DESIGN OF AN LMS-BASED ENGLISH LANGUAGE LEARNING ONLINE NETWORK ARCHITECTURE BASED ON USER-GENERATED CONTENT

Christine Sagar
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CHRISTINE SAGAR

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Design of an LMS-based English language learning online network architecture based on user-generated content.

Christine SAGAR

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Supervisors
Dr. Francisco Arcos García
Dr. Pablo Ortega Gil

Department of English Philology, Faculty of Arts
Doctoral Program: Doctorate in ICT and the Teaching of English

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ABSTRACT

Can adult learners of English learn the language online?

This thesis relates research in the domains of the English language learning paradigm, Second Language Acquisition theories, and online language learning findings to produce a model for an English Language Learning Online Network (ELLON) for usage from within an educational institution. This model is partially designable over Moodle. The main original features of this learning design are the reversal of the knowledge transmission system through learner-generated lessons and learning objects, a model designed towards an expanding network of users, knowledge conceptualisation and reuse of generated language learning objects; personalisation to the socio-economic context of learner needs in English; and its focus on the learning of “online international English” competences. Guidelines are given towards the building and testing of this ELLON model.
A Philippe.

And to all those lights who didn’t start or finish their thesis for the wrong reasons.

Where is it that we were together? Who were you that I lived with?

The brother. The friend.

Darkness, light. Strife and love. Are they the workings of one mind? The features of the same face? Oh, my soul. Let me be in you now. Look out through my eyes. Look out at the things you made. All things shining.

Terrence Malick
“The wise use of leisure, it must be conceded, is a product of civilization and education”

Bertrand Russell
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Foreword

Research today on the use of technology is bound to be quickly outdated, as new applications of technology come to the fore, changing our connected learning landscapes every few years. Still, principles of use of technology and active participation in networks for learning may retain validity for a few years as habits of use and educational practice are slower to evolve than technology itself.

Evolutions of technology bring change as to how we access knowledge. In the pre-internet era, when printed text was the ultimate external physical repository of information and thought, acquisition of knowledge was subconsciously considered to have a slow and cumulative history. Education could be considered to be dependent on cumulative reading and individual thinking.

In the Internet era, the underlying networked matrix of knowledge comes to the fore, embodied in digital format online, becoming not only visible but physically available for active participation by individuals. Furthermore, in regions where smart devices and digital literacies are widespread, individual use of knowledge is supported by direct consultation of knowledge-building dynamic networks, physically represented over the Internet.

This epistemological change brings with it new reflections as to how learning occurs and the setting of curricula requiring subject-specific analysis and answers. The learning of languages poses an additional question: what is the nature of foreign language learning today if automatic interpretation tools come to be perfected and widespread?
At the time of writing, such tools do not represent a complete substitute for human language competence: pattern recognition, emotions, sensitivity and creativity are all part of language competence, and, for the time being, distinctively human in their psychological and cognitive workings.

So if language use is still a distinctly human skill, can digital technology help us at least to learn languages? What specific affordances does technology have for accelerating our learning?

Current research on second language instruction centres on finding, in the use of Information and Communication Technologies (ICTs), specific affordances that optimise learning. Informal learning, the Internet and our “connected” lives are increasingly recognised as being part of a learning setting that complement and extend face to face classroom contexts for teaching as well as learning for individual language learners. The desire to tap into the affordances of technology to improve second language didactics, diverges into various directions of research, for example: Mobile Assisted Language Learning (MALL), Computer Assisted Language Learning (CALL), Technology Enhanced Language Learning (TELL), Network Based Language and Teaching (NBLT) and, very recently, Social Networks for Language Learning.

Connecting minds

One fundamental trait of online connections, between humans, is that all learners can externalise what they are thinking at the same time. This is impossible in a classroom context, or even within an informal face to face group.

About 10 years ago, 5 years into the use of Internet, I realised my thoughts didn't have to be confined to myself nor to a close circle only. It felt as if all my thoughts could be sharable, given the right context; furthermore, it was probable my thoughts had occurred similarly to other people, in different places, and were already reflected online. This simple fact led me to revise the
definition of "thought": rather than being intimate, unique and for sole private use, personal thoughts were in fact context-dependent, reusable by others, and web freedom turned them into exchangeable public matter. How take advantage of this for learning?

At the same time, living in Spain and looking around me, despite abundant Internet resources of online course options, Spanish learners of English continued to seek face to face language exchanges or private lessons, signing up to courses in brick and mortar local academies. Few tried to learn by joining online communities, and if they did, they didn't sustain the interest online for very long. Furthermore, I realised that these Spanish-speaking learners were not learning how the use of the language could broaden their professional, educational prospects and their roles as “global citizens”. They lacked the vision and motivation that learning a global language, should bring them. A third problem I could see, was that not knowing how to connect with English speaking communities on the net made their efforts to use English online extremely difficult.

Potential vs. reality of Web 2.0 use

It became apparent that deeper obstacles were impeding the potential of online learning and I became interested in discovering whether and how English language learning could actually work online. What role can leveraging the externalisation and sharing of our individual learning processes have within a connected society?
CHAPTER 1

INTRODUCTION

"Antes las distancias eran mayores porque el espacio se mide por el tiempo."
José Luis Borges

In this chapter, I present the problem and research questions addressed in this study. I also comment on the significance of the study, its justification, as well as the limitations and delimitations of this research.

1.1 The Problem

The English language is massively used openly and online. Mastering communication in English also implies becoming fluent in global digitally-supported communication. Learners must also aim to overcome barriers using English in different real world contexts as well as entering conversation with any nationality or culture in the world online.

Current classroom practice still focuses on the traditional four skills (reading, writing, speaking and listening in non-digital environments) in English Language Learning (hereon ELL) thus leaving the student with little experience and confidence for using the language in its present-day natural context online.

Lotherington (2004) formulates the challenge teachers of English face in this 21st century: "How do teachers of second languages incorporate the notion of relative, creative language
standards in a professional field where stable prescriptive norms predominate and traditional four-skills analyses are typically used to explain the expected boundaries of communication”.

Before the era of Internet, there was a practical justification for this teaching approach: it was not possible to immerse students in native contexts of use without travel. Research recognised the need for developing "communicative competence", and using authentic materials which is reflected for example in the Common European Framework for Languages (Council of Europe, 2001). However today, bringing real contexts of language use into the classroom is no longer impossible: English is used over online networks for real-life purposes (not language learning purposes) and temporarily formed communities of speakers can provide a context of genuine use of the language. A learner’s desire to complete for example an open and free English-language online course on any subject can represent an opportunity to practice online English use in a real, unpredictable communicative and international setting.

Within what language learning approach does this immersive digital practice fall into? Is it possible to exploit some kind of digital immersion for English language learning?

Current state of the art in online social language learning falls short of using specific affordances of ICT and theoretical grounding in SLA research. The most known language learning websites provide on the one hand classic drills and learning materials online, often in PDF format, and on the other a platform for exchanges between learners and native speakers. There are some attempts at using online affordances in a different way, such as Duolingo where learners have access to translations of different parts of online texts, and can visualise learning graphs. Still, these sites still separate study of meta-lingual knowledge on the one hand, and practice on the other. They use practice in a network of participants as an option, not a configurable language learning process in itself (Lamy & Zourou, 2013, p.204).
1.2 Overview of Proposed Learning Network Architecture

This study proposes a networked learning architecture, designable and executable within a Learning Management System. The English language learning design is based on online use of English by adolescents and adults, in real world activities and contexts online to increase learner online fluency in English, though the model is designed towards use from an institutional context, with specific teacher, student and group roles shaped into the design. The learning design addresses written and oral production online, as well as oral and written comprehension in online contexts that fit learners’ real and likely use of English.

The proposed networked learning model is not directed towards beginners in English because a basic level of English is required to use it. It is aimed at intermediate or higher (from B1 to C2) level learners needing to acquire the skill of using English in contexts online.

1.3 Significance of the Study

In the domain of language learning, Internet social media-based platforms have not shown to have been informally exploited in such a way that leads to positive language learning results (Lamy & Zourou, 2013, p.2010; Lin, 2012, p. 91).

However online networks and the Internet broadly speaking, potentially lead to changing organisations of learning: i.e. students could expose their thoughts (blogs, forums posts, chats, etc.); exchange open resources; update their knowledge; expose themselves to a wide variety of opinions; transmit knowledge, converse; connect with specialists; collaborate and evaluate others; choose educational objectives, contents, as well as construct personal learning paths.
From the instructional design perspective, the network matrix can be potentially exploited among other things towards reusable group interactions; objectifying knowledge created for relevant reuse and establishing a sequence of learning episodes based on previous individual learner traces of learning. This study contributes to elaborating principles of design for network learning applied to language learning, and proposes an architecture of online networked English language learning reflecting these three processes above into the learning design.

The English language is exponentially used and is being transformed by its use, globally, and by its digital channel of expression. A renewed paradigm is proposed in chapter 2 based on a literature review allowing me to define the learning objectives of the subject matter of International English as a second language that is used online.

So this study also contributes to relating networked learning to the network-based characteristics of the subject of English itself.

1.4 Justification of Study

As the world generally recognised global language, virtually all young people and adults regard the mastery of English as one of the conditions towards improvement of individual life prospects. Serious learners of English have traditionally regarded it necessary to complement formal classroom language learning by seeking some form of linguistic immersion program. However it is not realistic to expect that millions of learners of English physically travel to English speaking regions for immersive experiences to achieve skill fluency.

Massive demand to learn English worldwide and predominant use of English over online networks, justifies on its own the study of some form of digital language immersion. It could be additionally argued that English is the subject if any that justifies a network learning approach for
the simple reason that online networks have become its biggest and most encompassing worldwide context of expression and use (as opposed to face to face interactions in international contexts or English speaking countries).

So far to the author's knowledge, no online networked learning pedagogic approach purposely built and adapted to the specific traits of English as an international language has been created, tested, or generally adopted.

**Continuation of Research**

While research on informal social network language learning sites is ongoing (for example Lamy & Zourou, 2013), three weaknesses affect this research: students’ progress and specific language learning outcomes are under-researched, studies are not clearly grounded in well-established theoretical frameworks, and there are common methodological weaknesses across studies (Wang and Vasquez, 2012).

Research on network learning architectures has not to my knowledge, been interpreted and applied as yet to informing online social language learning despite the fact that Lin (2012) in his study of the Livemocha social language learning website concluded that if "online education is to play a positive role in the teaching and learning of English and other languages, learners will need support, guidance, and well-structured activities to ensure the kinds of participation and linguistic interaction that can lead to success" (Lin, 2012, p. 191).

The framework and model of my online language learning network can be considered as a continuation of research of the study by Lin (2012) as my model addresses the insufficiencies found in that study and reflects his recommendations for designing online language learning.
1.5 Research Questions

The main question in this study is: what architecture design would lead to a productive online language learning network for learning English?

This main question, leads to the following secondary questions:

- Which subset of skills related to learning to use English as an international online language should constitute the learning goals of the network?
- What research findings from theories on language acquisition on the one hand, and online communication and social learning networks on the other, could be used to explain and inform a model's learning design?
- Lastly, what model and design principles can we propose based on that secondary research for an English language learning network?

1.6 Methodology

The elaboration of this design is based on secondary research.

Findings from previous research on: (a) network learning and connectivist learning theory and practice; (b) socio-cultural approaches to language instruction; (c) computer-supported language learning; (d) online knowledge building; (e) social language online learning inform the design of the network architecture.

Due to the great amount of literature and research on technology use, Second Language Acquisition (hereon SLA) and language instruction, and the use of ICT for language learning, it was unrealistic to read all studies. It was therefore necessary to make a selection of literature. Search engines Google Scholar, ERIC and Proquest were used to search for relevant publications.
Selection was made according to size of studies, date of studies, relevance and inclusion in main journals. Concerning studies on ICT and language learning, studies, books and articles dating from year 2000 onwards were taken into account as Web 2.0 habits of Internet use started to develop at the turn of the century.

1.7 Definition of Terms

The following terms used in this study can be ambiguous. I therefore define them to understand how they are used in the context of this dissertation.

**Affordance.**

Affordance refers to the possible actions, uses and usages that a tool, platform, or any ICT inherently lead to.

**Computer Assisted Language Learning (CALL).**

The definition of CALL by Levy (1997) is used: “the search for and study of applications of the computer in language teaching and learning”.

**Computer-Supported Collaborative Learning.**

The definition given by Lipponen (2002) is used: "CSCL is focused on how collaborative learning supported by technology can enhance peer interaction and work in groups, and how collaboration and technology facilitate sharing and distributing of knowledge and expertise among community members."

**English as a global language.**

I use the term ‘Global English’ to refer to the use of English across any context, between native and non-native speakers, in national or international settings.

**English Language Learning (ELL).**
ELL is the abbreviation of English Language Learning, an umbrella term referring to either formal instruction or informal initiatives for learning any variant of English.

**Language Learning.**

It is very difficult for instruction purposes to define exactly where learning ends and acquisition begins. I use the term "language learning" as my model is concerned with producing an online pedagogical approach that will eventually lead, through its use, to acquisition thanks to a multiplication of "language learning" episodes. Language learning is conscious action towards the goal of second language acquisition.

**Networked Learning.**

The definition given by Goodyear et al. (2004) is used: “Networked learning is learning in which information and communication technology (C&IT) is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources.”

**Network**

The network itself is defined as the set of connections dynamically emerging between participants and online artefacts.

**Web 2.0.**

The definition given by Tim O’Reilly (2007) is used:

Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating
network effects through an architecture of participation, and going beyond the page metaphor of Web 1.0 to deliver rich user experiences.

Limitations to the Study

This study presents several limitations.

The first limitation to this study is the point in time it is performed. Any study today focusing on some educational innovation related to technology, is susceptible to rapidly become out of date because of the ongoing development of educational practices and software. Not all aspects of the network architecture necessarily have a short expiry date, but those conclusions related to learner behaviours will probably require updates over the coming years. As learners increasingly use technology in their daily lives, network participation is perhaps not led in the same way.

A second limitation to this study is the lack of means to build and test the architecture of the network model. Detailed specifications of the model in view of its actual design in a future project are given in chapter 5. They are all defined and based on findings from previous empirical studies. However the model needs to be tested as a whole.

The chapters that follow address the secondary research questions in succession. Chapter 2 discusses what skills should be taught as part of the subject of "English Language Learning", and proposes an updated list of competences based on a literature review. Chapters 3 and 4 address the question: what language learning theory for the 21st Century? I review literature on Second Language Acquisition on the one hand, and on Connectivism on the other. Chapter 4 reviews research on SLA within the Socio-Cultural paradigm. Specific affordances of online communication for language learning have been researched. I propose a conceptual framework for the model by drawing from both my reviews in chapters 3 and 4. In chapter 5, I propose a model, and explain its design concluding with specifications for an English Language Learning Online
Network (hereon ELLON). In chapter 6, I summarise the findings of this study, discuss the relevance of the network architecture for other subject areas, and future research questions.

I now propose to study the paradigm of "English Language Learning" in the light of English as a global language.
"But how and why do these alternative cultures emerge? (...) they are formed in the communication environment, be it in the mass media, or in the networks of mass self-communication, since culture is essentially processed in the communication realm”
Manuel Castells

Crystal (2003) estimates that approximately a quarter of the world population is speaking or learning English, however it is difficult to know the future of English as there is no historic precedent to a language spreading around the world on this scale.

Although languages such as Spanish, Mandarin and Arabic are increasingly learned and spoken around the world, it has been predicted that the number of learners of English will continue to increase and soon reach a peak (Graddol, 2006).

According to Warschauer (2000), the English language of the 21st century is being shaped in unprecedented ways by two important phenomena: globalisation on the one hand, and informationalisation of society and economy on the other. The number of non-native speakers is outgrowing the number of native speakers. It is claimed that English has reached beyond the stage
where it belongs to any nation or group of countries as mother tongue speakers are outnumbered (Crystal, 2003).

As an empowering linguistic tool, speaking English appears to be part of the basic skills addressed by formal education in many countries. While before our Web 2.0 era, the language was mainly used face to face, now, this global, networked language is used by most learners “online”. This means that learning it “online”, is equivalent to learning it in one of its most frequent and natural contexts of use.

I dedicate a full chapter to such a renewed paradigm of the English language as a subject, because the definition of skills associated to using English in our connected has a consequence on the pedagogical approach to follow to acquire them. This renewed definition of the English language as a subject underlies almost all specifications of my online networked learning architecture proposed in this study.

In this chapter I relate the work of various authors on the nature of English as a language, and consequences for its instruction. Based on this summary, consequences can be drawn on 21st century skills that should logically be learnt together with English. Following this analysis I propose an updated paradigm of “Multi-dimensional English” at the end of this chapter that will be the learning target of the network learning model detailed in chapter 5.

### 2.1 From English as a Foreign Language to English as a Global Language

The idea of English as an International Language (EIL) was originally put forward in 1976 by Larry Smith (1976) who advocated disconnecting the English language from national ownership. A proliferation of variants of the paradigm have come to the fore including:
• World Englishes (Graddol, 2001) where English is increasingly becoming a Second Language in different regions such as Africa, the Caribbean, South-East Asia, India, Pakistan, Bangladesh, and Sri Lanka (Crystal, 2003, p.144) where local culture becomes embedded into its use (Marlina, 2013) as these Englishes are like “dialects we all recognise within our own country, except that they are on an inter-national scale, applying to whole countries or regions” (Crystal, 2003, p.144).

• English as a Lingua Franca (Seidlhofer, 2005) where English is a practical medium of contact between non-native speakers

• English as an International language (McKay, 2002) where the language is “no longer linked to a single culture or nation but serves both global and local needs as a language of wider communication.” (p. 24).

While there are ongoing debates as to the similarities and differences between these paradigms, they all challenge the imposition of a "language of reference", and recognise the "relativity" of a core English language according to context (Marlina, 2014., p.6).

This is important to recognise from an instruction perspective. As Matsuda & Friedrich (2012) argue:

Proposing and teaching a ‘standard’ or ‘core’ variety of English in international contexts would create an additional layer in the English language hierarchy to which different people would have different degrees of access, and that, as a result would generate inequity among speakers of different Englishes. (Matsuda & Friedrich, 2012, p.19)

In a worldwide sociological study on the evolving use of English and the way it is learned, David Graddol (2006, p.106) remarks that while the number of learners in the world has increased
exponentially, motivations for learning the language and related pedagogies have silently changed. Making these changes explicit, the author distinguishes subsets of the English Language paradigm: English as a Foreign Language (EFL), English as a Second Language (ESL), English for Young Learners (EYL), and Global English (hereon EGL), the learning model having shifted slowly from EFL, to EGL.

But does this shift necessarily have consequences as to the instruction of the English language? According to Graddol (2006), within the EGL paradigm, the objective is being able to communicate with anyone in the world and reach international intelligibility, the communicative objective is broadened to cover intercultural communication strategies as well as translation skills. From the instructional viewpoint, motivation, target variety, materials, environment, and teacher skills are in fact variable according to context, while teacher skills include subject knowledge and/or teaching students to learn by themselves. From weak motivation under the EFL model, learners of English have now solid pragmatic and concrete motivations in learning English: particular professional aspirations; getting jobs in the learners’ own country; business opportunities; speaking with people who are not necessarily native-English speakers (Graddol, 2006, p.90). Under this model, students increasingly seek complementary ways of enriching their learning of English outside the classroom, not only occasional trips to English speaking countries, like under the EFL model (Graddol, 2006, p.91).

Graddol argues that the content used as class material often relates to another, in Content and Language Integrated Learning (CLIL) style approaches. Assessment concentrates more on the ability to carry out tasks in English or by assessing knowledge taught through English, than obtaining pre-determined official certificates. In the EFL model, few students reach proficiency,
under the EGL model, specific skills are pursued as future education and employment may depend upon them (Graddol, 2006, p.89).

Graddol's findings seem to lead to a shift in paradigm that does indeed affect instruction: as the learning goals of each learner may differ, English becomes a skill to practice from one's own context of future use, whether professional or regional.

2.1.1 Re-conceptualising the Link between Language and Culture

English has been argued to be a genuinely international or global language (Crystal, 2003, p.28.) as mentioned above. If, as Mc Kay (2002) argues, to be international a language has to be “no longer linked to a single culture or nation but serves both global and local needs as a language of wider communication”(p. 24) then the link between culture and language needs to be re-conceptualised as well.

While inter-cultural competence focuses on knowing the culture of the L2, Baker (2011) emphasises the need for the skill of intercultural awareness and summarises it as the understanding of cultural relativity in general, complexity of cultural varieties, and considering others for their individuality rather than for their representation of a “monolithic cultural stereotype” (Baker, 2011). The Common European Framework of Languages (Council of Europe, 2001), hereon CEFR, defines inter-cultural awareness the following way:

Knowledge, awareness and understanding of the relation (similarities and distinctive differences) between the ‘world of origin’ and the ‘world of the target community’ produce an intercultural awareness. It is, of course, important to note that intercultural awareness includes an awareness of regional and social diversity in both worlds. It is also enriched by awareness of a wider range of cultures than those carried by the learner’s L1 and L2. This wider awareness helps
to place both in context. In addition to objective knowledge, intercultural awareness covers an awareness of how each community appears from the perspective of the other, often in the form of national stereotypes. (p.103)

According to these authors, it is impossible to learn about all the worlds’ cultures, and given the unpredictable cultural background of English-speakers, English as an international language needs to be instructed together with the understanding of cultural relativity itself.

2.1.2 Online Ability to Communicate in Multicultural Settings

For David Crystal (2003) the cultural correlation with English Language Learning (hereon ELL) is being able to link between English and "world" culture, while retaining one’s identity when speaking the language. It implies being openly intelligible for others, and at ease when entering dialogues with people from different countries (Crystal, 2003).

A consequence is that accuracy becomes secondary to fluency because native speaker contact is less important than contact itself: practice with non-native learners is valid as it represents the realistic use one will make of the language. As English is appropriated, the learning target is to maintain and reflect original cultural or national identity through the use of English and possess the ability to negotiate meaning with any other non-native English speakers (Crystal, 2003).

Baker (2011) suggests that online interactions between non-native speakers from different countries involves "an ability to negotiate between different frames of reference and to move quickly beyond cultural generalisations to manage the emergent and dynamic cultural contexts of intercultural communication" (Baker, 2011). Awareness not of how other cultures behave exactly but the fact that they are different and openness to that difference, and knowing how to react to it,
becomes an essential part of using English over online networks. This construct is compatible with the CEFR's definition of personality traits and skills involved in communicative activity that includes “willingness to relativise one’s own cultural viewpoint and cultural value-system” and “willingness and ability to distance oneself from conventional attitudes to cultural difference.” (CEFR, p. 105).

