughts, could not be divided so easily into the dichotomy of mind and body. Rather their thoughts seemed to reflect their environment or past influences. This quickly led to the development of frameworks that could better explain these phenomena.

### 2.2.2. Socio-cultural theories

Socio-cultural theories (SCT) stress social interaction for learning. Social interaction, through participation in cultural, linguistic, and historically formed settings such as family life and peer group interaction, and in institutional contexts like schooling, organized sports activities, and work places, leads to development of language — as language is a fundamental aspect of interaction (Lantolf & Thorne, 2007).

Key aspects of SCT involve mediation, regulation, and abstraction (Lantolf & Thorne, 2007), based on the principles of SCT set out by Vygotsky. *Mediation* refers to the ability of a person to adjust to a situation by using their cognitive processes. Rather than digging in an automated way like a dog for a buried object, a person may well use an artefact such as a shovel to resolve this situation.

Similarly, people mediate their situation by negotiating meanings in an almost limitless range of situations centred around dispute resolution, and significantly, requiring language.

*Regulation* refers to the way in which people inform others on the appropriate way to behave in certain contexts, or in the way they themselves adjust to fit into what they might consider norms of behaviour. When young, children are often regulated about their behaviour by adults, but increasingly as they get older, self-regulation or peer-regulation becomes normal. Communication (viz. language) is a key feature of this process. *Abstraction* implies the ability to denote physical objects with symbols that can be communicated in a mutually intelligible way. Language provides one, if not the main, conduit for this process.

Another important aspect of SCT within the context of SLA is the zone of proximal development (ZPD) (Donato, 2000 ; Ohta, 2001). The ZPD is defined as the zone of potential in which an individual can achieve more with assistance from others with better proficiency than they can do alone. The significance of this notion is that learning is linked to development *only* within the ZPD. Facilitating contact between language users of different abilities to help create this ZPD is a principal goal of educators using CMCs (Cheon, 2008).

The nature of CMCs has invoked further rationalization of the processes involved in SCT : multimodalities and multiliteracies<sup>1)</sup>. Lamy & Hampel (2007), quoting Wertsch (2002 : 106) and Kress (2003 : 5), point out that the functionality of CMCs ensure that modes of communication transform previous modes to such an extent that they may be totally different with respect to the affordances<sup>2)</sup> they represent to users (Smith, 2003 ; 2005). This raises the issue of whether or not

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1) For a good summary of multimodalities and multiliteracies, read Lamy & Hampel (2007 : 31-47).

2) For the original description of what *Affordances* mean, read Gibson (1979 : 127).



users are able to adjust accordingly. The plethora of modes is only matched by the need for skills, or *literacies*, to use them appropriately. In other words language requires not only certain levels of competency, but also various other skills – such as technological or communicative competence. Deficiencies in one or more of these additional skillsets can negatively impact on the likelihood for successful language learning within a CMC environment.

Activity Theory<sup>3)</sup> (AT) is a modern derivation of Vygotsky's work (Engeström, Mietinen & Punamäki in Müller-Hartmann and Schocker-v. Ditfurth (2010)). It encompasses multimodalities and multiliteracies within a number of facets and levels. Importantly, it facilitates a comprehensive research framework for the pedagogical implications of Task-Based Language Learning (TBLL) in the CMC classroom.

As SCT has dominated the approaches of recent research frameworks, cultural interaction as a trigger for developing intercultural competence (IC) seems to have become an end in itself, rather than a means, for a lot of researchers. Researchers have drawn on the behaviourist psychology concepts of *incidental* and *intentional* learning, popularized during the 1970s, to develop tools that could describe the learning processes within CMC environments (Kabata & Edasawa, 2011; Hulstijn, 2003). Kabata & Edasawa (2011: 105) quotes Huckin and Coady (1999: 190) as arguing that “incidental acquisition is the primary means by which second language learners develop their vocabulary beyond the first few thousand most-common words”. In fact, incidental learning is believed to have certain advantages over direct instruction (ibid) as it is contextualized, learner centred, and is pedagogically efficient (vocabulary acquisition and reading occur at the same time).

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3) For a good description of AT, refer to Müller-Hartmann and Schocker-v. Ditfurth (2010).

### 2.2.3. Tasks and Pedagogy

Müller-Hartmann and Schocker-v. Ditfurth (2010) nicely delineate the link between activities (viz. AT) and tasks. TBLL is based on the use of authentic language and on asking students to do meaningful tasks using the target language. One of the key issues facing TBLL in a CMC context is the control over task choice between learner and teacher.

In a TBLL approach, aspects of task completion usually form an important component of assessment. If the teacher allows the learner to control this component, it means that the rubric used for task assessment needs to be mutually acceptable. This is powerful motivationally for the learner, but potentially the source of further complications. The more people that get involved in task development, the more likely that time will become a critical issue. It's not as simple as the old adage, "The more cooks there are, the more likely the soup will be spoiled", but it means that pedagogically, the teacher (or more likely, teachers, as CMCs involve 2 teachers as a matter of necessity) will need to consider this in their course development.

Learners have different motives for engaging in tasks, among them intrinsic and extrinsic motivation, risk-taking, anxiety and sociability (Müller-Hartmann and Schocker-v. Ditfurth, 2010 : 30). Users' reaction to TBLL depends on the usefulness that they perceive it to have. If the CMC tasks have little integration with the course as a whole, there will be commensurately low motivation on the part of users. Conversely, the more users feel they are getting something meaningful out of the process, the higher their motivation and lower their anxiety. Furthermore, if the teacher involves the learners as early as possible in the task-design process, the more engaged the learners become (ibid).

One problem with TBLL is to ensure learner reflection. Although tasks provide learning moments, so does reflection. Increasingly, researchers are

realising the need to for a reflective process in the TBLL course (Guth and Helm, 2010: 364). The multimodality of the CMC environment can focus learners' attention to the degree that they cannot 'see the forest for the trees'.

#### 2.2.4. Blended Learning

Blended learning is not a new concept, but it has become an extremely popular term in education that unfortunately still has a variety of interpretations. If we look at the most generalist interpretation, we could describe it as an approach that uses both offline and online tools in a course. Blended learning grew out of the realization that e-learning could not effectively supplant the human interaction that comes with classroom and teacher in the same room as the learner. Although technology can be used to provide out-of-classroom experiences that aid in learning, researchers have come to realise that effective learning usually needs aspects of traditional classroom learning.

One of the pleasant conundrums for many teachers is that technology has pervaded the modern world to the extent that blended can also refer to a variety of technological gadgets in and out of the classroom. This can provide the teacher with a plethora of opportunities for imbuing traditional tasks with technological solutions. To many teachers, blended can mean a combination of mobile learning, ICTs, and tried and tested classroom activities.

The fact that there are so many types of ICTS gives emphasis to the concepts discussed earlier: multimodalities and multiliteracies. Considering that there are many variables to a CMC course (synchronicity, e-Tandem, blogs, tasks, classroom work, scaffolding, etc.) that if we combine aspects, we may well consider them to be blended in nature, researchers may need to define their usage of 'blended' (see Dooly, 2011 for an example) in future.

### 2.3. Methodological frameworks

Most research seems to be focused on one or a mix of three methodologies : ethnological, discourse analysis or conversation analysis.

We need to consider what constitutes research data for either developing intercultural competence or language learning : output or interaction (Dooley, 2011 b). Although ethnographies, for example, provide rich detail of actual learning experiences, analysis of the data can suffer from segmentation that has implications for the validity and reliability of the research. One response to this conundrum has been to sidestep the perspective that knowledge should be tested and measured at the completion of a program and instead, focus on trying to capture and trace the emergence and evolution of students' learning moments throughout a course. This ethnographical approach has been labeled Activity Relevant Episodes (ARE) and was published in 2001 by Barab, Hay and Yamagata-Lynch. The essence of this approach is to avoid preconceived ideas of what constitutes learning. The problem remains the same however, as Dooley (2011 a) concludes ARE still lacks cross study validity.

Consequently some researchers try to focus on data that can provide cross study reliability. Discourse Analysis (DA) provides an obvious opportunity. It enables researchers to focus on a variety of language in any form produced by any number of users ranging from specific language types to corpus analysis. The fact that most language production in CMC environments is captured means DA is an ideal tool to analyze communication in empirical terms (Herring, 2004). Initial efforts to apply DA used asynchronous tools, looking primarily at word counts and numbers of postings, but then moved toward a more semantic-based analysis of content (Fitzpatrick and Donnelly, 2010 : 8), a reflection of both the ever growing multimodality of CMCs, as well as a move from cognitive analyses to SCT. Van Leeuwen (2008) argues that for DA to be effectively applied, researchers will need

to move from a linguistic analysis to a more socio-semantic one, and not be shy of incorporating additional cultural theories to augment and inform DA.