The question is how to instruct this intercultural awareness? A logical conclusion is the necessity for students to practice inter-cultural awareness skills through exposure to intercultural contexts that students are most likely to come across according to their own most probable contexts of use of English. Nelson and Kern (2012) highlight the need of creativity of English language users in international contexts, as they underscore "...the fundamental role of contextualisation, the importance of being sensitive to the need to negotiate meaning, and having the creative wherewithal to do so in varied circumstances."

Online communication in English is made more complex if we are to consider the existence of different cultures of use (Thorne, 2003) of the online medium as reviewed in chapter 4, where cultural differences are identified in the functions that people attribute to different communication types (email, chat, etc.).

### 2.1.3 Delimiting Regional Language Contexts for Teaching Purposes

The growing complexity of the subject of the English language, its global use, the fact that it covers communication needs that are heterogeneous and dependent on learners’ lives, brings Warschauer to comment on the need for teachers of “creating opportunities for communication based on the values, cultural norms and needs of learners rather than on the syllabi and text developed in England and the United States “ (Warschauer, 2000).
McKay (2002) provides a similar conclusion to the pedagogical implications of English as an International language:

the concept of thinking globally but acting locally is highly relevant to the teaching of EIL. The evidence clearly suggests that the use of EIL will continue to grow, as an international language that belongs, not just to native speakers, but to all of its users. Given this shift in ownership, the time has come for decisions regarding teaching goals and approaches to be given to local educators so they can take their rightful place as valid users of English.

(p.129)

2.2 English as Soft Knowledge

The rise of regionalisms may lead us to think that English is not becoming a global language but is rather becoming fragmented into fixed core regional variants or "World Englishes". While it is argued the need for mutual understanding will probably maintain some form of common English, divergence and mobile-assisted language use can justify an understanding of the English language as dynamically shaped and consulted, as explored in the sections that follow.

2.2.1 Need for Intelligibility across Contexts of Use

Crystal (2003, p.185) argues that while regional variants are becoming prominent, it is likely a World Standard Spoken English is coming into existence where idiosyncrasies associated with national variants of English are avoided upon initiative of users themselves in order to make themselves understood by speakers from different countries. This supports McKay's (2004) defence of the choice of the EIL paradigm that rejects the idea of having a single variety of English
as the chosen form of English for global communication, and that international contexts include
communication between native and non-native-speakers. Second, Crystal (1999) remarks that this
language is standardised in its written form, and “has developed as a standard precisely because it
guarantees mutual written intelligibility, first within individual countries, then internationally.” This
pull imposed by the need for intelligibility would make global English coexist alongside the
emerging regional Englishes. From an ELL viewpoint, this implies that learners need to view the
English language as “soft knowledge”, where speaking the language also implies adapting to its
different variants, employing various pragmatic strategies to negotiate with other speakers of
English in order to achieve mutual intelligibility. Unsurprisingly therefore, the international
language is "still growing" (Crystal, 2003), not stable, and not hardened yet, it is a “soft”
language.

2.2.2 Accepting Divergence

Warschauer (2000) also alludes to this “soft” language when remarking on the necessity to
accept linguistic divergence: "In the 21st century, speakers of English may increasingly need to
diverge from what they have been taught is correct in order to make themselves understood to
interlocutors from around the world”. (Warschauer, 2000)

Thus, not only does the definition of traditional linguistic competences (linguistic
competence, semantic competence; sociolinguistic competence) move to local or even contextual
bodies of reference, but the very divergence and multiplicity of language varieties must be
tolerated and understood as an integral part of English.

This poses new instructional challenges as it becomes increasingly difficult to find “content
of reference” while allowing learners to practice and accept divergence from this content of
reference. Perhaps the spontaneous discussion of meaning and use of English in context, at point of need, is an answer to this instructional challenge.

2.2.3 Assisted Language Use at Point of Need

A fact that also influences the paradigm of EGL, is the change in the universal possession and growing use of smart-phones can bring to language processing when and if used as a language tool in context of use. The fact that learners and speakers will increasingly have immediate and perhaps universal access to the language references (online dictionaries, grammar references, automatic translators) means that learners will be assisted via mobiles “at point of need” to creatively adapt to divergences of use of English in context.

While we cannot consider that language tools as they exist today replace the competence to speak the language, it may be possible to envisage that an emphasis on meta-linguistic memorisation may be eased in language learning teaching practices, to the extent that quick consultation can assist communicative acts, whether in comprehension or production. Jarvis, H. A., & Achilleos, M. (2013) even suggest that a more accurate description of computer assisted language learning (CALL) should be Mobile Assisted Language Use (MALU), reflecting the increasing use of mobile devices to produce and understand language utterances at point of need.

The CEFR alludes to this correlated competence of heuristic skills that include:

- the ability of the learner to come to terms with new experience (new language, new people, new ways of behaving, etc.) and to bring other competences to bear (e.g. by observing, grasping the significance of what is observed, analysing, inferencing, memorising, etc.) in the specific learning situation;
the ability of the learner (particularly in using target language reference sources) to find, understand and if necessary convey new information;

the ability to use new technologies (e.g. by searching for information in databases, hypertexts, etc.). (p.108)

The availability of digital external language memory and the possibility of consultation at point of need also brings about instructional questions: on one hand fluency depends on using personal memory of language, on the other, MALU may bring on acquisition over time and allow “learning by doing” (using English) in context.

2.3 Online English

Vázquez and Sevillano (2012), argue that the present role of citizens within a community cannot limit itself to simple conformity but must also include creativity and content production. More generally, de Pablo Pons (1998) summarises the educational implications of such a networked society when suggesting that we need to progress towards an educational philosophy where flexibility, the capacity to face complex interactions and the capacity to integrate information, all characteristics of new media, should be explicitly encouraged.

Warschauer (2000) highlights the role of English in connecting the actors, agents and flow of information within a global world, economy and culture. Without the ability to use English, it is difficult to take part in the exchanges at the heart of our economy and construction of knowledge.

2.3.1 From Classroom Contexts to Online Network Contexts

If the English language becomes a necessary basic skill to function in a networked society (Castells, 1996), and specific dominant networks are dominated by the English word (Castells,
22

2011), then we must consider updating our vision of the exact context of use of English for learners and determine which particular power-related online networks should be part of English language learner curriculums in their roles as global citizens.

The second implication of the use of English in our era of informationalism is the increasing use of the language from within one's habitual living context in one’s own country of residence, but over online networks (Warschauer, 2000). Even within that context, its use brings about economic and social empowerment to its users, so much so that it is becoming a basic skill alongside ICT usage in many countries (Warschauer, 2000).

From a pedagogical viewpoint this implies that learners should simultaneously practice fluency in ICT usage, and integration into the global networked world, where online intercultural competence is acquired.

Learners need to be aware of the potential of empowerment that the global language can bring them and develop ease within multicultural contexts.

For this reason, it has been argued that “ELT teachers should integrate into their curriculum aspects regarding critical language awareness so that students can better understand the interrelationship of language, discourse, and power” Warschauer (2000). In other words learners need to be made aware of the particular form of empowerment they can acquire by entering the networks of speakers of the world's lingua franca. The author goes on to describe that this informationalism is having a growing influence on peoples’ lives: "peoples' lives are increasingly affected by international networks, operating via financial markets, trans-national corporations, and the Internet, that impinge on traditional seats of authority and meaning, such as family, patriarchy, and nation.” (Warschauer, 2010).
We are moving towards having to develop a certain type of fluency that will be used from within one’s own home country to connect to the world:

a large and increasing number of people, even if they never set foot in an English-speaking country, will be required to use English in highly sophisticated communication and collaboration with people around the world. They will need to be able to write persuasively, critically interpret and analyse information, and carry out complex negotiations and collaboration in English. (Warschauer, 2000)

Discourse and functional competences detailed in the CEFR relate to this competence though it seems they need to be revised in the light of online communication and digital literacies. In terms of effects on learner "identity" building, Alsagoff (2012, p.114) highlights the existence of “hybrid identities” in EIL speakers and episodes of identity building rather than fix identities. Marlina (2014) claims that EIL pedagogy needs to guide students to:

(1) gain knowledge and awareness of the pluricentricity of English and the plurilingual nature of today’s communication; (2) inspire students to give equal and legitimate recognition of all varieties of English; and (3) develop the ability to negotiate and communicate respectfully across cultures and Englishes in today’s communicative settings that are international, intercultural, and multilingual in nature.. (p.7)

Warschauer (2000) expresses the need for learners to not only know how to use the language for communicative needs, but also as an instrument to be “active” global citizens. Integrating this underlying goal to the teaching of English, has consequences on teaching practices, such as the choice of tasks, student roles, contexts of use that provide the opportunity to "practice" being active global citizens using the English language. Warschauer (2000) emphasises that for students to learn to communicate “clearly and forcefully” enough, new
project-based educational strategies should be proposed to practice problem solving and argumentation competences needed to compete for the better jobs in society.

2.3.2 Communicative Skills Over an Online Medium

Snyder (2002, p.3) broadens the definition of language skills online: "language is no longer just grammar lexicon and semantics: language now comprises a wider range of semiotic systems that cut across reading, writhing, viewing and speaking." Lotherington (2004) specifies that the border between oral and written language are no longer clearly distinguishable making prescriptive language standards no longer compatible in ELT with the proliferation of use of English over digital technology.

A consequence of this is that traditional four language skills alone are not sufficient to create communication; mastery of the communication channels is needed in parallel. Global English literacy means integrating digital media into the EIL classroom (Ware, Liaw, and Warschauer, 2014).

While we could argue that a broader conception of literacy is that of "transliteracy", (Thomas et al., 2007) where literacy today is defined as "the ability to read, write and interact across a range of platforms, tools and media from signing and orality through handwriting, print, TV, radio and film, to digital social networks", perhaps transliteracy becomes in fact less important than digital literacy in the particular case of English as its communication channel and means of expression, as a global language is overwhelmingly online networks.

Nelson and Kern (2012) argue that since broader multimodal expression abounds online, (video, music, sound, graphics, etc.), language needs to be framed within a larger semiotic system that cannot be distinguished from it. For example, when we view a website on the Internet, we
attend not only to titles, banners, and other written-language texts, but also to colour choices, graphics, photos, spatial arrangements, sounds, so "Analysis of these multimodal juxtapositions can help us to see the meaning potentials of the component resources as they interact with other resources" (Nelson and Kern, 2012). However mastering the online semiotic system, acceptance of linguistic and regional divergence from one's own regional English are not the only traits of a global network English language. It has been argued learners are also faced with a different variety of "net English".

2.3.3 A Particular “Net” Variety of English

According to Crystal (2005), “Netspeak” is a genuine and growing variety of English that covers all areas of internet activity and online computer mediation platforms such as email and chat. Online communication differentiates itself by the possibility of copying and pasting text, inserting links and inserting animations. From a socio-linguistic perspective, the English language has developed an informal style, where resources for the expression of informality in writing have hugely increased (Crystal, 2005). As a consequence of the existence of “Net English”, an accentuated teacher role is therefore to guide learners into how and when to use this growing informal net style standard English and when not to (Crystal, 2005).

The case has been made that the daily practice of teaching the four "traditional" language skills seems outdated as online communication adopts its own genre (Baker, 2001, Lotherington, 2004). While CALL research focuses on using ICT affordances for language learning, it continues to assume traditional skills as the ultimate objective of English learning, and omits to recognise the
"rapidly mutating language conventions and genres used in digital environments". (Lotherington, 2004). The author summarises this new net variety the following way:

Digital communication has inspired new ways of expression at the levels of the morpheme, word, sentence, and text. There are new and variable ways of spelling, using emoticons, acronyms, abbreviations, homophones, and non—alphabetic symbols; new lexical coinages, such as Web site and e—mail, many of which are not yet in computerized spell—checkers; new ways of using punctuation; new utterance shapes, text genres, hybridized codes, conversational norms, discourse patterns; new social networks and digital identities (Crystal, 2001; Hawisher ¬ Selfe, 2000; Herring, 1996; Lankshear & knobel, 1997; Lotherington & Xu -in press) Merchant, 2001; Snyder, 1997, 2002). (Lotherington, 2004)

The author provides the following example:

Email from my teenaged daughter, 2001:

hey mommy,

Here ya go. I will think up sum smiley faces that ppl use when they r describing emotions in a couple o’ taps of the keyboard (when they r 2 lazy 2 describe their emotions 2 u).w/ this little paragraph I hope u like these smileys!! N e ways here they r. (Lotherington, 2004)

Thus English language learners, as part of Network English, must also attend to a larger constellation of semiotic resources. The call for papers of the Language Learning & Technology journal for the October 2015 issue on the theme of "Language Learning and Digital Literacies" is revealing in this respect.
The next section summarises the review of literature above and proposes to define the competences that should ideally constitute the subject area of English as an international language.

2.4 Defining Multi-Dimensional English Competences

To summarise our study of the evolving paradigm of ELL, English is quickly spreading into a genuine global language, is increasingly used over networks, and it requires cultural and linguistic adaptability to other cultures. As English is mainly used online, its natural channel of expression is over online media, and the variety of platforms covering audio (podcasts, teleconferencing tools), video, or text (email, online forums, etc.). We may ask whether it is more urgent to learn to read and write and understand oral communication online than it is in face to face contexts.

Learning of English needs to go hand in hand with mastery of digital media, thus learning online allows future language users to use it efficiently, and ultimately “empower” them in our networked society while becoming familiar with the particular sociolinguistic registers, markers and level of formality proper to various ICTs.

Research in defining a paradigm for English as an international language is dynamic and ongoing. No definitive paradigm has been established nor reached unanimity. However, from the different sub-areas of research corresponding to different language competences, it seems that a paradigm of English as a global language used online is in the making, as it turns towards the specificities of an authentically global language used in a networked world that uses digital and connected supports as its main communication system. More than definitive research findings, questions that researchers are putting forward as to the subject matter of English as a global
language hint towards the "epistemological break" (Kurmavadivelu, 2012) that the English language as a subject matter is going towards.

The increasing difficulty in defining "core English" and standardised use can be viewed as a permanent characteristic of a global language (the same dynamism would affect Spanish or Mandarin were those languages to become as global as English). For convenience, I propose to create an umbrella term to capture the variability of English in all its shades as described above, which I will refer to during the rest of the study: Multi-dimensional English. This term allows to conceptualise the contextuality and dynamism of English as a core feature of the language.

Multi-dimensional English refers to the way language is variably used taking into account:

1. Subject area (or "Specific Purposes") and/or online context of related network
2. Regional destination of message (international public, or regional public and which)
3. Medium: this refers to the channel of communication and particular style this channel induces and varying degrees of formality: chat, email, podcast, online oral presentation, online written formats (reports, blog entries, forum entries, etc.).
4. Semiotic system: within a medium, English can be used as part of a broader base of semiotics, and may be enriched with other reinforcing (or principal) signs such as images, smileys, icons, videos, etc.

Figure 1 below summarises Multi-dimensional English (hereon MDE).
In order to describe a list of competences associated to this “Multi-Dimensional English” (hereon MDE), I choose to use the same categorisation set forth in the CEFR, deriving each competence related to each category from the literature review above. Table 1 summarises the competences part of MDE based on the literature review in this chapter.

Table 1

Competences of Multi-Dimensional English

<table>
<thead>
<tr>
<th>MDE competences</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declarative knowledge</td>
<td>Knowledge of the world</td>
<td>Knowledge of the spread of English. Pluricentricity of English and the plurilingual nature of today’s communication, empowerment through online network use.</td>
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<tr>
<td></td>
<td>Intercultural</td>
<td>Understand the relativity of one’s own cultural viewpoint and cultural value-system</td>
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<td>Skills and Know-how</td>
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<td><strong>Practical skills</strong></td>
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<tr>
<td>Digital literacy; interpersonal strategies</td>
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<tr>
<td><strong>Intercultural skills</strong></td>
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<tr>
<td>Retain national identity; negotiation of understanding with non-native speakers;</td>
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<td>Equal recognition of all varieties of English; ability to negotiate and communicate</td>
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<td>respectfully across cultures and Englishes</td>
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<tr>
<td><strong>Existential competence (savoir-être)</strong></td>
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<td>Accepting linguistic divergence; practice with non-native learners is valid;</td>
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<td>target model of fluent bilingual speaker; ability to distance oneself from</td>
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<td>conventional attitudes to cultural difference</td>
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<td><strong>Ability to Learn</strong></td>
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<td><strong>General phonetic awareness and skills</strong></td>
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<tr>
<td>Video, podcasts; Multialectal competence – passive competence to understand new</td>
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<tr>
<td>varieties of English</td>
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<td><strong>Study skills</strong></td>
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<tr>
<td>Collaborative long distance inquiry and problem solving; practice fluency in ICT</td>
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<td>usage, and integration into the global networked world; use of mobile technologies</td>
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<td>for assisting language use</td>
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<tr>
<td><strong>Heuristic skills</strong></td>
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<tr>
<td>Mobile-assisted language use, Network learning, Negotiation skills – such as</td>
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<td>speech accommodation – for shuttling between English varieties and speech</td>
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<td>communities and the capacity to negotiate diverse varieties of English</td>
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<tr>
<td><strong>Communicative Language Competences</strong></td>
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<tr>
<td>Lexical; grammatical; semantic linguistic competences</td>
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<td>English as a language with multiple norms with local or even contextual bodies of</td>
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<td>reference; divergence and multiplicity of language varieties understood as an</td>
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<td>integral part of English.</td>
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<td>registers relating to all areas of internet activity, including email, the various</td>
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<td>kinds of chatroom and games interaction, instant messaging, and Web Pages, and</td>
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<td>including associated areas of computer mediated communication (CMC), such as SMS</td>
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<td>Learn to write persuasively, critically interpret and analyse information, and</td>
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It can be objected that learning English in its classic, core skills in the physical world as they are still taught today is sufficient for learners to adapt to online versions - just as native English speakers adapt to use English online.

First, this may be a valid argument if learners have the time and means to become fluent in traditional skills. However this is rarely the case and an online networked approach offers a cost-effective solution, addresses needs in remote areas or busy learner lives. Second, you need to be fluent to naturally adapt to "variations" of English without losing confidence in the communicative exchange. Third, if even native speakers are learning to adapt to the network online society and its semiotic system, why not learn English at the same time rather than distinguish those competences, delaying skill acquisition and making it harder to adapt to later? Fourth, online network communication learnt in English allows practising those same skills for online communication in the learner's L1. Fifth, it is only online that a diversity of World Englishes, contacts with natives and international English can be realistically found and sustained from within regions where English is not openly used.

At this point we can ask whether English online represents a whole physical experience of use of the language: users of English as a global language will predominantly use English online. Specific skills relating to use of networks online cannot therefore be disconnected from the use of the language (online video or podcast comprehension, online styles of written English according to context - degree of formality, chat, forum, blog, essay- online intercultural competence, use of online language tools, etc.).
As a metaphor, teaching English assumes learners know how to use their tongues and vocal chords, can hold pens, have access to paper. Teaching English as global language should assume learners know how to use online communication and resources.

Learners may never or hardly ever be exposed to situations of physical communication in English (in small remote villages in parts of Asia for example), but would need online skills of communication to develop any necessary or relevant formal or informal activities.

I propose that while it has been assumed until now that we learn English in physical contexts to then adapt to its use online (classroom teaching of skills: reading, writing, speaking, understanding and then applying this knowledge to use English online) the priority now is developing English online skills in parallel or even prior to, teaching English in physical contexts.

Precisely because online contexts are always available, it is now possible not to distinguish learning contexts from real contexts of use therefore: whole and real experience of English language use can now be the learning context itself.

When is it, or at what point does instruction need to go online? Because it can be argued that “Network English Competences” can be taught and practiced from within classroom contexts in face to face situations, through the use of drills, predefined contents, role-playing. What do individually defined, real-world online tasks contribute as opposed to predefined or prepared face to face classroom teaching? These may be listed as follows:

1. the unpredictability of use and contexts of expressions in English language

2. the possibility of computer mediated communication to address several questions at the same time-the skill of question answering at point of need, thanks to hypertext links and online interactions
3. the ability to offer as many communication contexts as there are students in the classroom

4. an infinite variety of contexts of use that can be chosen by pupils themselves

5. authenticity of the communication act and the possibility of being part of a real community of practice of language speakers (Zhao, 2013).

6. multimodal online expression in English logically can only be found online

Questions students may have when communicating online in real contexts of use of English are not easily predictable by teachers because of the multiplicity of individual contexts of use.

The difficulty to address the needs of English instruction has been highlighted by Marlina (2014) as the language that can no longer rely on a "standardised" form becomes problematic. However International English pedagogy has been found to be difficult to practice by teachers leading Kuramavadivelu (2012) to comment that:

They are faced with the challenge of moving beyond well-entrenched discourses found in the professional literature that they have heavily relied upon. How participants’ subjectivities shape classroom climate, and how might potential tensions be negotiated have become an important issue in EIL teacher education. (p.13)

While Kumaravadivelu (2001) proposes a “postmethod” for classroom teaching, where teachers learn to dynamically theorise their practice and practice their emerging teaching theory, perhaps a dynamic and contextual pedagogic response may be found within the very communication channel that is transforming the use and nature of the English language-online networks.
I now turn to review networks for learning on the one hand and research on Second Language Acquisition from a social-cultural perspective on the other to propose a conceptual framework of my English language learning network architecture.
Second Language Acquisition (hereon SLA) research is informed mainly by brain science, cognitive, psychological, developmental and social studies but has not yet met a multidisciplinary theory reaching consensus. While advances in technology are increasingly permitting to observe direct brain activity, that will eventually lead to reinterpreting current findings (Lightbrown & Spada, p.49), SLA theory still rests on an invisible reality. Methods of observation include: stimuli (behaviourist theory), computer simulations (computational, connectionist models of SLA), native speaker proficiencies (innatist theories), and modifications in conversational interactions (interactionist theories and socio-cultural theories) (Lightbrown & Spada, 2006, p. 49).

This means that theories have been built from a diversity of focus points of observation (and research methods) within the SLA phenomenon. Recognised phenomena such as the existence of interlanguage, first language (hereon L1) acquisition, the attainment of complex syntactic
structures, or apparent "regressions" in the overall progress of learners of a second language (hereon L2) have not been accounted for together under any single SLA theory.

In terms of pedagogy, language learning methods and approaches have not consistently derived from the evolutions of research in SLA. SLA theories have increasingly in the last decade detached themselves from studying methods that can derive from them: explaining how second language acquisition occurs does not automatically allow to define how to put conditions for acquisition into place within formal educational contexts (Lightbrown & Spada, 2006).

Very often, SLA theories refer to processes observed in L1 acquisition. While no explicit teaching is needed for native language acquisition, teaching and instruction practices for developing second language acquisition face a big challenge: how to reproduce some of those L1 conditions for L2 acquisition, within educational environments hitherto assumed to be classrooms, teachers, and groups of learners? It is unsurprising that no classroom-based method has been recognised as the panacea method (Chaves & Hernández, 2013).

Over digital networks, new and different domains of action and intervention for learning are possible that do not exist in classroom contexts. These domains of action and intervention relate to task design, language contexts of use and peer and teacher interactions.

Specificities of online networks call for a careful choice of theory to conceptualise SLA so that the complexity of the phenomenon of SLA may be more accurately reflected over a network learning approach. I have chosen to adopt three perspectives: a “networked learning” perspective; a “socio-cultural perspective” and a cognitive perspective that together explain how language is learnt over the model.
3.1 Justification of Choice of Frameworks

When studying the specific affordances of online networks for language learning, a SLA theory that integrates the conceptualisation of language tools, social interactions, and connections in the language process seems necessary. This naturally leads to a socio-cultural approach, allowing to conceptualise how social interactions lead to learning, and is often used to conceptualise learning models using social web technologies. Specific research has been carried out as to how computer assisted communications, or online interactions lead to language learning, thus providing a relevant body of research and framework for online learning. Most of this research has been carried out in face to face classes, or in limited online groups of learners, who use technology for its capacity to put learners into contact, whether one to one, one to many or many to many. This research is relevant for networked learning and is reviewed in Chapter 4.

However some other more recent distinct features of online networks ever more apparent since the incremental development of Web 2.0 behaviours are not directly reflected in this framework. Specific research on the possible network architectures and online interaction design taking online networks as an immersive and unpredictable context for English language real use is under-researched (Lamy & Zourou, 2013, p.2)

I now turn to review a broad evolution of SLA research towards the recognition of SLA as a complex system. This allows me to then propose a connectivist interpretation of language learning.

3.2 Which theory for SLA? SLA as a Complex System

I briefly overview here the direction that research in SLA is taking. Fragmentation in SLA research reveals an impossible holistic explanation. This high level of complexity of the
phenomenon has inspired some researchers to borrow the metaphor of "complex system" to describe how second languages are acquired.

### 3.2.1 SLA Research is Fragmented into Perspectives

Over 40 theories of SLA have been put forward (Larsen-Freeman & Long, 1991). I overview main theories below.

From the cognitive perspective, two basic positions can be found: Universal Grammar and Information Processing models. The “Innatist” perspective or “Universal Grammar” (UG) approach is based on studies by Chomsky on the acquisition of native language by children. The Chomskyan view is that if children can acquire their native language, then the brain must be genetically hard-wired for language thanks to the existence of an internal "Language Acquisition Device" (hereon LAD). The core skill of language is thus separate from other aspects of cognition, though in close relation to them. Applied to SLA, this means that the LAD can also be used for second language learning, and second language input is sufficient (Krashen, 1980; Krashen, 1991) as it will follow the same processing path.

The other branch of cognitive SLA is metaphorically closer to how computers process information. Information processing models view two cognition functions: short term memory and automatic processing. Short-term memory is our "working memory", under our conscious attentional control. When we process information in our working memory, we are learning because this information then gets stored in our long-term memory, where it can be automatically and instantly used without attentional control (effortlessly). Conscious attention and knowledge used in working memory is termed "declarative knowledge" and long-term memory is called "procedural knowledge", which becomes automatic over repeated practice. On the one hand,
processing approaches are based on the idea that complex behaviour builds on simple processes and controlled processing becomes through repetition over time automatic processing, which is part of long term memory (McLaughlin, 1983). Anderson (1980) proposes processing models of language where declarative knowledge becomes procedural knowledge through cognitive, associative and autonomous stages.

Another computational interpretation of SLA is that termed "Connectionism" (not to be confused with "Connectivism"), where SLA acquisition derives from the cognitive ability of the human mind to form "patterns" based on language information. The patterned behaviour of language is different from the view of language as a set of "rules", so this sets Connectionism apart from other theories in the cognitive domain. Researchers in this field have tested the ability of computers to learn languages based on "pattern formation" to validate their theory and have achieved partial success. (Ellis & Schmidt, 1997).

Another group of theories under the realm of "Developmental Approaches" includes Genetic Epistemology rooted in works by Piaget, the Interactional Approach stemming from Bruner's works and Constructivism, and the Sociocultural Approach, although Vygotsky's tradition can also be included in the following and last categorisation of SLA theories "Social Approaches". Social Approaches include Situated Cognition, Distributed Cognition, Activity Theory and Connectivism.

I will come back to this perspective in chapter 4, and the way socio-cultural theory has been researched in the context of online interactions for language learning.

An encompassing theory arising from the sum of the parts of this different fragmented research has not been successfully achieved yet, as explained by Mitchell, Myles & Marsden (2013):
On the whole, grand synthesising theories, which try to encompass all aspects of SLL in a single model, have not received general support. Rather than a process of theory reduction and consolidation, of the kind proposed by Beretta and others (1993), we find that new theoretical perspectives (such as connectionism or socio-cultural theory) have entered the field, without displacing established ones (such as Universal Grammar). (p.257)

In line with this proliferation of theories, Second language Acquisition is increasingly recognised as a highly complex phenomenon resulting from a combination of factors: "We can neither claim that learning is caused by environmental stimuli (the behaviourist position) nor that it is genetically determined (the innatist position). Rather, learning is the result of complex (and contingent) interactions between individuals and the environment. (Van Lier, 2014, p170).

3.2.2 Recognised Insufficiencies in SLA Research

A difficulty highlighted in research in SLA is that there is generally a lack of longitudinal SLA studies (Doughty et al., 2003, p.3). Nick Ellis (2003) summarises the overall challenge facing SLA research when he explains that the factors that influence SLA processes are each individually highly complex. Therefore SLA research requires collaboration between experts from different fields, such as neuroscience, psychology, linguistics, and sociology. This type of research collaboration has not come together for SLA as yet. Ellis (2003) describes the scope of “Constructivism” as a theory for SLA in this manner:

Constructivist views of language acquisition hold that simple learning mechanisms operating in and across the human systems for perception, motor-action and cognition as they are exposed to language data as part of a communicatively-rich human social
environment by an organism eager to exploit the functionality of language is enough to drive the emergence of complex language representations. The problem, though, is that just about every content word in this sentence is a research discipline in itself and that in our attempt to reunite speakers, syntax and semantics, we have to be linguist, psychologist, physiologist, computational neuroscientist, and a lot more besides. At present there is far too little interdisciplinarity. (p.71)

Besides the need for interdisciplinarity, research findings are not always generalisable, because of the large number of variables to take into account from one study to another. The following list of variables affect individual processes of SLA: native language; the target language; markedness of the LI, markedness of the L2; the amount and type of input; the amount and type of interaction; the amount and type of feedback received; whether it is acquired in untutored or tutored contexts, and so on. Larsen-Freeman and Long remark that other factors that interact differently between themselves also have a profound effect on a particular SLA trajectory including age, aptitude, socio-psychological factors such as motivation and attitude, personality factors, cognitive style, hemisphericity, learning strategies, sex, birth order, interests, etc.” (Larsen-Freeman & Long, 1991).

However, if a theory needs to encompass the understanding of the interaction between all these variables, is it realistic to aim towards a theory?

Larsen-Freeman (1997) goes a step further in her vision of the complexity of SLA and proposes that each of the variables above should not be studied separately. The behaviour of complex systems arises from the interaction of its components or agents. Thus, if SLA is regarded as a complex system, then traditional theories, even if they were related to form a coherent “whole”, would not be enough (Larsen-Freeman, 1997).
In the absence of an encompassing and general SLA theory, some academics have turned towards Chaos theory and Complexity theory to create metaphors on the mechanisms of SLA. I review them below.

3.2.3 SLA as a Complex System

Complex systems are models used to describe phenomena in a wide range of academic fields such as economics, physics, computer science and biology that break with the deterministic tradition of science based on cause-effect explanations. In a complex systems approach, it is inherently impossible to determine evolutions, or outcomes, even if it were possible to measure all initial conditions in an infinitely precise manner. However, this does not mean that outcomes are random, as patterns are often recurrent. Morrison (2006) summarises the mechanisms of complex systems the following way:

Through feedback, recursion, perturbance, auto-catalysis, connectedness and self-organisation, higher and greater levels of complexity and differentiated, new forms of life, behaviour, systems and organisations arise from lower levels of complexity and existing forms. These complex forms often derive from comparatively simple sets of rules – local rules and behaviours generating emergent complex global order and diversity (Waldrop, 1992, pp. 16-7; Lewin, 1993, p. 38; Åm, 1994). General laws of emergent order can govern adaptive, dynamical processes (Waldrop, 1992, p. 86; Kauffman, 1995, p. 27).

It is not difficult to see the advantage in adopting a complex system perspective to approach the dynamic and unpredictable character of SLA that is highly sensitive to a learner's complex set of "initial conditions".
**Fossilization.**

Larsen-Freeman (1997) proposes that acquisition can be seen as a random dynamic emergent phenomenon which is essentially complex and non-linear, for example when the second language learner slides back into errors over a period of time that this learner did not use to make. Conversely, when the system of language acquisition to exposure to new contents is closed, learning comes to a halt, and "fossilization" occurs.

**Interlanguage.**

Perhaps the most convincing parallel to be drawn with complex systems, is that of a learner's "interlanguage". Interlanguages cannot be explained by learners purely inventing new language patterns as meaning continues to be shared by speakers. Both individual creativity and social interaction combine to influence the shape of the developing grammar. According to Mohanan (1992):

The formation of grammar in an individual does not involve a logical problem of deducing prepositional knowledge, but involves growth of form in a system that governs the external behaviour of the system. Linguistic patterns appear spontaneously in the language faculty, when triggered by the environment, like patterns in snowflakes; unlike snowflakes, however, linguistic systems exhibit adaptability. Their internal changes are governed by the pressure to conform in their overt behaviour to those of the other members of the community (p.654).

Interlanguage could therefore be understood as unpredictable emerging patterns, that emerge differently from one individual to another, (according to dynamic acquisition path) but that are sufficiently recognisable with respect to other Interlanguages and the second language itself.
**Initial states.**

Another common feature with complex systems is the existence of "initial states". A learner's native language can be conceptualised as an initial condition of the SLA dynamic system:

While interlanguages of speakers of various first languages learning English as a foreign language has much in common, they also are distinctive, each constrained by the strange attractors of their L1s, which may be greater than the force of the strange attractor of English. (Larsen-Freeman, 1997)

**Unpredictable learning paths.**

According to Larsen-Freeman, defining SLA as a complex nonlinear process implies also recognising that it will never be possible to specify and quantify all factors at play, and even if it were, predicting the result in language development of their interplay would be equally impossible. This way, as Menezes (2013, p. 404) explains that the very nature of the interplay of elements influencing language acquisition is random, and therefore unpredictable, it is also “always in movement and never reaches equilibrium, although it undergoes periods of more or less stability”.

**Dynamic and non-ending.**

Language Learning is also recognised as a non-ending process. For Menezes (2013), learning and knowledge are a perpetual process: “As complex systems are in constant movement, after chaos, understood here as the optimal moment for learning, a new order arises, not as a final static product, but as a process, i.e., something in constant evolution.”
A scientific push to view SLA as a complex system was reflected in a position paper in 2009. Ellis & Larsen-Freeman (2009) state that SLA can only be understood if we recognise that SLA emerges from the interplay between various phenomena:

Linguistic patterns are not preordained by God, genes, school curriculum, or other human policy. Instead, they are emergent—synchronic patterns of linguistic organization at numerous levels (phonology, lexis, syntax, semantics, pragmatics, discourse, genre, etc.), dynamic patterns of usage, diachronic patterns of language change (linguistic cycles of grammaticalization, pidginization, creolization, etc.), ontogenetic developmental patterns in child language acquisition, global geopolitical patterns of language growth and decline, dominance and loss, and so forth. We cannot understand these phenomena unless we understand their interplay. (p. 18)

If previous theories have lead to deriving second language learning approaches (such as Behaviourism and Innatism) then a question is does the description of SLA as a complex system allow deriving some instructional design or learning method as well?

So does interpreting SLA as a complex system lead to logical consequences for second language instruction? An immediate logical conclusion is the need to address a variety of conditions for learning inferred from both cognitive and social perspectives. The next section reviews research that can enlighten us in that respect.
3.2.4 Edge of Chaos for SLA

Oekerman (1997) uses the scientific concept of edge of chaos and applies it to education. The author proposes the edge of chaos as a “narrow area where order and chaos are characterised by risk, exploration, experimentation” and explains that:

- there are five factors, or control parameters, that determine whether a system can move into the edge of chaos (or beyond into disintegration): the rate of information flow, the degree of diversity, the richness of connectivity, the level of contained anxiety, and the degree of power differentials. In human systems, these factors combine into a creative tension where people are linked to others in paradoxical relationships of cooperation/competition, inspiration/anxiety, and compliance/individuality. (Oekerman, 1997).

"Edge of chaos" may be a misleading term, it is not related to Chaos Theory but to the theory of Complex Systems, and second, because it does not mean that conditions are chaotic, but rather refers to conditions to the specific list of five criteria as detailed above.

Menezes interprets Oekerman's proposed edge of chaos educational framework as a state leading to the emergence of SLA. The author lead a study in 2008 based on a corpus of eighty Language Learning Histories (hereon LLH) from learners of English as a foreign language, to provide evidence of SLA as a complex system.

Ethnographic research methods allows accounting for the complexity of factors giving rise to SLA, including unpredictable types of data, because "by admitting into the research frame the subjective experiences of both participants and investigators, ethnography may provide a depth of understanding lacking in other approaches to investigation" (LeCompte & Goetz 1982, p.32). Moreover, in computer assisted language learning, ethnographic methods are being adopted by...
researchers to address the "unmanageably" high number of variables (Lamy & Hampel, 2007, p.17).

Menezes highlights this variety of conditions for SLA based on the learner histories. The author provides examples of how learners recount exposure to language over informal or incidental activities (skate board competition, TV programs, etc.). These episodes were characterised by “diversity of authentic input” as well as “low anxiety, enjoyment, rich interactions provided by new contexts, and control of the learner’s own learning”. In some cases this lead to an emerging “new interlanguage phase”. Menezes (2013) thus tries to show that “the learner's acquisition system is open, and consequently not predictable, as new elements may enter the system and transform it” and in so doing demonstrates the need to enrich classroom instructions with a diversity of linguistic experiences. This in turn allows her to strengthen her case for relating “edge of chaos” conditions to emergence of language acquisition.

I retain here two important conclusions to Menezes' study. First, that SLA can be viewed as a complex system because of “its inherent ability to adapt to different conditions present in both internal and external environments” (Menezes, 2013, p.407). Second, I highlight her interpretation for SLA of Oekerman's five "edge of chaos" learning conditions that represent "a zone of creativity with the maximum potential for learning" (Menezes, 2013, p.407): “rate of exposure to the target language, the diversity of authentic input, the richness of interactions, the low level of anxiety, and the rate of autonomy or control of one’s own learning”.

Figure 2 below illustrates learning conditions deriving from the conceptualisation of SLA as a complex system and the suitability of the "Edge of chaos” state for language acquisition emergence.
I will come back to the definitions of edge of chaos as its conditions need more precise definition.

Viewing SLA as a complex system and the condition of edge of chaos as a necessary state for SLA to emerge is accepting to use metaphors to conceptualise language acquisition. This can be considered as an insufficiently grounded framework for exploring a deriving teaching model.

However two remarks are necessary here. First, the metaphor of complex system does not exclude using conceptualisations from other cognitive, developmental and socio-cultural strands of SLA research. SLA as a complex system admits the co-existence of SLA research perspectives as they represent sub-processes of SLA that interact.

Second, in Language Teaching and Learning, it is recognised that teachers use and adapt different methods to their particular teaching context rather than follow a single prescriptive
method. The realisation of the limitations of any method for SLA, and the reach towards an eclectic approach, is revealing of the acquisition requirements of phenomena that behave as a complex system. The adopted position of Kumaravadivelu who advocates an adaptive teacher role, is based on the observation that language successful instruction “… depends on the unstated and unstable interaction of multiple factors which include teacher cognition, learner perception, societal needs, cultural contexts, political exigencies, economic imperatives, and institutional constraints, all of which are inextricably interwoven” (Kumaravadivelu, 2002, p. 29).

Recognition of the need for eclectic approaches in language learning, or even a “postmethod approach” (Kumaravadivelu, 2001) points to a similar orientation towards the recognition of language learning as a complex system sharing a similar rejection of a deterministic stance as to how language learning and acquisition occurs in individual learners.

So if we accept to embrace the metaphor of edge of chaos as a necessary setting for language acquisition, is it possible to identify and purposely bring about edge of chaos conditions for language learning? Is it possible to conceptualise SLA in a global society where English is a dominant online network language for communication?

### 3.3 Connectivism and SLA

As new areas of research explore the effects of online technology on our neural processes and our behaviour in society, it is increasingly recognised that the landscape -sociological and psychological conditions- underlying previous well-established learning practices has changed. The individual has gained new channels of expression, is exposed differently to the world’s knowledge, and can experience new ways of interacting or connecting with others. There is now widespread research aiming at adapting or updating general learning theories and pedagogies so they can apply
to the different epistemological environment in which learners live and the way they think (Kop & Hill, 2008).

Connectivism has emerged as a learning theory based on a specifically online network-based epistemology. It proposes to define the nature of knowledge and learning based on the 21st century online and connected world we live in. Downes (2006) proposes a connective epistemology and Siemens (2006) a description of learning ecologies. I propose to review connectivism and derive a conceptualisation of language learning over networks from a connectivist perspective and then analyse its limitations.

3.3.1 Networks as Edge of Chaos for Language Learning

Siemens (2006) distinguishes characteristics of today’s digital networked world that to his view account for a change of paradigm and an epistemic break. These include:

1. “The rise of the individual” (Siemens, 2006, p.72): the empowerment of individuals as Web 2.0 becomes an outlet of expression, or “co-creation”.

2. “Connectedness” (Siemens, 2006, p.73): digital supports enable manipulating and “re-mixing” knowledge to an unprecedented degree.

3. “Immediacy” (Siemens, 2006, p.74): this refers to the instant sharing of any new information, knowledge or data

4. “Breakdown and repackaging” (Siemens, 2006, p.74): this refers to how individuals now appropriate knowledge and shape their own “personal understandings” by putting together extracts of knowledge they are exposed to. The author highlights the contrast
with a pre-digital era where published materials stemmed from narrow and controlled processes. (Siemens, 2006)

5. “The conduit is king” (Siemens, 2006, p.75): the author alludes to the all-importance of the communication channels and platforms allowing connections and knowledge building. (Siemens, 2006)

6.” Socialization” (Siemens, 2006, p.77): this point alludes to the fusion between our own perspective and that of others, as we instantly read and write (the “read-write Web”). Separation between our mind and that of others is greatly reduced as we simultaneously juggle various perspectives that are presented to us in real time. In this way the author proposes a different definition of socialization as that of a pre-digital era: no more is it a question of “exchanges” but rather of integrating diversity of perspectives into our individual active thinking. (Siemens, 2006)

7. “Blurring worlds of physical and virtual” (Siemens, 2006, p.77): the blending of digital spaces into our lives should lead us to cease differentiating the virtual world from a “real” world. The author refers to a “skill set” as we increasingly manage parts of our lives over online networks: “Tone of voice blended with the message. First text, then audio, now video. We can come to know each other without touching”. (Siemens, 2006, p.77)

While this description is based on Siemens' own vision, some of these characteristics of online networks are found in other empirically-based studies in sociological research. Danah boyd and Mimi Ito among others, focus their research on understanding how new media are being
integrated into youth practices and their bearing on dynamics of youth-adult negotiations over literacy, learning, and authoritative knowledge. In a three year ethnographic study embracing various qualitative research methods, the researchers found that the connected learning landscape naturally lead to self-directed and peer-based learning. Among other findings, Ito et al. (2008) found that online environments facilitated self-directed learning and by broadening their circle of legitimate knowers, youths turn to “specialized knowledge groups of both teens and adults from around the country or world, with the goal of improving their craft and gaining reputation among expert peers”. More generally, Ito et al.(2008) conclude that:

New media allow for a degree of freedom and autonomy for youth that is less apparent in a classroom setting. Youth respect one another’s authority online, and they are often more motivated to learn from peers than from adults. Their efforts are also largely self-directed, and the outcome emerges through exploration, in contrast to classroom learning that is oriented toward set, predefined goals.

Thus affordances of a networked learning landscape become apparent through this study and support the view brought by Siemens that autonomy, peer to peer knowledge creation, exploration, unpredictability, and self-defined learning paths become increasingly significant components of the learning landscape in the 21st century. From the analysis of these affordances, we can see how digitally connected lives represent an "edge of chaos" setting as defined by Oekerman as it fulfils the conditions of: rate of information flow; degree of diversity; richness of connectivity; level of contained anxiety, and the degree of power differentials.

The study by Ito et al. (2008) sheds light on a pattern of network learner behaviour that I will come back to later: an individual leverages the knowledge and interactions within a
community to fulfil own explorations in a broader, open, context online. Peers and groups are available precisely "at point of need" for learners to dynamically improvise learning paths.

3.3.2 The Network Matrix for Knowledge Emergence

Connectivism is grounded in an epistemology of distributed knowledge where:

each person is experiencing a mental state that is at best seen as an approximation of what it is that is being said in words or experienced in nature, an approximation that is framed and indeed comprehensible only from the rich set of world views, previous experiences and frames in which it is embedded. (Downes, 2006)

If knowledge is a temporary mental state, emerging from an approximation of reality that is achieved through connections, then learning is traversing networks that provide the possibility to make connections from which those mental states are derived. Not only information but also perceptions from our senses enter the intricate network of external and internal connections we make.