One component of DA is Conversation Analysis (CA) which focuses on turn-taking, adjacency, and repair between interlocutors. CA was originally developed as a tool to analyze social interaction rather than language acquisition (Egbert, Niebecker, & Rezzara, 2004; Hauser, 2005; He, 2004), although this has been challenged of late for use in conjunction with sociocultural and activity theories, situated learning theory, and longitudinal studies (González-Lloret, 2011). Consequently for language acquisition, there are only a few studies (Kitade, 2000, 2005; Negretti, 1999; Thorne, 2000; González-Lloret, 2007, 2008, 2009) that analyze learners' foreign language acquisition. González-Lloret (2011: 318) believes that for CA to demonstrate learning, expanding the definition of learning may be necessary, so that SLA is not limited only to linguistic features but also includes the social context and sequential development of interactions. In particular, the use of CA for the study of multimodal synchronous CMC is still relatively new (Jenks, 2009). As interactional software becomes more sophisticated and internet connections become faster and more powerful, the use of video in connection with audio and text is becoming more common (González-Lloret, 2011: 319).

The value of being able to use CA and DA lies within the fact that authentic language is measurable in a classroom, as compared to traditional sources which have tended to be outside the classroom (González-Lloret, 2011). Furthermore, being able to describe perceived changes in SL proficiency ensures that these methods provide valued insights for educational institutions as well as researchers.

### 3. Assessment

Although, at first, assessment appears to have been largely overlooked in CMC

and language acquisition literature, it seems to be moving to the forefront of the debate on how to best evaluate telecollaborative practices. Lamy and Hampel (2007 : 88) cast this oversight in terms of development. The focus appears to have been, until recently, mostly on task design, media type, and philosophical frameworks. Understandable, considering the relative *novelty* of the technology being incorporated.

However, Levy and Stockwell (2006 : 231) point out educators have failed to incorporate assessment methodologies that reflect the changing nature of course design. They claim that many educators are still using exams and tests at the completion of courses focused on telecollaborative designs. If blended learning is to be an integral part of language teaching, then it follows that assessment practices need to accurately reflect this pedagogical shift. Conceivably, there may be negative ramifications for course designers in which the learners themselves would start to question the legitimacy of assessment.

O'Dowd (2010) highlights this issue in a timely article, where he states ;

*If educators believe that foreign language education in our modern 'globalised' society should involve the ability to learn, work and communicate in online contexts with members of other cultures, then it is to be expected that assessment procedures and criteria should take this new learning context into account (p 338).*

As O'Dowd (ibid) goes on to point out, there are a range of complex issues connected to assessing the skills and competencies of language learners in a CMC-related course. Issues such as ; Intercultural Communicative Competence (ICC), multimodalities and multiliteracies (Lamy & Hampel, 2007), as well as interpretive skills and dialogue sensitivity (Schneider & von der Emde, 2006 : 199).

Assessing these issues is problematic. Although O'Dowd makes some effort to describe current attitudes to, and methods for, assessing CMC courses, he describes aspects of (yet fails to focus on) what may be the main point of assessment: involving learners in the assessment process. Incorporating learners in the development of assessment rubrics as well as course design is an interconnected process. By getting learners to describe criteria for assessment, it can be inferred that they are undergoing learning of the key constructs and components of the course. Negotiating what construes what requires interlocutors (viz: learners and their instructors) to come to a common understanding and agreement before the assessment can be undertaken. Furthermore, it would be logical to undergo this process prior to the development of the material to be assessed.

## Conclusions

Although CMC for language study offers the potential to transform aspects of the learning process, educators and course designers need to come to grips with several factors.

First of all, they will need to consider what the purpose of the class is. Options may include language, cultural exposure, intercultural competence, or intercultural communicative competence. Each of these options requires commensurate course design.

Secondly, they will need to check if all of the students can actually use all of the modes of communication in an effective way. In other words, just like in any other situation, they need to evaluate if learners need scaffolding or extraordinary assistance to complete their assignments.

They will need to choose what mode(s) of CMC they will use: synchronous, asynchronous, e-tandem, cultural, etc.

Task negotiation and completion will need to be considered, and whether or not students will be a part of the development process. Furthermore, they will need to consider whether or not to include reflective exercises.

Finally, they will need to make the decision of whether or not to include the students in the development of the assessment rubric.

The fact that the technology is changing so fast and enabling so many options for both learners and teachers is an exciting prospect. Nevertheless, it requires teachers and educators to ensure that the learning process is not discounted in the process. Research avenues, particularly on assessment procedures and curricula design in the CMC field, have emerged that offer many opportunities for those interested and keen to take up the challenge.

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