Downes proposes a definition of knowledge where individual knowledge is a pattern of neural connections. This pattern of connections emerges in individual minds differently, and is always dependent on context. This presents a difference with a cognitive approach, where knowledge is assumed to be an “entity in the mind” corresponding to given words that can be transmitted from one person to another. Downes (2006) specifies that knowledge is “subsymbolic”, as it does not derive from the possession of words, or chains of words, but from the connections between neurons that arise upon hearing the words. Neuronal patterns are not fix, the same neurons may participate in different connections, thus “the same neuron that is a part of
’Paris is the capital of France’ might also be a part of ’My dog is named Fred’” (Downes, 2006). This allows Downes to insist on the emergent characteristic of knowledge as he suggests that:

There is no 'canonical' set of connections that corresponds with 'Paris is the capital of France'. It is, rather (and carefully stated), a recognition of a pattern in a set of neural events (if we are introspecting) or behavioural events (if we are observing). We infer to mental contents the same way we watch Donald Duck on TV - we think we see something, but that something is not actually there - it's just an organization of pixels. (Downes, 2006)

3.3.3 Connective knowledge and Second Language Acquisition.

Downes uses the example of language knowledge to illustrate how word understanding is a representation of connective knowledge and in passing touches at the phenomena of SLA:

When the meanings of words are distributed, the basis of their meanings - the smaller subsymbolic entities that make up the meanings - are intermingled. In a certain sense, you can't understand what 'Paris' means unless you at the same time understand what a set of other words, and indeed, other concepts (such as 'naming') mean. (Downes, 2006)

Knowledge is in this way distributed and connected at a neurological level, but it is also distributed and connected at a social level.

Shared Meaning.

Meaning only exists through consensual interpretation within a community of speakers: "what we mean by a word depends on a community of speakers; the meaning of a word cannot stand alone, fully self-contained, in the mind" (Downes, 2006). The “act of communicating” is the
conduit for this consensus to emerge: “To 'know' can be translated into the fact of having a
“regularly occurring pattern of neural activity”.

Of interest here is how Downes makes explicit the way connections, whether internal
(neural) or external (in society, between language speakers) lead to language emergence (shared
form to represent a shared meaning) and individual acquisition. This view is compatible with
constructivist and psycho-cognitive approaches to research in SLA.

Constructivists believe that language competence and fluency is an ongoing emergent
consequence of the incalculable number of mental associations that form an individual’s life
experience of language. These cognitive functions are based on a neurobiological network in our
brain, capable of perceiving patterns and underlying regularities in language from input—in
phonological, orthographic, lexical and syntactic domains—identifying the most salient, "where
schematic constructions can be abstracted over the less schematic ones which are inferred
inductively by the speaker in acquisition“ (Ellis, 2003) and storing those in long term memory. So
any new language experience alters the state of the individual’s language perception and internal
network of calculation.

The nature of the “signals” that are connected over our internal neural network are
composed of grammar constructions or, at a lower level, “chunks” (Ellis, R., 2005).

Constructions are “recurrent patterns of linguistic elements that serve some well-defined
linguistic function: sentences; noun phrases; prepositional phrase (higher level systemacities
emerge form them).” (Ellis, 2003). In turn, these constructions internally stem from our
“chunking” capacity (Ellis, 2003), i.e. an unconscious psychological strategy that packages data
into units to increase our memory capacity. This results in our brains patterning and perceiving
language regularities at a very low level:
We have learned to chunk letters, sounds, morphemes, words, phrases, clauses, bits of co-occurring language at all levels. Psycholinguistic experiments show that we are tuned to these regularities in that we process faster and more easily language which accords with the expectations that have come from our unconscious analysis of the serial probabilities in our lifelong history of input (Ellis, 2002).

However this chunking model does not explain how meaning is formed. Meaning is described as “emergent” by various branches in cognitive research. Ellis gives an explanation of what meaning is that can be seen as a specification of the “space” alluded to by Downes, and based on Wittgenstein philosophy:

At its most concrete it is the perceptual memories which underpin the conscious experience which a speaker wishes to describe and which, with luck, will be associated with sufficient strength in the hearer to activate a similar set of perceptual representations. These are the perceptual groundings from which abstract semantics emerge (Barsalou, 1999; Lakoff, 1987).

According to the author, “the on-line conscious experiences of language learning involve language understanding rather than counting” (Ellis, 2003) and is therefore predominantly implicit in nature.

In so doing, language performances becomes an interplay between the inner workings of our brains at a neurobiological level, and our real life experiences of language interactions through our perceptuo-motor, and cognitive associations. By recognising the need to integrate human interactions on the social level to understand human knowledge building at the internal level, a closer parallel can be drawn between Downes’ view of knowledge emerging from both the interaction between human neural and social digital networks and current SLA research.
This brings us to a similar conceptualisation found within the socio-cultural approach that I will review in the next section, but we can retain here the importance of the concept of “connections” from a network perspective on language acquisition.

Lastly, Downes says that social networks may behave in a similar way to our neural networks in producing patterns and knowledge. However, for an external digital social network to behave in a way that resembles neural connections in the human mind, intervention is needed as to how the network is structured:

What is needed is to attain a middle point, where full connectivity is achieved, but where impulses in the network ebb and flow, where impulses generated by phenomena are checked against not one but a multitude of competing and even contradictory impulses (Downes, 2006).

I can now relate Downes’ epistemology with Siemens’ description of our knowledge environment. The seven characteristics of our digital society brings us closer to living in a connection ecology fulfilling this “multitude of competing and even contradictory impulses” because of the reality or potential of connecting different perspectives (diversity), through individual, non homogenised and non-controlled contributions (autonomy), via exchanges (interaction) rather than aggregations (accumulations) and the possibility for new perspectives to enter the network (openness).

In the view of Kop & Hill (2008) it is precisely this epistemology that can justify the emergence of a theory of learning along connectivist lines as networks are the platform on which a rich variety of contexts are created leading to emerging meanings by those who participate in them.
In the next section I attempt to illustrate the difference between our knowledge and learning environment, before and after the digital era.

**Contextual Knowledge Creation.**

Before massive alphabetization and print, knowledge was confined to individual minds, relying on individual memorisation. With printing, knowledge (or "fixed connections") was memorised in written format: knowledge was not lost with the person, but potentially usable by many. This was revolutionary especially when more and more individuals could read and use copies of those "recorded connections" for their own knowledge building. Compared with the potential of networks today, this connection making adopted a slow pace, as it involved many physical barriers and delays: publishing selection processes and restrictions, text distribution channels, necessary possession of book or other support.

Figure 3 below illustrates the basic mechanism of knowledge and learning prior to the digital era:
Figure 3. Knowledge creation and learning prior to the digital age

With digital network connections, we can use connections made in context, which can replace both, older, selected knowledge reference texts and human working memory. Figure 4 below illustrates how we reframe our knowledge according to Downes (2006)
Pace of change.

The speed of connection making (potentially), justifies a qualitative change in our understanding of learning. Siemens (2006, p.18) uses the variable of “pace of change” to define to what extent knowledge is reflected in an external and stable embodiment. Different knowledge types co-exist: “soft knowledge” (dynamically emerging in an ongoing way) and “hard knowledge” (bodies of knowledge largely unquestioned by the public and that constitute enduring references). Siemens claims that more and more knowledge in our digital era is subjected to replacement, and amendment.
The English language, as argued in chapter 2, is no exception to this rule: it is becoming "softer" knowledge, its forms of expression and use are multiplying rapidly and it is more and more difficult to define a core standard.

Based on the fact that “the externalisation -over networks-of our knowledge is being used increasingly to manage excess of information”, the authors suggest to consider networks as our new “live memory”, the visible deposit of our learning processes, or better put, of “node connections” (Siemens, 2006, p.29). If knowledge is a temporary mental state, then learning is traversing networks that create those mental states.

I will come back to limitations of this view at the end of the chapter. I now turn to the question: can networks, in their connectivist nature, provide us with an environment for SLA? In other words, can edge of chaos conditions be found over networks?

3.3.3 Connectivism and Acquisition of Multi-dimensional English

If the above characteristics affect the way we learn and build knowledge, then they may also affect or provide conditions to learn a second language. To propose this conceptualisation for SLA, I have to (a) define the unit of language knowledge as it flows over networks and emerges from connections and (b) define online networks as providing a state of edge of chaos for the English language. I propose a connectivist definition of language as knowledge, that will allow deriving a conceptualisation of connectivist theory to language learning in our online connected environment.

Language acquisition as emerging connections in context.

Complexity theorists for SLA offer definitions of language as dynamic pattern constructions which are consistent with a connectivist definition of knowledge in general.
Maurice Claypole’s fractal approach to language learning suggests that by using the language we change it because “once you have used or encountered a word or a phrase in a new context, it takes on associations and meanings it did not have before.” (Claypole, 2010, p. 54). This dynamic definition of language prevents us from viewing language as a fixed set of structures obeying pre-defined rules, because it “is not governed by simple rules but driven by an ongoing, iterative process of self-referential contextualisation” (Claypole, 2011). The English language follows laws of change, where interaction, iteration and feedback are at work: “The answer lies in the dynamic nature of language itself and in the complex network of ever-changing patterns that are constantly being expanded and reformed through an ongoing process of interaction, iteration and feedback.” (Claypole, 2011).

Claypole like Menezes justifies that SLA takes place over multi-contexts because to experience the linguistic iterations referred to, language needs to be used in a variety of contexts: "Such instances of linguistic iteration frequently fall outside the scope of regular language lessons and yet the patterns they reveal are as commonplace as they are complex" (Claypole, 2011).

Larsen-Freeman (1997) has a similar perception to Claypole on language dynamicity, but extends the argument further by distinguishing three ways in which language can be defined as “dynamic”: as an active process (of aggregation of static units or products); as a natural organism subject to evolution whereby language, independently of its speakers' will or consciousness has its periods of growth, maturity, and decline; as an isomorphic process ('The act of using the language meaningfully has a way of changing the grammar system in the user' (Diller, 1995, p.116). Moreover, “as the user's grammar is changed, this sets in motion a process, which may lead to change” (Larsen Freeman, 1997, p.148).
Thus, the behaviour of the system as a whole is the result of the aggregate of local interactions: "A language such as English is a collaborative effort of its speakers, and changes in the system of English are "emergent"(Diller, 1995, p.117 as cited in Larsen-Freeman, 1994, p. 148).

Larsen-Freeman points out the very phrase 'target language' is misleading because there is no end point to which the acquisition can be directed.

**A connectivist definition of the English language.**

If knowledge emerges and resides in networks, then language knowledge is the dynamically created, temporary status emerging from the connections between speakers in context. Claypole’s “ongoing process of interaction, iteration and feedback” can be related to Siemens’ description of how knowledge emerging over networks is fed back into new connections between nodes (speakers, contents in the English language).

Applying the categorization of hard and soft knowledge to the domain of language, we could refer to the fact that language is “hardened” by recognised authorities, such as dictionaries and grammar books or in some cases dedicated national bodies (such as the “Académie Française” in the case of the French language for example). The English language, as a “natural organism”, sees its “hard” state evolve slowly in comparison to other types of knowledge (for example the state of knowledge on SLA changes at a high speed because of ongoing empirical research). As an illustration, it can take at least a year or more for a neologism to make its way into a dictionary.

However, we need to disconnect regularities and rules of the language, from its actual use in context. My Multi-dimensional model illustrates how the English language emerges from context, as agreement emerges between users as to the meaning given to MDE utterances in context of
use. The English language is exposed to ever more contexts of use, and Claypole’s processes of interaction, iteration and feedback are exponentially multiplied, making its pace of change more intense than that of other languages.

Figure 5 below shows how traditional language epistemology has affected language classroom teaching:
The nature of knowledge has a consequence on how we should learn it: if knowledge is “hard”, then the individual learner will not have a role in transforming it. “Disconnected” (individual) learning practice is more justified. However if knowledge is “soft”, that is, context-dependent, then learning “in context” is needed, as the knowledge emerges from network participation.

Though we may consider language has a hardened core (a basic standard reference) it can actually be considered “soft” knowledge because each communication need depends on user's creation of utterance (recombining words), or "decision" that one utterance is applied to a given meaning at point of need. This is evidenced in the fact that its existence as a live language depends on its use in context by speakers and learners (who progressively add to the complexity of what may be in the future represent a "hardened" state or core state in the language, as acknowledged universally).

Figure 6 below shows how affordances of networks allow us to redefine the English language as a subject for learning.
Using Connectivism for Describing ELL.

While language learning has no end, in terms of immediate learning goals, the objective is to use it to fill communicative needs. Language as a subject is therefore particularly soft knowledge because it actually only materialises in context. Traditionally taught meta-lingual knowledge, relying on a hardened state of delimited official rules pertaining to the use of it, while providing useful conceptualisation for supporting practice of the language (as we will come back to in
chapter 5) does not lead to language as a skill in its used state itself, which is where language knowledge actually lies.

This connectivist definition is all the more relevant today if we are to consider Nelson & Kern's (2012, p 49) conception of language shifting from a "fixed, autonomous system to a conception of language as a dynamic semiotic resource that individuals combine with other semiotic resources to act in the world" as they acknowledge the complex cultural flows of people, language(s), and multimodal technologically mediated texts around the globe (Appadurai, 1996, as cited in Nelson & Kern, 2012). This view is compatible with Downes' epistemological view.

If language, as knowledge, can only materialise as a set of connections during use in context, then it can only be learnt by exercising those connections in context.

If we consider a knowledge unit of the English language to be the appropriate use of a language utterance in context, then the English language is soft knowledge: the choice of words forming that chunk is dependent on the need of expression and needs to be created in part at the initiative of the user at that given moment, taking into account the end-receiver of the utterance, and thus using at point of need the Multi-dimensional English (MDE) that is appropriate: medium, destination, semiotics, subject area terminology. It is doubly "soft" knowledge. Iterations are re-created in context and participate dynamically in the provisional states of the language. Learning a language by participating in its iterations in context is therefore a necessary SLA condition for the learning of both its hard and soft states.

Thus, a dynamic definition of language allows us to propose a non-linear and dynamic definition of language acquisition: you learn language by participating in a network where the biggest and most diverse amount of possible connections (speakers, contents) occurs in continuity. Connections within contexts offering diverse social, emotional and spiritual dimensions enrich
acquisition. However the network where these connections can occur need to fulfil particular properties.

**Internet as an edge of chaos environment for SLA.**

As a reminder, Menezes concluded that learners are led to the edge of chaos by factors that provide rich input; interactions with proficient speakers; social purposes for language use, dealing with different oral, written or digital genre in formal and informal contexts. Language Learning is also recognised as a perpetual process. These conditions can be found in Siemens’ definition of the four traits of connective knowledge networks: Diversity, Autonomy, Interactivity, Openness. These traits can describe Internet as an SLA context, and reflect an online network form of “edge of chaos” conditions put forward by Menezes.

**Traits of ELL as a connective knowledge network.**

Below the conditions for knowledge networks to be connective (Siemens, 2006, p.16) are interpreted for language learning and related to the conditions of edge of chaos for language learning proposed by Menezes.

- Diversity (Siemens, 2006, p.16): widest possible spectrum of contexts of language use and rich input (Menezes, 2013)

- Autonomy (Siemens, 2006, p.16): learners’ contribution to interaction of their own accord, based on their own knowledge of the language, rather than acting at the behest of a teacher or a curriculum seeking to magnify a certain linguistic point of view or subject. The learner profile is part of initial conditions of the SLA process. (Menezes, 2013)
• Interactivity (Siemens, 2006, p.16): linguistic knowledge emerges from conversations rather than generated from individual contributions. Skill practice emerges from interactions with proficient speakers (Menezes, 2013).

• Openness (Siemens, 2006, p.16): different perspectives can be brought into the system, by way of diverse materials and contexts of use for skill practice as well as "social purposes for language use, dealing with different oral, written or digital genre in formal and informal contexts". (Menezes, 2013)

Can the Internet, as an open online interactive network, be considered to fill the conditions stated above?

As a reminder, Menezes’ adaptation of edge of chaos conditions for language learning were as follow: rate of exposure to the target language; diversity of authentic input; richness of interactions; low level of anxiety and rate of autonomy or control of one’s own learning.

Internet, as an open learning ecology, can be generally regarded to offer Diversity of the use of English (contents and exchanges between speakers from different countries, multidimensional English variables are embodied), Autonomy (as learners choose their own tasks and connections, can explore at their own behest), Interactivity (through the use of platforms and tools that put speakers and learners into contact), and Openness (freedom for new connections to occur, to enter or leave the network).

A specific discipline, called Web Assisted Language Learning (“WALL’’), aims at highlighting the use of Internet for learning and teaching foreign languages. Some of the affordances that have been identified (Ruiperez, 2002) are the universality of Internet (progressive expansion of access and use all over the world leading to autonomy and diversity); ease of use, multimodal expressions over Internet thanks to multimedia (we find language in written and oral
form (videos, podcasts), as well as oral interactive form through online phone and videoconferencing tools; low cost and standardised use and communications (contributing to openness and unpredictability of those communications). Ruípez (2002) also alludes to the inconveniences of WALL which are the chaos of hyperlinks, the predominance of English, unlawful usage and slowness of connections. Chinnery (2014) describes the Internet as follows:

Fairly stable access to the Internet offers exposure to English, along with the opportunity to manipulate the language and interact in it. As such, the use of the Internet as a medium adheres to widely accepted beliefs about how languages are acquired.

Thorne (2000) conceptualises Internet-mediated communication itself as follows:

Internet mediated communication, then, can be seen to comprise a set of phenomena involving individuals and collectives (e.g., foreign language classes) who, through their everyday activities, construct CMC norms and forms of activity. In relation to the education projects discussed here, these norms arise not only from local, extemporaneous activity, but from the wider cultural contexts of computing integral to many students' non-academic lives.

Views on the learning affordances of the Internet (Siemens, 2006; Ito et al, 2008; Ruípez, 2002; Chinnery, 2014) converge in that the Internet is becoming, through the use of computer mediated communication, a world parallel to the physical one, where most of the activities taking place in the real world have an online equivalent. In this parallel edge of chaos environment, some authors advocate the need to “provide individuals with a true digital identity, a complete – and complex – development of the human condition” (Roig Vila & Mengual, 2014).

**Network ecologies for learning.**
I have suggested Connectivism may be applied to conceptualise language learning, where the view of Second Language Acquisition as (a) a complex system and (b) emerging from conditions of edge of chaos is found to be compatible with a connectivist view on learning by connection making over networks. Internet may be considered a potential edge of chaos environment because of it provides: exposure to language, diversity of input, richness of interactions, low level of anxiety and learner control.

It is important to underline the limitations of networks in their present form to fulfil the connectivist learning ideal formulated by authors Stephen Downes and George Siemens. Network ecology needs to be “healthy” for learning to coincide in real time with connection making. Connections need to flow freely, diversity must be real, learners must avoid using networks to echo one's hardened opinions (Siemens, 2006, p77). Among a few studies that have tried to assess if and how learning occurs through uncontrolled online connections between learners, Kop (2011) and Mackness, Mak & Williams (2010) have found that connectivist MOOCs have not embodied connectivist processes to the full. Others studies have shown that specific tasks, support activities, learning paths and feedback improve the pedagogical quality within a MOOC (Roig-Vila. et al., 2014). Added to this is the difficulty to channel dispersed content, conversations and interactions. Vázquez Cano et al. (2013, p.31) comment that while dispersion is at the heart of the learning process in MOOCs, these learning ecologies also require content curators and new systems of self-assessment, automating and optimising resources as well as student-generated filtering, aggregations and enrichments to the course. So working on making the knowledge ecology closer to its idealised form could be a start to enhancing connectivist learning processes. I will come back to these conditions in the analysis of the architecture I propose in chapter 5.
While connectivism allows us to conceptualise how the traits of a connected and digitalised society may serve as an immersive edge of chaos networked environment for language learning, important limitations prevent us from using connectivism as a sufficient conceptual framework for language learning in a Web 2.0 environment.

3.3.4 Limitations to a Connectivist Perspective for Language Learning.

Connectivism does not address how internal human cognitive development associated to language learning occurs. In fact connectivism does not distinguish learning from individual development, as acquisition of language is differentiated from learning of language. In this sense limitations to the perspective may be put forward.

Lack of structure for achieving learning goals.

Putting into question connectivism as a learning method, Anderson and Dron comment that: “In connectivist space, structure is unevenly distributed and often emergent…seldom leading to structure that is optimally efficient for achieving learning goals”. (Anderson & Dron; 2010, p.89)

SLA research has widely shown the existence of general patterns of acquisition in learners. Simply providing edge of chaos conditions for language learning omits the possible role of structuring exposure in advance of those pre-determined acquisition steps. In second language instruction research, there is wide acceptance of the need to first expose beginners to pre-set “formulas” of language before expecting learners to produce their own utterances (Ellis, R., 2005). This argument raises the question as to whether tasks online need to be defined and proposed to learners in accordance with their knowledge and skill competence level, while maintaining a networked connection making matrix for knowledge emergence where signals sent
and received are simplified in accordance with learner capacity of understanding and connection-making.

**SLA does not describe the same process as language learning.**

As connectivism focuses on the mechanisms of construction of external networks, it does not address the question of the human being's maturation process, as opposed to developmental approaches (Genetic Epistemology, Sociocultural approach; Interactional approach and Constructivism). It seems fair to recognise that this is a limitation of the theory and in this sense, Kop & Hill's (2008) comment that connectivism is at present more useful as a framework to derive learning methodology than a learning theory, seems relevant.

Connectivism does not address psychological, individual development but rather the conditions in which such learning mechanisms are stimulated, and how they are stimulated.

There is doubt as to whether all fields of knowledge, especially hard, and «core» knowledge of a subject, can be learnt via autonomously made connections. As Duke et al. comment: “There is always a certain amount of core knowledge that is required to be able to understand any information presented. (...) Most individuals will not have the understanding in a specific field to access the data in that field and then assimilate the knowledge in a sequence that will make it understandable” (Duke et al., 2009).

Applying this reasoning to language learning, to communicate significantly in a language without any background knowledge at all can be viewed as too big a challenge for any learner. Connection-making over networks for the sake of learning cannot address beginners: a foreign language utterance is vastly too complex to be processed without assistance. Initial
conceptualisations and knowledge of the language must reduce this initial overload of linguistic information.

3.4 Conclusion

By relating Chaos and Complexity theory for SLA to connectivism, I can propose that online networks offer conditions for SLA because they offer conditions for the different variables upon which language learning depends to be materialised, that are: autonomy, diversity, openness and interactivity.

Connectivism can be seen relevant to complete a picture of language learning that explains the particular role of online networks: the characteristic of offering abundant exposure to open, rich and diverse potential external and internal connections, led autonomously - similar to conditions for "implicit learning" of L1 (Ellis, 2008).

However, the possibility of connections is not synonymous with actual connection making by the learner. We will see later that my model aims at fulfilling this condition by supporting connection making.

Hodgson et al. (2012) argue that connectivism: "leaves us with few or unclear analytical and theoretical notions in terms of how people make sense of and use these resources in actual practice."

To summarise, regardless of whether or not connectivism is considered to have the status of a theory of learning, how the theory matures and how it is tested, it can be useful for the time being to provide a description of knowledge emergence over a network matrix, and the conceptualisation of that matrix for learning. By describing knowledge as mental states emerging from dynamic connections, networks become the indispensable loom where connections are
weaved, meanings are formed, notably because of the rich, open, diverse and free environment they represent.

As online networks occupy an ever more important place in our educational landscape, learning theories concentrating on the importance of social interaction with peers, experts and use of tools have been increasingly used as frameworks for learning research, as demonstrated by the renewed interest in Socio-cultural theory, Actor Network Theory, Activity Theory and Distributed Cognition (Lamy and Hampel, 2007, p.24; Laranjeira, 2010).

I turn to a socio-cultural framework to this study.
"La parole est moitié à celui qui parle, moitié à celui qui écoute."
Montaigne

In the preceding chapter I suggested that applying connectivism to Second Language Acquisition allows describing the broader context of learning processes related to knowledge creation and increased and accelerated connections over networks in terms of language learning today. However, this conceptual proposal does not provide a detailed understanding of internal or cognitive learner processes and not does not it distinguish language learning from language acquisition. Psychological and cognitive approaches to SLA may enrich the conceptual framework, providing a more complete understanding of the phenomenon of learning over a connectivist network.

Within the three main currents existing in Second Language Acquisition, Universal Grammar, Cognitivism and Socio-Cultural theory (Myles, 2011), research in SLA from the "socio-cultural" perspective offers a specifically relevant perspective from which to explain how learning occurs from interactions within a group of learners online, because it explains how learning and development emerges from social interaction.
The Vygotskyan perspective has inspired a whole range of studies particularly since the 1990s in language learning and is gaining importance. Studies on how language learning can occur through peer to peer interactions on the one hand (for example Lantolf, 2000; Donato, 1994), and specifically online (Warschauer, 1997) on the other, leads us to understand how language development, or SLA can occur from peer to peer interactions online, and teacher/tutor participation.

### 4.1 Socio-Cultural Theory Applied to Language Learning

Sociocultural theory has its origins in work by the psychologist Lev Vygotsky at the beginning of the 20th century. Vygotsky's ambition was to give a description of the whole process of human development, and the author elaborated an ontogenesis aiming at describing the cognitive development of the human being from start to finish.

As Wertsch (1985, p.19) specifies, Vygotsky believed psychology should provide a holistic description of human nature but highly specialised different branches of contemporary psychology in his time abandoned that ambition. Vygotsky's focus was both psychological and sociological, as he intertwines three main themes: belief in an evolutionary ("genetic") method; the social origin of higher order thinking; and the fact that mental processes can only be explained through the understanding of signs and tools that act as mediators (Wertsch, 1985). While lower (elementary) order thinking exists, it is only through environment and society that higher order thinking emerges in the human mind. Mediation, and in particular semiotic mediation are responsible for this development.
This dense and complex theory stresses the importance of the socio-cultural environment in the development of superior mental processes in children, which is the part of his theory that influences learning research the most.

However Vygotsky's theory has been widely used to explain adult learning and not only child learning and development. According to Wells:

Although Vygotsky enunciated the concept in relation to the assessment and instruction of school-age children, it is clear that he considered the principles on which it is based to be of very general relevance [...] and also to children's learning before the year of schooling (Wells, 1994, p.62).

Wertsch (1985) expresses a similar view invoking common sense, observing that mastering higher order thinking does not mean that adults can function as independent and isolated agents, since they obviously continue, on the inter-psychological plane, to engage in social interactions and to engage in problem solving activities such as memorisation.

Few objections to this interpretation have so far put into question the use of socio-cultural theory for adult learning. I will limit my overview to parts of Vygotsky's theory that are relevant to our study, that is: learning in adults and the role of language as the most powerful tool for cognitive development. Socio-cultural theory (hereon SCT) has been applied to a wide range of aspects of second language learning, from the acquisition of lexis to the development of learning strategies (Mitchell and Myles, 1998, p. 221). The analysis of the role of language leads me to review three of Vygotsky's most known concepts: semiotic mediation, the Zone of Proximal Development (hereon ZPD) and scaffolding, and how they have been applied to language learning.
4.1.1 Semiotic Mediation for Language Learning

At the core of Vygotsky's theory is the fact that all human activity is socially mediated. Physical activity is mediated by tools, transmitted from previous generations. Superior cognitive activity is mediated by signs and sign systems, of which language has an essential role. However, signs are not only a cultural heritage. They are also intellectual appropriation.

Communication first establishes the link between children and the people around them. Adults use words to interact with them. In this way, children learn signs themselves, first, to interact socially or to act with others. Then they internalise the communication and talk to themselves, which allows them to organise their thoughts and act on themselves (Vygotsky, 1978, p.89). It is through communication that the individual develops superior cognitive functions; or rather, semiotic mediation plays a part in the social genesis of thought. In the course of exchanges, the interpersonal function of signs (social and communicative), is transformed into the intrapersonal function (individual and intellectual):

Although practical intelligence and sign-use can operate independently of each other in young children, the dialectical unity of these systems in the human adult is the very essence of complex human behaviour. Our analysis accords symbolic activity a specific organising function that penetrates the process of tool use and produces fundamentally new forms of behaviour (Vygotsky, 1978, p.24).

Lantolf (2000) applies Vygotsky's concepts to SLA by postulating that situations of interactions between language learners present opportunities for developing their language learning and SLA. In such situations of interaction, language learning would be developed between learners and their human and social contexts before being appropriated individually at the
cognitive level. Verbal interaction of language learners relating to their real use of language (corresponding to the inter-psychological plane), would form a step where the language learner, thanks to the scaffolding that is given, would surpass initial comprehension of the language utterance, leading to internalisation on the intra-psychological plane which would then allow the language learner to use language more independently. Using the concept of semiotic mediation, verbal interaction is thus used as an “engine” for the development of language learning (Lantolf, 2000).

4.1.2 ZPD and Language Learning

It is important to observe that Vygotsky distinguishes learning and development, which will allow us to distinguish language learning from language acquisition. Children cannot imitate anything, they can only imitate something that is part of what they are already acquiring (Vygotsky 1978, p. 86-87). However there is a “zone” of learning where children can achieve things only with the help of an adult, not alone. This metaphorical space where learning can happen is called the “Zone of Proximal Development” (hereon ZPD) and Vygotsky defines it as: “The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.” (Vygotsky, 1978, p.86).

The ZPD is thus a child's developmental or learning potential, it is a space that reshapes itself and varies for each individual, when assisted. Vygotsky describes how the ZPD reveals itself through questions that children make:

Any obstacle to the child’s efforts at solving the problem may interrupt his activity. The child’s verbal appeal to another person is an effort to fill the hiatus his activity has revealed.
By asking a question, the child indicates that he has, in fact, formulated a plan to solve the
task before him, but is unable to perform all the necessary operations (Vygotsky, 1978,
p.15).

This implies that “what children can do now in social interaction becomes, in time, part of
their independent repertoires” (Brown et al., 1996, p.147). Questions would reveal thus a
crossroads between what children or learners cannot do, but think they can do if they obtain
answers to their questions. So questions from learners themselves crucially reveal their ZPD.

Learner questions can therefore be interpreted as self-generated lesson content, as it corresponds
to content the learner is psychologically -or cognitively- prepared to receive and subsequently
internalise. Research indicates that the ZPD is also useful in L2 learning situations as it has been
shown that when learners engage in negotiation, language is used to serve the functions of
scaffolding (Antón, 1999). With reference to Second Language Learning (hereon SLL), Ohta
(1995) defines the ZPD as: "the difference between the L2 learner’s development level as
determined by independent language use, and the higher level of potential development as
determined by how language is used in collaboration with a more capable interlocutor". As we will
see later, this does not prevent "peers" from being momentarily more capable interlocutors.

4.1.3 Chaotic Stages of Development.

Vygotsky's theory addresses the study of child development. He differentiates learning from
development by considering that development follows learning. Vygotsky (1978, p.90) found that
developmental processes do not coincide with learning processes, and that development processes
lag behind learning processes, (this sequence results in the existence of the ZPD). Because of this,
one cannot consider that development is a parallel process to learning: "there are highly complex
dynamic relations between development and learning processes that cannot be encompassed by an unchanging hypothetical formulation". Vygotsky (1978, p. 91) describes the development of written language in terms of "chaotic development".

The conditions for "internalising" after "learning", vary from one individual to another as Lantolf sets out some of the variable factors. On the one hand, "Humans are capable of mediating their own development on the intrapersonal level, but in ways that reflect their interpersonal experiences, (i.e. those activities valued and promoted by their particular community; see Tulviste, 1991)" (Lantolf, 2006). On the other, in Lantolf's view, "dialogic language can only serve internalisation if the individuals attend to it as such" (Lantolf, 2006). Here two variables are brought to light that can explain individual variation in language acquisition steps: exposures to experiences on the inter-psychological (or social) plane, and individual "attention, motivation or willingness to internalise". Lantolf goes on to propose that internalisation occurs through deferred imitation and private speech.

We can begin to explicit the difference between second language acquisition and language learning. Language learning allows provoking developments in the ZPD. Expert intervention on the ZPD eventually leads to acquisition (development), but as we saw, in an irregular way, and over time, to the rhythm of learners' internalisation.

This has implications for the methodology used to measure language acquisition which logically needs to take into account tests of whether language has been internalised, in other words, can be reused independently by the learner.

4.1.4 Scaffolding for Language Learning

As we saw earlier, in the course of exchanges, the interpersonal function of signs (social and communicative), is transformed into the intrapersonal function (individual and intellectual).
Vygotsky started to describe specific processes or phases of how this transfer or “internalisation” occurs. It is not direct: “internalisation consists of an internal reconstruction that modifies the process by changing its structure and its functions” (Marti, 1996, p.67). The way the intra-psychological plane has been restructured in turn modifies the inter-psychological function (Marti, 1996). The flow of mutual modification is therefore ongoing.

But can we specify exactly how a more able other can act upon a child's ZPD?

Vygotsky referred to a process he called “scaffolding”, however this process wasn't given a clear definition, and remained an unfinished concept (Kinginger, 2002).

Following a study on mother-child talk by Wood, Bruner and Ross (1976), scaffolding was further defined, and found to be composed of the six following phases:

1. Recruiting interest in the task  
2. Simplifying the task  
3. Maintaining pursuit of the goal  
4. Marking critical features and discrepancies between what has been produced and the ideal solution  
5. Controlling frustration during problem-solving  
6. Demonstrating an idealised version of the act to be performed

Bruner further explained scaffolding as a “vicarious form of consciousness” that the tutor provides to enable learners to “internalise external knowledge” and bring it under their own consciousness and control (Bruner, 1985, p.24-5). But under what conditions to learners “internalise”?

Cazden (1988) stresses that we must make the distinction between a task where teacher and learner have produced the “right answer” and the achievement of having left the child with
enhanced conceptual understanding that he or she is capable of applying alone to similar questions at a future time.

The importance on learning of such an "enhanced conceptual understanding" is shown in a study by Negueruela (2003) where concepts (grammatical aspect, subjunctive mood) were presented in a verbal and material (schematised model) form, which learners used to develop their understanding and regulate their use and eventual internalisation of the concepts.

From these studies we can determine that exposure to L2 is not sufficient, it is providing conditions that favour internalisation, of which the teaching of "concepts", or metalinguistic knowledge is but one aspect. Activities valued and promoted by learner communities and motivation can be added as further conditions for internalisation. This leads Lantolf (2000) to comment that: "the study of how L2 learners internalise and develop the capacity to use conceptual and associated linguistic knowledge should move to the forefront of SCT L2 research" and he argues that a productive way of realising this agenda is through the union of SCT and cognitive linguistics.

It is this view that inspires me to take the liberty to report findings from cognitive linguistics in SLA over following sections, even though they are considered a different branch of research of SLA.

### 4.1.5 L2 Development Through Contingent Scaffolding

As reviewed earlier, scaffolding should represent a process of co-construction of new knowledge that will eventually lead to the learner's more independent future achievement of an equivalent task. Aljaafreh & Lantolf (1994) identified that scaffolding could lead to L2 learning
through sequential feedback that effectively addressed learner ZPDs. Feedback was dynamically determined according to learner response.

Commenting on the Aljaafreh and Lantolf study (1994), Hawkes (2012) draws conclusions that have direct consequences on how to make effective peer to peer language learning. First, effectiveness of scaffolding is dependent on learner response and therefore on the interactivity between teacher or peer and learner. Second, it is not possible to determine in advance which feedback action the learner will need: “the scaffolding was specified as a hierarchy of teacher feedback moves that was not applied a priori but emerged from the data itself.” (Hawkes, 2012).

From this interpretation of the study, the nature of efficient scaffolding would thus be emergent from interaction in context, rather than pre-determined in some external instructional form or predefined curriculum.

This leads Hawkes to observe that "The key determinant for effective feedback is contingency", as also shown in Vygotsky's description cited above on externalisations children make as they identify need of assistance in their overall plan of action. In this way, this finding is consistent with Vygotsky's description of children's questions and their characteristic of revealing the ZPD.

The question as to when should focus on form be brought into the communication practice of a second language is at the forefront of current instructional debate.

The concept of scaffolding is far reaching as it can be applied to any situation where language learners cannot achieve communicative goals on their own. It is not limited to solving a communication need, but also applies to enriching or improving a communication.

The determination of learning shifts focus: instead of taking some target knowledge as the starting point and observing whether learners can reproduce it, scaffolding efficiency is detected
when learners show signs on the one hand of being able to accomplish tasks alone, and on the other, of personal development or growth in capacity to accomplish future tasks (Hawkes, 2012).

Hawkes' study focuses on face to face interaction within a classroom setting. However, a typical classroom setting, where student numbers typically range from 10 to 30 does not favour the possibility of a teacher to act as an expert for each individual student at point of need.

So an important question that has been the object of research is to what extent peers can be considered "experts" at point of need, and what learning emerges from peer interactions. I now turn to research that has studied peer to peer scaffolding applied to language learning.

**Peer to peer language scaffolding.**

Vygotsky does allude to the possibility of guidance coming not only from an “adult” (as in someone older or the parent) but also a “more capable peer”:

We propose that an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers. (Vygotsky, 1978, p.90)

In the case of peer to peer language learners, the relationship is more symmetrical than asymmetrical. Social scaffolding of learning may arise not from a disequilibrium but from a diversity of knowledge and skills of different actors as exposed in the cooperative learning movement (Slavin, Hurley and Chamberlain, 2003). In other words, social interaction would generate learning no matter what the relationship of the actors are: if the relationship is asymmetrical (for example between an expert and a novice), then learning comes from the imbalance between the actors’ knowledge and skills; if the relations are symmetrical (for example
in peer to peer contexts), then social scaffolding occurs thanks to the diversity of actors' knowledge and skills (Colin, 2010).

Within sociocultural research for language learning, several studies show that peer to peer scaffolding for language learning could be found equivalent to teacher-pupil scaffolding. In a conclusion to his study, Donato (1994) found that: "Scaffolding occurs routinely as students work together on language learning tasks. The effects of this help are substantial enough to redefine and further cultivate the role played by social context in L2 development."

De Guerrero & Villamil, (1994) studied peer to peer revision and found that learners actually switched roles at providing expert assistance to each other. It has therefore been shown that a group of learners is capable of generating contributions to L2 knowledge that is richer than learners on their own.

But what is the nature of this peer to peer scaffolding? Can it be considered equivalent to expert-learner scaffolding, and if not, what are the limitations of peer to peer scaffolding?

**Limitations to peer to peer scaffolding.**

Several studies have shown different limitations to the efficiency of scaffolding between peers. First, in a classroom context, it is difficult to pair learners appropriately to trigger optimal relationship and complementarity for learning (Storch, 2002). Second, opportunities for learning are not detected and addressed (LaPierre, 1994; Swain & Lapkin, 1998; 2002; Storch, 2002; Smith, 2007) and to finish, peer to peer learning is sometimes characterised by lack of motivation or competence (LaPierre, 1994; Swain & Lapkin, 1998, 2002, De Guerrero & Villamil, 1994).

One may question whether in the context of peer to peer scaffolding, native or target language should be used. Several studies show that using L1 is in fact beneficial for learners as it

4.1.6 Implicit and Explicit Language Learning

Before moving to the limitations of current SCT research for SLA, researchers within the SCT branch recognise themselves the need to bridge different research areas in SLA (Hulstijn et al., 2014) while Lantolf argues that there is no gap between cognitive and social approaches (Ellis, 2014, p. 364). In this regard, extending the conceptualisation of SCT for SLA, I review now the cognitive approach to SLA that describes implicit and explicit learning, as well as chunking theory. Implicit and explicit learning have been found to correspond to two separate learning processes or cognitive functions, processed in two distinct areas of the brain: explicit learning occurs in neural systems in the prefrontal cortex and implicit learning occurs in various areas of the perceptual and motor cortex (Ellis, 2008). These two cognitive functions have been found to be in fact complementary and both necessary in second language acquisition. Significantly, studies on feedback support the reviews of form-focussed instruction which conclude that instruction is effective when there is an element of explicitness in the instruction (Ellis, 2008).

It has been shown that while naturalistic acquisition for a second language does not occur in the same way as for child acquisition of native language, (because of the interference of our native language), many more iterations in contexts are needed for concept formation than with a conscious effort to realise that generalisation and factorise into new contextual creative utterances, from declarative to procedural knowledge. From a weak interface perspective on the interactions between implicit and explicit learning, declarative knowledge is considered to accelerate
naturalistic language learning in second language acquisition by making procedural knowledge happen earlier (Ellis, 2008) or through “auto-input” to implicit knowledge by allowing output in the first place (Ellis R. & Shintani, N. p. 12).

The duality of the implicit/explicit learning process seems to resemble the duality of Vygotsky’s “spontaneous” daily concepts and “scientific concepts”, that are learnt at school. Vygotsky considered that both types of concepts form a dialectical unity in educational activity (Poehner & Lantolf, 2010).

Another question specifically addressed in the psycholinguistic branch of SLA research is: what is the nature of the language knowledge unit that is processed by our brains?

Defining the language knowledge unit.

Constructivists believe that language competence and fluency is an ongoing emergent consequence of the incalculable number of mental associations that form an individual’s life experience of language. These cognitive functions are based on a natural neural network, capable of perceiving patterns in language input -in phonological, orthographic, lexical and syntactic domains- identifying the most salient, and storing those in long term memory. Units of language knowledge are progressively perceived, created and stored in a learner’s long term memory, freeing cognitive space to notice further units of knowledge related to language “where schematic constructions can be abstracted over the less schematic ones which are inferred inductively by the speaker in acquisition” (Pawley & Syder, 1983, p. 192).

Thus language representations are grounded in individual experience and they are based on unconscious processing of language data, using long term and short term memory, based on
probabilistic and statistical unconscious calculations and associations. Any new language experience alters the state of the individual’s language acquisition.

But what are the nature of these “knowledge units”? From a cognitive perspective, they cover both form and meaning. They can be seen as constructions or chunks. Constructions are recurrent patterns of linguistic elements that serve some well-defined linguistic function: sentences; noun phrases; prepositional phrase (higher level systemacities emerge form them). Ellis (2003) gives a list of examples of research where these language knowledge units have been recognised as such:

The importance of such lexical units or idiomatic phrases is widely acknowledged in SLA research when discussing holophrases (Corder, 1973), prefabricated routines and patterns (Hakuta, 1974), formulaic speech (Wong-Fillmore, 1976), memorised sentences and lexicalized stems (Pawley & Syder, 1983), formulas (R. Ellis, 1994), sequences in SLA (N. Ellis, 1996a, in press), discourse management (Dörnyei & Kormos, 1998; Tannen, 1987), register (Biber & Finegan, 1994), style (Brewster, 1999), lexical patterns and collocational knowledge (Hoey, 1991; Carter, 1998; Lewis, 1993; Schmitt, 2000)

However Ellis proposes that these knowledge units are processed at a lower level by proposing to apply the general cognitive process of “chunking” to language acquisition.

**Chunking and micro-contents.**

A chunk is the unit of language knowledge that our cognitive functions process (Ellis, 1997) in implicit language learning, where formulas emerge over extensive episodes of exposure because of subconscious recognition not of grammar structures or lexical units but patterns. This finding is corroborated by studies by Ellis (1984), Myles et al. (1998, 1999) and Myles (2004) that have
shown that chunks are the format of language units that learners internalise, leaving their analysis for later (Ellis, R. 2005).

Krishnamurthy (2003) provides us with instructional implications of this theory, as she argues that “‘chunk-by-chunk’ processing makes communication faster, more efficient, and easier for mutual comprehension” and ”whereas words can seem to have many meanings (as implied in dictionaries), chunks tend to have only one or two meanings”. Implications of this identification of language units for instruction purposes are described in chapter 5.

_Noticing the chunk._

A condition for formula to emerge is the attention given by the learner to language regularities. The Noticing Hypothesis for language acquisition was put forward by Schmidt (1990) whereby input transforms itself into intake only if this input is "noticed". This hypothesis is widely accepted by researchers in cognitive SLA (Ellis, 2005).

Studying the conditions for this attention to be given to the language takes us closer to examining how we learn in context, in society over networks, and theories of SLA from SCT and Network approaches that I have presented in previous chapters.

Ellis R. (1993) suggests a ‘weak interface’ of implicit knowledge where ‘learners’ attention is drawn to features which they will use at their appropriate developmental stage”. We will see in chapter 5 how the identification of the necessity for learners to “notice” chunks is translated in the model.
4.1.7 Conclusion and Limitations of SCT for LL

A fragmented and cognitive approach has generally dominated SLA research until the 1990s which fails to provide a holistic explanation of the non linear character and complexity of factors involved in the development or acquisition process of a learner's second language. While its complexity is being increasingly recognised (as explained in chapter 3), the SLA research community has made a plea to “bridge the gap” between cognitive and social approaches to SLA (Hulstijn et al., 2014). Holistic explanations remain descriptive and metaphorical (using Chaos theory, Complex systems) though Ellis (2014, p.401) points out that research in social cognition is laying the future of SLA:

The last 40 years have seen huge progress in research into social cognition, and within social cognitive neuroscience there is now a rich understanding of the role of implicit and explicit knowledge in social cognition (C. D. Frith & Frith, 2008), of the role of consciousness and metacognition in social interaction (C. Frith, 2010), and of the brain mechanisms involved in these processes (U. Frith & Frith, 2010). (Ellis, 2014, p.401).

While SCT provides a more complex framework to study second language learning, as it considers language development to be the result of the intertwining of social exposure and internal processes, SLA research within the SCT branch is in fact quite recent and presents several limitations.

**Research validity limitations.**

Some limitations pertain to SLA research validity itself, such as lack of longitudinal research, which makes it incompatible both with the claim by Aljaafreh & Lantolf (1994) themselves and Vygotsky (1986) that the relationship between interaction and language development is not
smooth and linear. Most research is based on reduced learner samples, and certain choices of data
collection, that do not always rely on the objective observation of achievement of independent
competence within ZPD (Hawkes, 2012).

**Inter-language grammar unexplained.**

The SCT perspective until now has left unexplained certain phenomena in SLA. Newman,
Griffin, & Cole, (1989) explain the difficulty in using SCT to study the origins of inter-language
grammar, and internal learner process. I suggest this point could be solved by Vygotsky's claim
that higher order functions create patterns based on internalisation (memory) of interpsychological
exposure. Referring to the effect of signs and language on a child's internal development,
Vygotsky (1978, p.51) comments: "For the young child, to think means to recall; but for the
adolescent, to recall means to think. Her memory is so “logicalised” that remembering is reduced
to establishing and finding logical relations." Thus through the process of internalisation, our
memory does not simply reproduce the exact copy of an experience on the interpsychological
plane, we reconstruct it using logic, or "patterns" that we have built ourselves using signs and
thought internally.

These patterns, in terms of language learning, could represent the unfinished process of
internalising language as exposed on the interpsychological plane and in this way can be found
compatible with "chunking" theory (Ellis, 2003).

**Lack of research on artefact conceptualisation for SLA**

SCT Research on SLA has focused mainly to date on peer to peer learning, rather than
mediation through artefacts or tools which is of ever greater relevance today in a networked
world. Zourou (2006, p.60) underscores the fact that while SCT offers a perspective that is closest to the language learning conditions, giving an important role to sociocultural conditions, research so far has centred mostly on peer interactions and not the use of artefacts. I would add that research from within an SCT approach has not yet either explored the effects of synchronous use of tools and human interaction over online connected networks to both activate and adapt to learner ZPD. This synchronicity of use of tools and online human interaction are a specific affordance of networks that can be studied under SCT.

From the review of studies above on peer to peer language learning, we can retain that as Donato (1994) concluded, a group of learners has a capacity to address each other's ZPD and achieve gains in L2 use that could be further exploited in teaching. While Donato stresses that social context could become highly exploited because there is evidence that peer to peer scaffolding leads to learning, it is also recognised, as we have seen, that the classroom context inhibits opportunities for peer to peer scaffolding. Furthermore, in classroom contexts, it is difficult to achieve optimal pairing. Can online learning settings remedy, at least in part, these impediments and create conditions for effective collective scaffolding?

Studies reviewed above took place in face to face contexts and it cannot be assumed that scaffolding between peers unfolds in exactly the same way in less spontaneous contexts such as over synchronous or asynchronous online and computer mediated collaboration contexts.

To understand online learning in this light I turn to review research in Computer Supported Collaborative Learning (CSCL) for its relevance in informing Computer Assisted Language Learning (hereon CALL).
4.2 From Computer Assisted to Networked Language Learning

From behaviouristic CALL to Communicative CALL in the 1980s, we have reached "integrative CALL characterised by multimedia, several skills deployed at once, group based learning online and collaborative pedagogies" (Lamy, 2007, p.9). CALL is increasingly recognising the social nature of interactions, but the biggest recent development in CALL is a new perspective on the role of artefacts and tools, ICT affordances, multimodality within group knowledge building. This corresponds to a renewal of CALL epistemology (Zourou, 2007).

4.2.1 Potential of the Computer Medium for Language Learning

We can date the beginning of the development of "integrative" CALL in the mid 1990s with Warschauer's work on the affordance of the computer medium for language learning.

Warschauer's seminal article for CALL in 1997 highlights the revolutionary potential value of written computer-supported contexts for learning, as they become "devices for thought": "Students' own interactions thus become a basis for épistémic engagement and the dynamic basis of explorations", flexibility of choice of student to interact with, and "because the group can interact over a written medium, this creates an excellent environment to construct knowledge and then assessing, evaluating, comparing and reflecting on their own views and those of others" (Warschauer, 1997). Generally, as highlighted by Warschauer's studies on computer supported collaboration, Computer Supported Mediation (hereon CMC) is an asynchronous medium of communication that:

- gives time to think
- gives times to use online tools for more automatic or simple questions
- in turn encourages learning by encouraging the use of tools to learn
allows a better formulation of questions

gives a chance to deepen exploration, thanks to the digital traces of our thoughts.

Warschauer (1997) also highlights the psychological attributes of computer-mediated communication, as it allows more expressivity than printed form but also frees shy students, supports "fairer" turn-taking and the expression of more diverse viewpoints.

4.2.2 Dispersion of CALL research

Research in SLA in our Web 2.0 era can be described as a quest to understand the role of additional variables (artefacts, networked learner configurations) that are an integral part of a language learning environment within a socio-cultural-inspired framework where human interactions, tools and networked learner configurations are ever more considered to be an integrated whole.

Despite this progressive orientation and realisation, research has dispersed itself in analyzing these variables separately: analyzing a particular competence (Intercultural competence, linguistic competences), analyzing the qualitative change in communication because of the particular influence of a medium (cultures of use), and the thousands of studies on affordances of different ICTs for language learning: one of the most comprehensive literature reviews covers 5301 articles from 200 journals (Jung, 2005).

Research methods.

Research methods branch off into mainly two directions: either using quantitative methods to measure changes in linguistic proficiency or ethnographic methods aiming at describing learner language learning without predetermining constructs to measure. Not only do research methods
differ, but the individual quality of these studies is also put into question (Liu et al., 2002 p. 263).

Common findings become difficult to detect leading Kern (2006) to suggest the need to understand “meta-communication”:

Research has shown that results are dependent upon a variety of social, logistical and above all pedagogical factors. In this perspective it has to be borne in mind that [Computer mediated collaborative learning] is not a genre in itself but more a collection of genres, each with its specificity, partly depending on the communication channel chosen (IRC, SMS, chatting, emailing, blogging, instant messaging, MOO) and partly due to the social and cultural context as well as the circumstances surrounding the communicative act under scrutiny. (Kern, 2006 as cited in Lamy, M. N., & Hampel, R., 2007).

The pedagogical aims of teachers in this sense should turn to focus on meta-communication: exploring the relationship between language, culture, contexts and technological mediating tools. (Kern, 2006, p.27)

Progressive realisation that the medium is not neutral in influencing the message it carries makes it more difficult to address computer mediated collaborative language learning as comparable to face to face or classroom language learning.

Wertsch reminds us of a Vygotskyan perspective in this respect as he warns that with "the introduction of a new cultural tool into the flow of human action we should be on the lookout for qualitative transformation of that action rather than a mere increment in efficiency or some other quantitative change" (Wertsch, 2002). It seems that this qualitative change in learning processes afforded by computer mediation is what has made it difficult to evaluate and compare CMC language learning with other types of learning settings.
So CMC applied to language learning has progressively shifted from focusing on how the tool helps to attain traditional language learning goals (or replaces non technological tools) to focusing on how the nature of interactions is influenced by the tools in practice. The question thus leads to observing different ways of learning and communicating, rather than observing how tools may reproduce or augment the effects of face to face teaching and learning. Proposing that the functions attributed to a given online tool of communication are culturally and historically defined, Thorne (2003) addresses this qualitative change as he poses the crucial question: “But what forms of linguistic, cultural, and interpersonal relationship building can be experienced via the use of Internet communication and information tools?”.

The author also raises the question as to “how and if Internet-mediated intercultural interaction alters the parameters of communication and the nature of language use” (Thorne, 2003). Through three case studies of telecollaboration between French and U.S. language learners, the author shows that the norms of use of email arise from a wider cultural context than that planned by the organising institutions and that chat tools also have their specific “cultures of use”. Ultimately the author shows that “artefacts take their functional form and significance from the human activities they mediate and the meanings that communities create through them” (Thorne, 2003). Thus, changes in mediation tools also involved shifting communication styles, contents as well as altering socialization practice.

**General findings of CMCL for CALL.**

Despite the difficulties in drawing general conclusions on the role of computer mediation for CALL, as reviewed in the previous sections, I turn to Lamy who provides us with a summary of findings from two sets of practitioner studies (Lamy & Hampel, 2007). We can categorise these
findings into those that show that CMC influences learner behaviour, dialogue configurations, task
design or linguistic competence.

- learning behaviours and disposition: “synchronous CMCL meets with good learner
  attitudes and positive reactions. CMC encourages socio-affective skills, CMC involves
  issues of identity and community. The nature of the platform influences interactions
- dialogue configurations: “CMC increases learner participation, CMCL affords student-
  centeredness and limits teacher dominance; it allows native speakers to dominate in
- task design: “CMC facilitates higher order thinking and lesson delivery; CMC needs to
  be closely tied in to task design.” (Lamy & Hampel, 2007, p.14-15).
- linguistic competence: “CMC facilitates communicative competence in the discourse of
  chat; CMC allows a great variety of discourse forms. Increased production does not
  necessarily lead to more complexity. Syntactic complexity over synchronous text-based
  medium does not clearly improve. CMC promotes speaking (i.e. text chat can prepare

**Chat and language learning.**

One medium has recurrently shown to offer affordances for language learning. Research has
shown the existence of qualities intrinsic to the medium of chat for language learners to externalise
their questions and support and encourage peer to peer learning, as well as prepare students for
speaking. (Lin, 2012; Pelletieri, 2000; Thorne, 2003)
I will now review studies in what can be considered the main sub-currents of integrative CALL which are: Network Based Language Teaching (hereon NBLT), Internet-Mediated Foreign language Education (hereon ICFLE) and Telecollaboration.

**Network Based Language Teaching.**

Research in Network Based Language Teaching (hereon NBLT) allows a more complex view of language learning taking into account the "situated" cultural dimension. Research in network language learning tends to accentuate the social nature of learning as well as the computer or device-mediated character of knowledge building. Kern et al. (2008) define NBLT as referring "(…) specifically to the pedagogical use of computers connected in either local or global networks, allowing one-to-one, one-to-many, and many-to-many communication."

NBLT is now characterised by two approaches. The first approach is linguistic and continues to seek to measure linguistic proficiency and control of the target language based on the premise that language itself is a fix target, whether in physical or online contexts (Kern et al., 2008). The second approach is sociocultural and socio-cognitive. This trend moves from task and product oriented, classroom controlled online interactions to work that examines non classroom contexts and multimodality that usually draws on a mixture of quantitative, qualitative ethnographic and discourse analytic methods. It focuses on understanding how learners interpret and construct meaning online across culturally situated contexts. (Kern et al., 2008)

**ICFLE and telecollaboration.**

Telecollaboration examines the specificities of mediating tools in situations of online exchanges, while inscribing them in an intercultural perspective. Julie Belz (2006) defines ICFLE
as research that is not technology-focused but on the development of inter-cultural competence based on the affordances of the internet:

The Internet is the means by which educators may bring together those who represent various national, ethnic, socio-economic, social class, and faith-based viewpoints via classroom practices generally termed “telecollaborative” in a supportive environment and in pedagogically sound ways to develop what Byram (1997) has described as “intercultural competence” as well as grammatical and pragmatic FL competences. (Belz & Thorne, 2006)

Belz and Thorne consider that the tools that mediate intercultural exchanges are far from being neutral in storing intercultural communication, as technology influences "habits of use" and communication. According to Thorne (2003), users attribute specific communicative roles to the tools they use as reported earlier. This work underscores the necessity to take into account the social elements (that shape interactions) and technical factors (with their habits and cultures of use) within learning scenarios as they mutually configure each other (Zourou, 2007).

Most of research in this field is constituted by exploratory sets of research not yet consolidated. However a unified vision does seem to emerge concerning a unified human and technological context where this mediated learning is happening. (Zourou, 2012).

While initial research within the SCT paradigm centred on the affordance of online tools to put learners and natives into contact, "context" or "setting" is increasingly considered to be necessary for language learning from a socio-cultural paradigm in the sense of an overall medium rather than a mere platform of exposure.
4.2.3 Social Networking for Language Learning

With the acceleration in the informal use of Web 2.0 technologies and online communications (or Web 2.0), and the rising offer of commercially-driven online platforms specialised in language learning, often based on social network technology, researchers are becoming interested in learner experiences over these websites. This seems to indicate an additional direction in online language learning research.

The same researchers who have hitherto researched language learning within either classroom contexts or predetermined fixed institutionally predefined online and networked scenarios, are now trying to understand if and how users of social network language learning websites learn in informal contexts and online, in contact with proficient speakers. Examples of this orientation are the recent publication of a book by Lamy & Zourou (“Social Networking for Language Education”, 2013) as well as the doctoral thesis by Lin and directed by Warschauer (“Language learning through social networks: perceptions and reality”, 2012).

The direction of research in CALL seems to be taking a new turn: no longer is the focus on how learners may learn by interacting over CMC or within closed telecollaborative projects, but rather on discovering the nature of an open, networked digital learning environment, and once that environment is determined, on what effect it has on second language development.

For Lamy & Zourou (2013), the utility of studying these social learning websites is that of understanding the possibly distinctive traits for learning that ecological language learning networks may present. The authors specify that “learning network” is to be understood not merely as learners put into contact (for example a classroom digital forum, or scenarios for telecollaboration setup within institutional contexts with defined tasks and media) but, as learning platforms
designed for allowing “network effects”. Lamy & Zourou, (2013, p.4) define three characteristics to be fulfilled for social networking to occur:

1. The technical possibility for users to modify, multiply and remix content and actual reuse of these user-generated contents by learners

2. Openness of the network: horizontal structure of participation

3. Network effects as detected when the value of contents increase with the rising number of appropriations and contributions.

The book brings together nine empirical research studies of social network learner experiences over a total of eight main websites (Facebook, RenRen, Second Life, Livemocha, Google wave, Busuu, English Café, and Babbel). An initial classification of such websites comes to light showing that few social networking language learning websites fill the triple criteria laid out by the authors above. Out of 13 identified language learning websites, only three offered specific network features: Busuu; Livemocha and English Cafe. Empirical studies altogether show few positive results as to the learning affordances of these websites. The obstacles to language learning can be summarised as follow:

- absence of community (Lamy & Mangenot, p. 203); missed opportunities for interaction. (Zourou & Loiseau, p.89)
- no user generation of reusable content. (Lamy & Mangenot, p.203)
- lack of reuse of user-generated materials, for example, due to the fact that “posts fall into oblivion” (Zourou & Loiseau, p.94), and loss of information over social learning discussion formats. (Zourou & Loiseau, p.84)
• failure of network design to “harness collective intelligence” through network effects (Musser et al., 2007). (Zourou & Loiseau, p.94)
• dysfunctional peer evaluation (Gruba & Clark, p.191), and reduced feedback opportunities (Zourou & Loiseau, p.88).
• lack of focus (need for a task) (Lamy & Mangenot, p.211).

A fundamental aspect of Social Networking Sites for Language Learning (hereon SNSLL) is found to be that they allow people to extend their physical circles that make it possible for language learners to practice their new skills in authentic interactions with friends or strangers. In conclusion, the social web does seem to afford unrestricted situations, beyond formal, institution-led forms of interaction. Thus, as Lamy & Mangenot (2013) summarise, the inherent problem seems to be the contradiction between the affordances of informality and the need for student guidance and formality. The authors suggest three ways of leveraging the affordances of network language learning (reuse of learner content, openness, and network effects) with formal tasks: “class-based exploitation of informal practices from the social web”, “small-group collaborative projects to be carried out with social web tools” and lastly “introducing learners to sites where a certain amount of structuring of verbal productions and even genre models is already available.” (Lamy & Mangenot, 2013, p. 212)

It actually becomes clear that there is a need to shape student interactions to counter the limitations, summarised above, found through empirical observation of the mere provision of social networking platforms. The shift is therefore towards understanding how to shape online learning, by designing towards types of interaction that induce horizontal participation, user-generated content, openness, and increasing network value, because for the authors, the social network websites were not used differently in any way from a learning management system such
as Moodle (Lamy & Mangenot, 2013, p.204). Rather than accentuating the contrast between formality and informality, the authors conclude by proposing an approach to online language learning that is neither a return to formal teaching, nor a reliance on individual participation over social networking platforms. The approach lies rather in “looking at social networking-based settings as configurations of formal and informal learning opportunities whose benefits research can assess and which practitioners can orchestrate in a variety of fluid ways”. (Lamy & Mangenot, 2013, p.211)

4.2.4. Bridging Formal and Informal Learning through Blended Learning

The way practitioners orchestrate formal and informal learning, has already been studied in earlier studies on “Blended Learning” for language learning, where “informal learning” may not be always explicitly referred to as such, but implicitly understood as occurring during the spells of autonomous learning and free collaboration students engage in, such as when they work “at their own pace” and have the freedom to rework materials at home.

It is thus useful to observe how studies on the use of LMS in classroom-based instruction and a review on social learning websites converge in the necessity to intertwine formal and informal, autonomous and directed learning processes.

Using LMS for language teaching.

While studies on millennial learner behaviour show that “students report that Internet allows them to express ideas they would not have voiced in class” (Oblinger, 2003), Blended Learning is seen as a “mechanism for meeting the needs of these students within the value system they embrace” (Dziuban, et al., 2004). Dziuban et al. (2004) specify that in addition to naturally
increasing information literacy skills, Blended Learning also overcomes “usual constraints of space and time”. Arcos et al. (2009) apply Blended Learning to language learning and suggest how to orchestrate learning processes over in-class and elearning, thanks to the affordances of an LMS (Moodle). The authors allude to the synergy of formal and informal learning as they describe that Blended Learning:

(...) is thus a flexible approach to course design that supports the blending of different times and places for learning, offering some of the conveniences of fully online courses without the complete loss of face-to-face contact. The result is potentially a more robust educational experience than either traditional or fully online learning can offer. (Arcos & Ortega, 2009).

The authors elicit the limitations of free browsing for language learning from an educational viewpoint:

At the same time however, given the extensive growth of the World Wide Web, the potential is great for user disorientation in such a large knowledge base. A further problem with hypermedia navigation is that it is not specifically designed to differentiate between and to accommodate users with different interests, goals and needs. Thus, traditional hypermedia systems present a disadvantage for educational use of the World Wide Web since without direct teacher or system support, students' learning experiences may not be very efficient or effective. (Arcos & Ortega, 2009)

While this observation is confirmed by studies on the effectiveness of social learning websites or connectivist MOOCs referred to in previous sections, the authors suggest to add a layer of support and control to learner-centred and web-based exploration using Adaptive Hypermedia (Arcos & Ortega, 2009). This type of learning design, linking the world wide web to an LMS,
seems to spell in part the future direction of language instruction as it tries to intertwine formality, informality, teacher guidance and student centrality in communicative approaches. An example of the work on LMS supported Blended English language learning by Arcos and Ortega is that of “CLIL enhanced through Digital Storytelling” (Ortega, P., & Arcos, F., 2010).

Blended Learning models like these for language learning exploit the specific affordances of mixing formal and informal learning sequences, as well as the specific affordance of conditioning the learning contents to user profiles that LMS features specifically enable, such as conditional activities in Moodle (Arcos, F., Ortega, P., & Amilburu, A., 2010).

Can findings from social network language learning site studies, such as those reviewed above, enrich Blended Learning research applied to language learning? By extending LMS features to embrace functions enabling to design network language learning, Blended Learning models, based on LMS, may bring about network learning affordances as described by Zourou (2012): learner content reuse; openness and increasing network value. So the question becomes: can we extend LMS to design scenarios for networked language learning? If so, in what way do LMS functionality need to be extended?

**Broadening learning environments from within the classroom.**

For Castaño & Palacio (2012), a learning environment that exploits the potential of technology becomes a “system” that integrates pedagogy, learning design, collaborative learning environments centered on the user, as well as social and cultural factors.

Language learning research in Web 2.0 environments are in fact broadening the setting for language learning instruction as they incorporate Mobile Learning (for example: Kukulska-Hulme & Shield, 2008), and virtual games (for example: Bytheway, J., 2013). Progressive interest into a
broader learning domain context for second languages, that now explicitly recognises and encompasses a learner's "connected life" (websites, mobile connectivity, games) comes closer to acknowledging the networked character of learning as in the vision brought by connectivism.

Using, as Lamy & Mangenot suggest (2013, p.211), social networking from within the classroom, the learning process is enriched with informal connectivity, providing new roles for teachers and pupils alike, where students autonomously generate learning content while teachers encourage and direct learners towards these new roles (Boluda, 2012).

In parallel, recent research in language learning didactics shows a tendency to go beyond the Communicative approach, based on authentic materials and seeking native-like language goals towards a "practice in real context with real goals" approach to language learning.

Several paradigms from different branches all within a socio-cultural perspective reveal the role of purposeful use of the language in real world contexts, and the use of online environments as real-world contexts of use of language. For example, Van Lier (2004) proposes that learners must be related to as "whole persons comprised of minds, bodies, emotions embedded and active in their environments rather than as grammar production units” (p. 223). Negueruela (2008) argues that L2 development must be seen as the formation of “new semiotic tools for orientation in concrete communicative activity” (p. 223). Zhao (2013) conceptualised language learning within the Community of Practice framework where knowledge is constructed by the learner in an improvised fashion while directly participating in productive activities of the community.

However conceptualisation of this learning is not solved, as Zourou (2012) comments that: "Shaping a solid understanding of the advantages and pitfalls of social media in language education seems both a necessity and an incentive for extended data-driven research on learning dynamics supported by emerging socio-technical contexts".
Informal and formal learning are still distinguished, perhaps unconsciously, because network affordances, separately taken, are still considered as a medium to be used (or not) towards some predefined learning targets. Actual language goals and competences are not specified and addressed as a "whole", perhaps with the assumption that the language learning objectives remain centred on the traditional four skills of reading and writing non-digitalised texts, and listening and speaking not online, but in face to face contexts.

In the case of learning English as an international language, and in particular in the list of competences that are part of Multi-Dimensional English (MDE) described in chapter 2, this distinction poses a problem.

If the target language is inherently an online language, and the online context is accessible from a classroom or informal context (using a computer, mobile device, and access to Internet), there does not seem to be much sense in separating context of real use from context of learning. Thorne's varying cultures of use related to mediums, need to be flexibly understood by English language learners, so that they use the online medium as part of their communicative ability (Thorne, 2003). Belz's research on intercultural competence becomes enriched with an equally important skill of intercultural awareness, that needs to be developed in its online expression because it is online that learners will predominantly use English, and will need to exercise intercultural competence and awareness as they interact online.

If English is used online indiscriminately with interlocutors of any cultures in the world, it is the capacity to improvise adaptation to unpredictable intercultural situations rather than understanding of a particular culture that will make a difference to their performance of the communicative act.

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It is not difficult to recognise that ICT and their associated genre or communicative style in English, will be best learnt by direct usage. Given the dynamic use and creation of English language variations (whether regional or "net" language or multimodal and multi-semiotic expressions), on the one hand, and the great variability of both regional Englishes and learner objectives in using and learning the language on the other, it seems there is little choice but to advocate the fusion between online networks as both the context of use and pedagogical site for learning the language. It is increasingly difficult to choose separate "authentic" contexts and distribute the same ones to learners who have different lives and objectives in using English.

Furthermore, the process of learning English is never-ending as the language as a subject is ever more complex, diversified and alive.

Perhaps an explicit conceptualisation of English use over online networks as the exact expression of the state of the language should be applied: learners have access to the ongoing embodiment of the language, its visible historical evolution, but also its expression in all its diversity, creativity, media and contexts of use. It seems however that this conceptualisation of online English for instruction purposes has not been explicitly formulated by the research community at least at the time of writing. This may be due to the separate research fields represented by the study either of language itself (for example by authors Graddol, Crystal, Kern and Nelson), or classroom teaching methods (Kumaravadivelu, 2002) or technology, Web 2.0 and language learning in general without a focus on a particular language (Zourou, Lamy) and the general research branch of Network Learning that addresses no specific subject matter (Carvalho, Goodyear).

Warschauer has attended to both the competences proper to English language learners and to the use of technology. However, in his article on the use of Internet for teaching English
(Warschauer, 1997), the assumption remains that Internet use serves as a tool, or source of example of authentic content, for use within a teaching strategy in a classroom context.

Zhao (2013) comes close to formulating the need of learning English by its use in context arguing that the general failure of practices in SLA for instance, can be explained by the lack of legitimate peripheral participation in the appropriate community of practice. Zhao (2013) conceptualises the web environment as the context for legitimate peripheral participation (Lave and Wenger, 1991), and the community of practice that is reproduced in second language learning as the community of peers with a similar level and who are "practicing" the language. The web brings together communities and sub-communities of learners, who learn by engaging into real communicative activities legitimately and peripherally. Zhao (2013) designs a Web-based CALL magazine named "EX•CHANGE" designed to promote the learning of English as a second and foreign language by engaging learners and expert English users (native speakers, ESL/EFL professionals, advanced learners, etc.) who collaborate in the writing and publication of articles. The originality of this model is that learners are put into contact not only with their peers but also with native speakers around the world online, which the author highlights is often missing in language learning.

However, this project, while coming very close to being an open network, still remains a purposefully created language learning context, with a beginning and end, and that is predetermined both in its physical platform, users and tasks. It does not fulfil the conditions of reuse of learner generated knowledge, openness and network expansion (Zourou, 2013).

Perhaps because connectivism has not been used to conceptualise language learning on the one hand and because Network Learning has not been applied to language learning on the other, have we not reached a change of perspective where language learning is shaped from the ground
up, at its site of usage, rather than from the top down (where teachers define the goals and learners are assumed to practice their skills informally).

Language learning under the SCT perspective has addressed separate processes that are part of network learning configuration variables such as peer to peer interaction online, social learning configurations (peer configurations of one to many, many to many, one to one, online scaffolding), influence of medium on contents, motivation, peer support, negotiation of meaning online, intercultural competence over online connected learners.

So far, in language learning, research has focused not on a holistic learning process of a network experience, but rather individual affordances of tools for learning, or specific contexts for overall social, intercultural competences, individually addressed in research where "network" is understood as a medium for exchange, not an unpredictable set of activities or signal flows led by learners autonomously. But how conceptualise in this case language learning over network activity?

4.3 Conceptual Framework for an Online Language Learning Network

Reviewing connectivism, and SCT paradigms for SLA brings about interesting elements to theorise language learning over networks. However this is a constructed conceptualisation rather than a given one. In other words, language learning is not usually linked to connectivism in SLA literature to date. In this way, this linkage forms an originality in this study and a theoretical risk because the model that comes out of it has never been tested empirically as a whole, only parts of it independently and not always for language learning but learning in general. In this regard, my conceptual enterprise must be understood as an exploratory attempt, that is provisional and evolutionary, that deserves being tested and improved in future research.
Warschauer's analysis of online textual mediation as a return to spontaneous creation of knowledge (rather than consultation of prior knowledge) offers detailed analysis of how connections are formed between learners over a written support and blends into the connectivist viewpoint in that regard: we learn by participating in those networks.

More specifically, online networks provide additional ways of mediating for the individual; increased opportunities for externalising thoughts; attending the process of creation of knowledge and participating in it; access to a greater diversity of viewpoints at the same time and addressing our knowledge needs on demand. In the connectivist perspective, language use equates to “meaning making in context”, it is the learner who will define what language context he needs to practice in, rather than the teacher planning a variety of contexts ahead.

The greater the amount of experiences where different cognitive and psychological functions are solicited, the faster the process of development occurs because the more those psychological and cognitive functions have, to at once to specialise and interact.

That is why I consider that Menezes' view of conditions of "edge of chaos" to address the complexity of factors needed to produce optimal conditions for learning, is compatible with Vygotsky's view on conditions for learning and development. The functions of the mind react with emerging patterns (creativity) at that point where order is disturbed.

Following a study on learner experiences over a connectivist MOOC, Mackness et al. (2010) comments that:

the inventors of the cMOOC want to move away from the idea of a linear course, yet the absence of some of the kinds of scaffolding provided in strong course designs turns out, in practice, to undermine the experiences of autonomy, diversity, openness and connection that are so close to the hearts of the cMOOC's creators. (Mackness et al, 2010)
Underscoring the need to continue to provide learners with assistance, precisely to lead to learner independence, induces the following question, related to online learning design: can we introduce layers of scaffolding into connectivist network learning?

Adapting expert assistance based on ZPD progressive revelation (through questions), as the ZPD has the opportunity to reveal itself to learners themselves thanks to contexts of use where there is diversity of authentic input, a full rate of exposure to the target language, richness of interactions, low level of anxiety and autonomy and control of one's own learning (conditions for edge of chaos), provides the conceptual framework of my model.

As an illustration, it is as if the learner is the child, the online task and the Internet’s open environment is the world. When children ask questions as they arise while engaging in activity in the physical world, and are personally attended to by a carer, who replies on demand, so learners may ask questions as they arise while engaging in tasks online. As a reminder, for Vygotsky, these questions reveal that the child is planning ahead the completion of the activity thanks to that assistance, therefore questions reveal the ZPD Answers and support will arrive from temporary peers, teachers or experts, thanks to online interactions as if they were carers. Taking into account that online connections have been shown to unequally fill out conditions for effective feedback as reviewed earlier (Lamy & Zourou, 2013; Lin, 2012), we may continue to conceptualise online feedback from online experts as “connections” in the connectivist sense, but for these connections to represent effective assistance from a psychological viewpoint, they need to reach the learner “at learner’s demand” in a focused, personal and systematic way. I propose this assistance is possible to optimally design, organise and schedule using for example the social tools existing in LMS environments. The CMC medium chosen for learners to ask questions plays an essential part: the medium chosen for externalising those questions and revealing one’s ZPD, should inherently foster
anxiety-free and frequent expression. Connection making is dependent on humans making their own knowledge and thoughts visible and therefore “connectable”. The chat medium has been found to be particularly adapted to this usage as reviewed previously.

Choosing to conceptualise SLA as a complex phenomenon allows using different viewpoints in research to explain language learning under one model, and also infer design features for online learning: each view explains one of various psychological or cognitive functions, or contextual conditions that interact producing an unpredictable language acquisition path in the learner. We have seen that socio-cultural studies on language learning show how peers can scaffold each other’s learning. Research on specific language learning online, gives us a theoretical framework to explain how learning occurs online through learner interaction.

These dimensions can be interpreted as embedded contexts, where “openness” equates to the link to the more global context, online networks as a site for edge of chaos in terms of language use: exposure to language use over Internet offers diversity of input; richness of interactions; low level of anxiety; and learner control. “Purpose” is given by the task, and a supportive learning environment is represented by the strong ties that I conceptualise from the socio-cultural framework as peer to peer feedback.

In summary, the network perspective informs on the macro design of the model, while the socio-cultural perspective acts like a magnifying glass to inform on design of interactions allowing learners to perfect their learning processes within the broader autonomously-led network learning structure. Both the network connectivist milieu and the shaping of interactions are necessary for interplay that leads to learning.

Ellis’ cognitive model of language learning (2008) and implicit and explicit learning episodes explain how language is processed by the brain as it infers patterns from the calculation of
frequencies of units of language information: constructions and chunks. These units are what theoretically constitutes the signals, flowing through the connections inside our brains (neurally) and outside our brains, when traversing the connections over online network. Thus, implicit learning occurs while the participant is immersed in the online task, within an environment of real use of the language. Explicit learning occurs when users notice then formulate questions and answers on specific MDE competences, and then conceptualise, generalise or give examples of the answers to these questions.

It is through the strengthening and acceleration of learning thanks to interactions within a group (conceptualised using socio-cultural theory), and a teacher at point of need of the group as a whole (see the Social Design section below) that the learner can participate in the real world network (connectivist view of language learning) and pursue language real use and exposure to it. The real world network, or rather participation in it, is the engine and the “wider social context” that fuels diversity and provides situations of real linguistic communicative needs. This wider authentic communication world becomes an essential and motivational platform from which to extract contexts for accelerating language learning by applying to them formal tasks. These tasks represent the content of a formal "lesson" deriving from context, based on peer to peer collaboration.

In this way I integrate social learning episodes, initiated by learners themselves, to reinforce their learning within an edge of chaos environment. These episodes adopt a formal nature, and constitute formal "lesson content" blended into a broader, open and free exploration. As specified later, it is the obligatory and formal nature of individual language exploration, made possible thanks to functions within the LMS, configured, supervised and enriched by the teacher, that
constitutes the main originality of the model and makes it closer to reflecting the fluidity between formal and informal learning as called for by researchers Lamy & Mangenot (2013).

Figure 7 below illustrates the model's conceptual framework.

Figure 7. Conceptual framework of a language learning online network
In this figure, the white rectangles refer to the Socio-cultural framework reviewed in this chapter. The grey rectangles refer to Connectivism and Network Learning for SLA.

The background circle represents the whole experience of network use and learning as representative of the real experience of use of MDE (online networks as natural context of use of English), reviewed in chapter 2.

This conceptual framework is translated into a physical learning design using the Open Web and an LMS such as Moodle. Figure 8 below illustrates the translation of this conceptual framework into LMS affordances allowing to design the model.
Language knowledge flowing from the broader network to learners, and to peers/teacher and back to learner and network is cognitively broken down into language chunks or concepts and physically (digitally) broken down into micro-contents of language exemplars in context (from which chunks, constructions or concepts can be inferred cognitively).

LMS, among which Moodle has been found to be the most complete learning environment (Al-Ajlan, 2012), provide the following features and capabilities shown in Table 2.
Table 2

General Functionality of VLE tools

<table>
<thead>
<tr>
<th>1) Learner Tools</th>
<th>2) Support Tools</th>
<th>3) Technical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Communication Tools</strong>&lt;br&gt;• Discussion Forum&lt;br&gt;• File Exchange / Internal Email&lt;br&gt;• Online Journal/Notes&lt;br&gt;• Real-time Chat&lt;br&gt;• Video Services / Whiteboard</td>
<td><strong>1. Administration Tools</strong>&lt;br&gt;• Authentication&lt;br&gt;• Course Authorization&lt;br&gt;• Registration Integration&lt;br&gt;• Hosted Services</td>
<td><strong>1. Hardware/Software</strong>&lt;br&gt;• Client Browser Required&lt;br&gt;• Database Requirements&lt;br&gt;• Server Software&lt;br&gt;• UNIX Server&lt;br&gt;• Windows Server</td>
</tr>
<tr>
<td><strong>2. Productivity Tools</strong>&lt;br&gt;• Bookmarks&lt;br&gt;• Orientation / Help&lt;br&gt;• Searching Within Course&lt;br&gt;• Calendar / Progress Review&lt;br&gt;• Work Offline/Synchronize</td>
<td><strong>2. Course Delivery Tools</strong>&lt;br&gt;• Course Management&lt;br&gt;• Instructor Helpdesk&lt;br&gt;• Online Grading Tools&lt;br&gt;• Student Tracking&lt;br&gt;• Automated Testing and Scoring</td>
<td><strong>2. Pricing/Licensing</strong>&lt;br&gt;• Company Profile&lt;br&gt;• Costs&lt;br&gt;• Open Source&lt;br&gt;• Optional Extra&lt;br&gt;• Software Version</td>
</tr>
<tr>
<td><strong>3. Student Involvement Tools</strong>&lt;br&gt;• Groupwork&lt;br&gt;• Self-assessment&lt;br&gt;• Student Community Building&lt;br&gt;• Student Portfolios</td>
<td><strong>3. Curriculum Design</strong>&lt;br&gt;• Accessibility Compliance&lt;br&gt;• Course Templates&lt;br&gt;• Curriculum Management&lt;br&gt;• Customized Look and Feel&lt;br&gt;• Instructional Standards Compliance&lt;br&gt;• Instructional Design Tools&lt;br&gt;• Content Sharing / Reuse</td>
<td></td>
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</tbody>
</table>


An overview shows that LMS features pre-exist for implementing the model including administrative features (creating and administrating the online peer group), communicative tools (chat dyads, and group communication), sequencing tasks (with deadlines and notifications).

Moodle has been shown to offer a variety of features for building learning scenarios in the case of blended language learning (Arcos & Ortega, 2009) among which peer to peer evaluation (Arcos et al., 2010); adaptive learning (Arcos et al., 2009); and CLIL enhanced with digital storytelling. (Ortega & Arcos, 2009)
In the following chapter, I provide the detailed model of the LMS-based online language learning model, listing different LMS functions required in each part of the network’s design, and specifying those functions that already exist in Moodle allowing to execute the model. Some requirements however do not yet exist in the current Moodle version at the time of writing. Specifications are given as to which additional LMS services or features are needed to enable implementing the model. I limit the description to that of functional requirements and do not provide technical solutions as this is beyond the scope of this thesis.
CHAPTER 5  DESIGN OF ELLON: A LEARNING ONLINE NETWORK

“Things alter for the worse spontaneously, if they be not altered for the better designedly.”
Francis Bacon

In the preceding chapters, I proposed a paradigm of English Language Learning based on research on English as a global language, and called it “Multi-dimensional English” (MDE). I also proposed a description of the role of online networks for language learning, within a conceptual connectivist, socio-cultural and socio-cognitive framework. As Internet is a network and natural context of use of English today, it represents an adequate Multi-Dimensional English language learning context.

Directly deriving from network learning theory for language learning and findings from empirical studies on online social network language learning of English, I propose in this chapter an online learning design model, executable from an LMS, a networked "architecture" for organising the learning of English online. The proposed framework is designed to bring about the emergence of language learning. The model reflects how conditions for social learning can be provided online and blended into a larger online task.
I first describe basic concepts of instructional network design, and then give a general description of the English Language Learning Online Network (hereon ELLON) and its architecture. I then detail the design of ELLON according to the three designable network dimensions identified by Carvalho & Goodyear (2014): Set Design, Epistemic Architecture and Social Design.

5.1 How I Designed the Model

In the next sections I explain how I defined the model and relate the summary of the conceptual framework established at the end of the previous chapter to the architecture of ELLON. I then provide an overview of the model.

5.1.1 Instructional Design and Networked Learning Architecture

While specifying that mere exposure to communication platforms is insufficient to bring about social learning episodes, Bradley (2009) defines the role of instructional design as it lies in "the purposefulness of the designers and developers in provoking certain intelligent responses to the learning materials, context and environment". (Bradley, 2009)

Carvalho & Goodyear (2014) propose to elaborate a theory on the design of learning networks. They argue that certain digital tools and processes encourage different forms of activity leading to learning. While learning networks rest on five main features: learning outcomes, learning activities, tasks, physical setting and divisions of labour, only tasks, the physical setting and divisions of labour are partially designable, because outcomes and activities are emergent (Carvalho & Goodyear, 2014). The authors put forward tools for learning designers in the form of network learning concepts. I use these concepts to both describe and inspire the features in the model. The authors highlight the importance of the physical setting (digital and material) in
influencing learning activities which unfortunately is under researched and under-theorised, because it is taken for granted: we take basic learning settings as pre-existing, as an unconscious starting point that in fact will determine the way learning will emerge by their mere existence and use (the classroom format, a particular Learning Management System, etc.).

Pinto (2014) gives an alternative definition of network learning architecture, where the distinct feature of "knowledge creation", is at the heart of the model:

the infrastructure of a learning network is composed of the totality of resources put in place by a teacher or designer, as well as knowledge objects (reifications) produced through ongoing interactions between members. The concept of reification refers to ‘the process of giving form to our experience by producing objects that congeal this experience into ‘thingness’ (Wenger, 1998, p. 58).

The concept of reification is useful for understanding networked learning as a contemporary social practice through which meanings are created and organised.

Pinto (2014) goes on to describe that learning networks must incorporate in their design dynamic flows over cross-context spaces, whether informal or formal, physical or online, providing patterns of flows based on a conceptual understanding of the connections between humans, and other non-human agents.

Thus, the design of learning becomes both dependent on the inbuilt features of LMSs, and the way courses are designed by teachers or other educational professionals, within these environments. Without the LMS and the approaches they provide (for planning activities, tasks, assignments), online learner processes and tasks, designed to lead to learning cannot be shaped.
The existence or non existence of certain functions over Moodle for example, become key to the possibility of implementing a given networked learning design based on a second language acquisition conceptual framework and instruction theory.

Below I define concepts used by Carvalho and Goodyear (2014) to describe architecture variables that I use in the description of my model.

**Legitimation of knowledge**

Legitimation Code Theory (hereon LCT) is “a framework for studying socio-cultural practices within both formal and informal educational contexts, LCT is used to analyse knowledge and knowing” (Carvalho and Goodyear, 2014).

Two dimensions have a bearing on learning: legitimacy of the source or author of a claim (social relation legitimacy), or the content of the claim itself (epistemic relation legitimacy). The authors suggest that network designs that propose tasks similar or identical to those practiced in a given field of knowledge, and designs that make visible “knower status” (for example through earned badges figuring next to the knower) respectively reinforce epistemic relation and social relation legitimacy.

**Semantic Profiles.**

A semantic profile can be calculated according to two variables: semantic gravity and semantic density. Knowledge produced and used may be either tightly context dependent or conceptualised (semantic gravity). Knowledge can also either be “condensed” into short and rich signs and formulation, or scattered (semantic density). This profile helps to “define what learners are doing with knowledge in the course of their activity: sequencing, pacing, selection of knowledge that is expressed, how is knowledge part of the activity, how is it used and how is it
built?” (Carvalho & Goodyear, 2014). Multiplication of concrete episodes of learning generally leads to conceptualisation of knowledge (Maton 2013).

**Network expansion.**

Network expansion is a consequence of the reification of learner experience, and the progressive growth of network knowledge and users.

**Shaping activities.**

Activity cannot be determined, only shaped because people are already in an ongoing motion. Taking this into account, influencing people's activity is possible because:

- people are often oriented to some goal
- their activity is shaped by the physical setting in which it unfolds, they follow existing paths rather than make their own
- they use tools that come to hand
- they are influenceable by the action of other people around themselves including: instructions, advice, encouragement and warnings.
- social norms, rules and habits tend to have an effect, even in absence of other people.

**Tasks.**

Task may be determined by simple suggestion about something worth doing, by explicit communication or by barely perceptible invitation. Task structures often consist of nested explicit and tacit elements (not all actions need to be spelled out).

**Co-configuration.**

Participants in an activity reshape what is being done. Traces of participant activity become part of the set, they are reified.

**Incorporating Learning Analytics.**
Learning analytics, stemming from the use of data analytics for business purposes, are used for "the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs". Learning analytics, by gathering traces of learner actions and processes, "render visible, and in some cases potentially actionable, behaviours and patterns in the learning environment that signify effective process." (Shum & Ferguson, 2012). The focus must be not only on learners, but also on their tools and contexts.

**Tools and design of tools: Interpretation.**

Mental effort needs to be focused on what is core to the achievement of learning, on what is hard and important. Slow thinking should not be required for marginal tasks: we must not have to think hard to find one's way around a website.

**Tools and design of tools: Legibility.**

A highly legible design helps people come to know what is there, what is available to them and how they find what they need.

I will refer to these concepts in the description of ELLON’s epistemic, social and set design. Before addressing the detail of the model’s design, I present below a user’s perspective of ELLON usage.

**Social Learning Analytics.**

To complement the design of my ELLON learning network, I use findings from Shum & Ferguson (2012) who study how learners use social media for learning, and which behaviours lead
to social learning. They identify elements of learning in a participatory online culture from within the socio-cultural perspective:

As groups engage in joint activities, their success is related to a combination of individual knowledge and skills, environment, use of tools, and ability to work together. Understanding learning in these settings requires us to pay attention to group processes of knowledge construction – how sets of people learn together using tools in different settings. The focus must be not only on learners, but also on their tools and contexts. (Shum & Ferguson, 2012)

The authors highlight the difference between simple use of social media and conditions for learning over social media, which enlightens us as to the reasons for poor results of purely social-media based language learning sites. This analysis represents a useful framework to derive network learning social design. I reproduce their summary in Figure 9 below.
Current research on recommendation systems applied to education within virtual environments defines data sets relating to students’ social online interaction. One example is the “L.I.M.E” model of recommendation system (Corbí & Burgos, 2014). This model uses input data from student traces of acts of both formal and informal social learning (such as replying to a post, selecting topics; or enriching others’ learning objects) to automatically generate recommendations on whether or not students, at a given point in time, should engage in additional episodes of social interaction, (with the teacher, tutor or peers). In their study, Corbí & Burgos show that these
recommendations have positive effects on student progress (Corbí & Burgos, 2014) thus showing that to a certain extent it is possible to measure and encourage social interaction for learning.

Are learning setting architectural variables designable using Learning Management Systems such as Moodle? These systems are used within the field of “Blended Learning”, and Moodle in particular, as an open software, undergoes ongoing updates to functionality as they are requested and discussed by an open Moodle educational community. In addition to the proper functions of providing software functions for class management, much functionality exists at the time of writing that supports online collaborative learning: Moodle forum, wikis, chat, peer evaluation, collaboratively created glossaries, and Moodle Workshop module that centres on enabling peer to peer learning.

Does the functionality existing in Moodle allow to design language learning environments that fulfil the conditions for Network learning that leads to: reuse of learner generated contents, horizontality and openness, and network growth?

I systematically check the compatibility of Moodle's general functionality with the requirements of the model's design. Some functionality do exist within Moodle in its current form, and others don't. In cases where they don't I specify what functionality need to be added.

5.1.2 How I Defined the Design of the Model

The model is derived from literature reviews as I gather findings from current research on the English language as a global language, empirical studies on both social network sites for language learning and classroom peer to peer language learning. The model is designed to address the limitations found in both classroom and online platform environments to address the learning of English in its current status as an international online language.
Logical conclusions deriving from redefining the subject of English.

In chapter 2, I suggested that an online open Internet environment is a real and natural context of use of a global and international English language.

While research within the socio-cultural framework informs us on the characteristics of “peer to peer interactions” online and the role of textual mediation and peer to peer scaffolding within online communities, SCT research on online language learning leads to the conceptualisation of "networks" as a "tool" or communication support for Second Language Learning to networks as an "environment" or "milieu".

Since use of English online has been found to present its own qualitative differences with use of English in face to face situations, it is possible to propose the necessity of learning Multi-Dimensional English within its natural milieu: online over open networks.

Inferring design features from SLA as a complex system and cognitive approaches

A review of research in SLA, reveals the complexity of individual interacting phenomena that together determine a learner’s acquisition path. From the cognitive perspective, for implicit learning to occur, hundreds of thousands of varied episodes of exposure and noticing are needed for language patterns, regularities, and schemas to emerge and become entrenched in the learners’ mind. It is possible to deduce that ongoing use of language is necessary for implicit learning to occur, and therefore, the Internet becomes an essential environment that is part of the learner’s digital immersion because it offers an infinite potential of exposure to English, as argued in previous sections. Explicit learning enhances naturalistic learning, thus language concepts will also be part of the online language learning model. The moment as to when to introduce explicit
learning to the implicit learning occurring over the internet task is inferred from SCT theory, as explained in the next section.

**Inferring design features from SCT research applied to SLA.**

Learners must find themselves in a context where language needs emerge. They then should have access to assistance and scaffolding, and finally, they must have the opportunity of internalising new knowledge by applying language knowledge autonomously in a real context of use.

So the network language learning focus lies preferably not in the conscious memorisation of given linguistic forms in anticipation of a future potential communicative need (as in traditional classroom teaching), but ideally in the conditions offered to a learner where:

1. learners face a communicative need within a more general use of English online. This context can be an online task and represent a context of use that is part of the learner’s “real” life, rather than a classroom simulation. Questions learners generate by formulating them explicitly reveal their ZPD. Findings on the necessary contingency of feedback reviewed in chapter 4 are interpreted for designing an online language learning approach where the learning path emerges from learner needs.

2. learners receive feedback based on their emerging needs in the communicative context. This feedback can be either “corrective feedback” or an improvement or enrichment of expression. Feedback can be made to be expressed and sent thanks to online communication tools that put learners and teacher into contact. Feedback should not be predefined. Formalisation and teacher intervention will be part of the learning
process, but only at point of need defined by the learner (in the collaborative group). While online forums are meant for this purpose, in practice not all learners necessarily participate in provided forums or wikis even if they do have something to contribute. Not all peers read each others’ contributions, nor answer or show they have read them. Some studies show the limits to forums and how, for example discussion threads are not actively read or participated in by all students (for example: Roig Vila & Statkus, 2012). Where a learning scenario is designed (thanks to an LMS) so that all users are required to send a post to the forum or wiki, no functionality exists to encourage specific knowledge building or follow-up to that post. ELLON, thanks to LMS functionality, shapes the conversation sequence so all members not only necessarily participate, but also generate a related knowledge object following a pre-defined dialectic online conversational sequence.

3. learners apply new knowledge acquired this way independently, leading to language skill development. Learners can apply acquired knowledge directly online, simultaneously or a short time after the provision of feedback, because the real context is online, at the learner’s fingertips.

To summarise, findings reported in chapter 4 allow me to define the overall structure of the language learning scenario as follows: if language learning paths emerge from learner needs in context, then this calls for the learner to use language independently in real contexts on the one hand, and be assisted by peers or teachers on the other. In both cases, the “tasks” within the learning session, or “class” should ideally be emergent from these interactions, in other words contingent. In my networked learning model, the learner is exposed to two parallel contexts that
lead to language learning: an real-world online task (in the English language) over an open, unpredictable environment of rich interaction and diversity (the Internet) on the one hand, and participation in an online language learning community, or group on the other. These situations present two different types of contexts leading to learning processes that gain at adopting an adjusted viewpoint: on the one hand, in the network context, the learner is alone with a task online, the learning landscape is predominantly composed of internet resources, self-motivation, informal or formal learner-selected activities and weak ties. On the other, and to reinforce motivation, learners are part of a closed online practice group, strongly tied. Both contexts can justify using two frameworks that reflect and are better adjusted to the conditions for learning present in each context.

Figure 10 illustrates this primary conceptual and physical layer of the network language learning architecture.
Figure 10. Learning paths emerging from real context

Findings from Research in CSCL, CALL, NBLT, and Social Network Sites for Language Learning.

Research on CSCL, CALL, NBLT and Social Network Sites for language learning has been overviewed in chapter 4. With the development of Web 2.0 culture, commercial websites have
emerged for language learning that put native speakers into contact with language learners for
language learning. These websites provide the opportunity for researchers to observe the
effectiveness of social language learning in the format on offer today and can be considered as a
complement or continuation to research on computer supported and mediated collaborative
language learning.

Generally, these different branches of research have shown that the digital environment
carries distinctive affordances for language learning and teaching, that differentiate the online
setting from face to face or classroom settings. Online communication presents conditions for low
anxiety and higher order thinking for language learning. Tasks online provide situations for
learners to collaborate, cooperate, and externalise their questions. Specific tools (chat, email,
forum, etc.) influence the nature of the communication and its content.

Main affordances, that make it possible to propose new and different models of second
language instructional design can be summarised as follow:

- interactive written communication
- “habits of use” specific to certain mediums of communication,
- variable geometries of peer interactions leading to peer scaffolding: one to one, one to
  many, many to many, adequate pairing
- asynchronous exchanges
- additional number of opportunities for collaboration
- anonymous exchanges
- online contexts for situated language learning
- new time and space dimensions to learning (mobile learning)
I use findings from empirical studies of those platforms to inform ELLON design features, and they are respectively and systematically referred to under the sections detailing the ELLON model over the rest of this chapter.

5.1.3 General Description of ELLON

Below I present an overview of the model from an egocentric viewpoint by describing the chronological steps a learner will be taking over the learning design. In the “Set Design” section, I show how this learning sequence can be designed using the features, tools and spaces typical of an LMS.

ELLON Learning Sequence from the user’s viewpoint.

Figure 11 below illustrates the general sequence of learning over ELLON.
Figure 11. General sequence of tasks over ELLON

This sequence is described below.

1. In ELLON, users participate in a real world network in the English language following independent formal or informal goals. This is their main task.

2. They externalise questions, with their online context, as they emerge, over a chat tool.
3. Questions are periodically assembled into a list (for example a daily ten question list). The learner then chooses two (or more) questions from peers to chat about and answer. Learners are thus chatting about their own questions and about two other peer questions. This is a sub-task and constitutes a part of the "lesson", it is a major part of the learning process.

4. Learners grade their peers on their contributions and support.

5. The original askers of the questions then summarise knowledge produced from the chat conversations and formulate questions and answers, after selecting their appropriate tags, over the Language Learning Object (hereon LLO) editor.

6. The learner's provisional LLO is overviewed first by all peers and then marked by the teacher who corrects or enriches answers where necessary.

7. Learners then use answer(s) to pursue their online task independently, where new questions arise and the whole question and answer sequence starts again.

8. The LLO is published and forms part of contextual language knowledge references openly consultable. Learners will be able to use it again as their external memory until its knowledge content is internalised.

9. Learners receive grades and badges according to their contributions.

10. Learners receive recommendations on competences and tasks to practice in the course of subsequent ELLON sessions. These recommendations are generated from Social Learning Analytics interpreted by the teacher. These analytics are based on data retrieved from users’ grades (from peers and teacher) and their tagged LLOs.

Figure 12 below shows the more detailed sequence of learner, teacher and LMS tasks in their chronological succession.
Figure 12. Chronological succession of tasks and subtasks

Before proceeding to the detailed description of ELLON, Figure 13 below summarises the relationship between the conceptual framework, the learning network tasks and sub-tasks, and the physical set design.
Figure 13 below shows the relationship between the ELLON model task design, its relationship with its conceptual and physical frameworks.

Figure 13. ELLON tasks related to conceptual framework and physical setting

In the following sections, I describe ELLON, structuring the specifications into the categories of epistemic design, social design and set design as defined by Goodyear & Carvalho (2014).
5.2 Epistemic Design of ELLON

Goodyear & Carvalho (2014) describe the Epistemic architecture as the "design of tasks in relation to a nested structure of sub-tasks and supra-tasks as well as broader conceptualisations of knowledge and ways of knowing". I will describe here the relationship between the epistemology proper to MDE and ways of learning, and its relation to the succession of tasks and sub-tasks to be accomplished by learners over ELLON.

5.2.1 The Online Task

The network layer, that is the real world online environment learners find themselves in, is considered to represent a non-ending source of situations where the learners need to learn implicitly, thus providing conditions for language acquisition to emerge over time, as conceptualised in chapter 3. Arcos et al. (2009) summarise the world wide web as follows: “The World Wide Web hypertext and hypermedia system allows the user to freely navigate between nodes by following links in an extensive, decentralised network of information and knowledge. The open, free-browsing nature of the web affords exploratory and inquiry-based learning.”

I consider an open Internet "life" task to offer edge of chaos conditions for language learning as reviewed in chapter 3. However within this ecosystem, learners must find a way to direct their own exploration. Motivation of learners is at the heart of the model, because ELLON relies on learner initiated questions to produce lesson content and Multi-Dimensional English knowledge.

Two criteria should guide the choice of online task: first, that it relates to the learner's present or projected needs. The teacher has an important role in helping the learner choose a task
that is likely to be personally engaging. Second, the task must be within the level of proficiency of English so that it may be "doable".

Learners may be aware of the importance of the English language: English as a tool for international communication, to access higher education, for professional development, and awareness of English as the international language of science, entertainment, business, publications, travel, organizations, and politics, in short, that English is the language of 'global literacy'. However, lack of use on a very practical and daily basis may make it hard for learners to relate an online task to an immediate need and therefore motivation to use the language. McKay (2002) comments: “One major factor that has impeded and will continue to impede the spread of English is that there is often little incentive for individuals, particularly in Expanding Circle countries, to acquire more than a superficial familiarity with the language.”

Yet more learners use the language towards practical needs, more they are likely to be motivated to learn it, reuse English online and eventually open their lives to broader global networked interactions. That is why the choice of task as a “starting point” over ELLON should be carefully selected and is one of the most important strategies in ELLON to invite learning activity.

**Online tasks that represent a space of engagement for identity building and imagined communities.**

What happens when learners of English as a second language do not feel a deep motivation? The reason for this lack of intrinsic interest in English is perhaps the lack of imagination of a community of learners, so a failing motivation to learn and a need of contacts with the community of MDE users to spur that imagination. This sustains the need to introduce tasks that provoke
learners' imagination of their international community of learners in an area of interest that is personally and directly relevant or applicable to their lives (work, leisure, etc.) rather than the subject of English language in itself. It has been shown that “Individuals can extend their imaginations into virtual communities that go far beyond physical spaces” (Kanno and Norton, 2003).

Interpreting Wenger's “Imagined communities” for ESL, Yashima & Zenuk-Nishide (2008) comment that “if the classroom practice fails to link the learner to the imagined community which each learner wishes to be part of, it can alienate him/her”.

The choice of an online task that would lead learners to build their own imagined communities is thus a central part of the ELLON model. How select it?

**Websites representing learners’ personal communities of practice.**

While several authors show how the use of social networking tools, and virtual communities do lead to creating a learners' “space of engagement” (Wegerif, 1998), how can we direct learners and teachers in the choice of online task?

Not only the online task in the model is the ground for immersing oneself into “real and authentic” use of English online, but it is also the necessary environment for learners to be immersed in a community of practice that will allow them to build an imaginative community and identity in relation to the use of English and its speaking community. In absence of an open online task (as opposed to preloaded content into an LMS), learners do not have access to that imagined community, but only to the community of learners in the classroom. This does not broaden their imagination as to a variety of contexts of use and users of English personally relevant to their lives.
The choice needs to be made taking into consideration the learners' own “social learning system” (Wenger, 2000) because if “gaining a competence entails becoming someone for whom the competence is a meaningful way of living in the world” (Wenger, 2000), then the competence of English should be practiced where it is meaningful for the learner. Kharchenko (2014), applying Wenger’s concept of “imagined communities” warns that we should highlight “the importance of addressing both participants’ past life histories and their envisioned futures in developing an understanding of their current mode of engagement in a particular CoP” (Haneda, 2006, p.814).

The choice of online task or tasks over ELLON should in this sense be made by learners and represent their current and future projected identity in a community where they will be able to “position themselves as insiders with a vested interest in the educational, social, and communicative activities at hand” (Thorne, 2003). Black (2008), shows that new media and technologies like fan fiction sites can represent such a community of practice.

Tasks where learners interact within the community of practice.

Van Lier clearly defines authentic interaction for language learning purposes: language activity is authentic when "it realises a free choice and is an expression of what a person genuinely feels and believes," and is "intrinsically motivated" (1996, p.13).

In this sense, the website must offer opportunities for learners to interact with others outside the classroom, in unpredictable situations, not necessarily linked to a language learning context, but one where learners may express their own personality through open ended and motivated discussions. Websites provide “communities of practice” (Lave and Wenger, 1991) or affinity
spaces (Gee, 2004) that afford learners opportunities to take on particular social roles and participate through varying social practices in these online affinity spaces.

This implies that the choice of online task should include sites where learners interact with other members, and where they learn to use a variety of online social platforms and media: “Learning the language of an SN tool then is learning to be a meaningful member of the community of users and an effective collaborator (Mangenot, 2013; Paloff and Prat, 2005)”.
(Fuchs & Snyder, 2013)

Choice of "doable" task.

However, another requirement is finding a task within the learner's proficiency reach. The task needs to be achievable, implying that learners may navigate over the meaning of its contents and interactions, without necessarily understanding all utterances, but without the contents being completely beyond their proficiency. Learner's have to be able to understand the language sufficiently over the online context to progress in the task, in a way such that language barriers are sufficiently far between for learners to feel they can finish their task, but there be sufficient barriers for learners to feel they are improving their proficiency.

I propose that in view of the characteristics of English as a global language, tasks may be chosen according to whether they match either of the following two criteria:

a) The task corresponds to a need the learners have in their professional or private domains.

b) Learners don’t have an immediate need to accomplish an online task in English according to the above criteria, but would see professional or private domains of interest and involvement enriched by having access to any related international community, web service or resources that are provided in English because they are destined to an international public.
Examples of tasks.

We could suggest the online task may also consist in informal browsing in English according to learner interests, business emails or videos, or even playing online games, as these can provide conditions for language communication needs. In the case of a learner not having a real world task in English to do online, but wanting to take part in ELLON, the teacher could propose a list of online tasks to choose from, perhaps based on the user's profile, likely interests. A Massive Open Online Course can be an interesting proposal, as the wide choice of courses makes it likely that the learner find one according to personal interests, and second because it is a real life online context that is particularly rich in content, and possible contacts with other foreign and native speakers. For less proficient learners, viewing a film of their own interest, short videos from Youtube, resources for young native learners, could be considered real content, and more approachable. For learners with academic projects, a real task online could be to search publications in their field in English, and read and summarise them on the other, participate in online webinars, or hangouts. For lawyers or other professions, the real online task could be entering forum discussion in specialised fields of law, those of other professions, or any collaborative events online in the profession. For artists, visiting crowd funding websites, online courses in their art field, watching interviews of international artists or entering online discussions of their interest could be their online tasks. They could also create films online, organise online exhibitions in English of their work, whatever its format, create their own webpages in English for international exposure. For any learners, websites such as Ted Talks may provide tasks online for practicing online listening comprehension, viewing films over Youtube in English can also provide real world tasks. Online shopping, and reading or writing product reviews in English may be considered a task. For business people, reading open access corporate reports, or buying and selling over international
wholesale platforms could be other options, where real tasks online in English are required. Whether in the domains of health, education, travel, professions, finance, business, online shopping, the arts, sports or science, services, activities and resources exist online in English addressed to international publics: online courses, MOOCs, shopping, investing (crowd-funding websites, international finance magazines, etc.), conferences, webinars, hangouts, reviews online, guidebooks, scientific publications, teleconferencing, blogs, tweets, discussion groups exist in all these domains. Access to them potentially broadens and diversifies learners’ choice of activities, domain of action, and access to knowledge.

Whatever the choice, proposing real online tasks to the learner in English based on learner’s personal choice and needs, is already an important step in preparing the ground for learners’ motivation and subsequent capacity for language noticing, building their imagined community and their understanding of the relevance of online networks to their own lives, as well as putting them in a context where they will be able to practice digital competences as reviewed in preceding chapters. The task should have the effect of being personally useful to the learners, as well as opening their mind to the online world where English is practiced.

While the choice of main task can be considered part of the "informal" sphere in the learner's life (the online task can even be a leisurely activity), the way the learner approaches emerging language difficulties is formalised. So while learners may feel relaxed and far from a classroom context when using English online, their online parallel participation in ELLON introduces serious and perhaps demanding MDE learning episodes.

As a reminder, from within this immersive online context of personally chosen task as a starting point, the subsequent sequence of tasks, inbuilt over ELLON, scaffold learners and carry them through a sequence of knowledge construction steps, based on their own externalisations.
and internalisations: language barriers to performing the online task, are noticed by the learner, paid attention to and assistance needs are externalised by formulating questions that peers help to answer. The sequence in social dialogue, is designed to lead to meaningful exploration, and the ultimate use of the knowledge built to pursue the online life task

5.2.2 User then Group-Generated lessons.

The essence of this framework is establishing tasks from learner generated questions and content. Each individual question is transformed into a formal task that others must take part in. It is these tasks (learner questions) that are obligatory and graded. Learner questions can only plausibly be used as formal tasks if a certain complementarity of knowledge exists between learners, and that that complementarity can be exposed and used. Multiple asynchronous exposure to questions and answers allows this to be possible, and is characteristic of online mediation (Warschauer, 1997).

By exposing all learner questions to the whole group, peers may choose to answer questions they feel they know how to answer, optimal pairing takes place naturally. Dynamic matching of peers according to dissymmetry of knowledge takes place as participants choose the questions they wish to answer.

So online contexts allow us to ask whether individual, and freely posed questions lead to explorations within an individual's ZPD. ELLON is grounded in the fact that a learner's succession of questions, represent exposure of the learner's ZPD to the extent that answering those questions allows the learner to complete the task independently, and when repeated over time, leads to an individuals' growth in capacity for independent task achievement. If so, learner questions should
become the essential “lesson content”. Peers can assist each other according to the questions posed, so that group knowledge is exploited to the full.

The teacher then intervenes only once group knowledge has been produced.

Let’s also recall that scaffolding does not consist online in only providing assistance at point of need, but also recruiting interest in the task (task selection); simplifying the task (sequential and contingent language assistance at point of need); maintaining pursuit of the goal (peer support); and controlling frustration (peer and teacher support). These moves are also reflected in the architecture design.

**Spreading group constructed knowledge.**

The fact that group knowledge is superior to individual knowledge is widely recognised. Current ICTs offering platforms for collaborative learning are being reshaped and integrated into learning environments, such as forums, wikis, mailing lists and so on. However these platforms rely on learner initiatives to extract posts of interest, consult historials of forums, use tags and keywords to address their individual questions. A question that seems to be scarcely addressed in research in online language learning is: how gather knowledge produced by a group and spread it to all participants in that group?

Learner generated content is not exploited through mere presence as showed in various studies (Lamy & Zourou, 2013). One of the reasons user generated contributions are not reused over collaborative platforms such as wikis and forums is that contents remain linked to a username, and filter options provided give access to an author's posts, or “thread”, and not to the content itself. So the system needs to be designed so that content reaches users at the relevant moment, and be tied to context of use.
Pinto (2014) cites Wenger on the importance of "reification" for networked learning:

The concept of reification refers to ‘the process of giving form to our experience by producing objects that congeal this experience into ‘thingness’ (Wenger, 1998, p. 58). The concept of reification is useful for understanding networked learning as a contemporary social practice through which meanings are created and organised.

If reification congeals online constructed knowledge, what form does this “reified” knowledge take? And how is it distributed to all learners?

An LMS allows formatting a learner question and turning it into a future language reference, through formatting, database building and search functions that could resemble for example Moodle Glossary, or online dictionaries.

ELLON seeks to provide conditions for group knowledge to emerge as a whole through the division of meaning making over clear sequences and visualization of all questions. While at first, knowledge is constructed over one (or other number according to settings) dyads per learner per session, final group constructed knowledge together with expert intervention is spread to each individual during the last phase: when all generated language learning objects must be validated by all.

Over ELLON learners are on the one hand "using" English online, so they are learning it "implicitly" within a network milieu that brings them the autonomy, richness of exposure, diversity and openness. This milieu is similar to a naturalistic setting (it actually is a naturalistic setting of Multi-Dimensional English). However, by formulating their questions, they are entering an "explicit" instruction strategy at the same time.

Learners should therefore both express their explicit, conscious understanding of underlying language patterns, rules, regularities, formulas, in sum, any generalisation related to their "learned
attention" to language (Ellis, 2008) that turns language exposure into language pattern recognition and conscious declarative language knowledge for themselves and for others.

Therefore I define two knowledge "units" in language learning, and provide their definition below: MDE chunks (basic units of MDE processed in our memories, they include constructions, formulae, etc.), and MDE concepts (the basic unit of explicit MDE learning, any generalisations leading to deepening of conscious knowledge of MDE competences).

**Chunks.**

Over ELLON, when the learner selects the chunk or "exemplar" of MDE use, it becomes the object of the learner's question, and is not dissociated from context (as we explained in the set design, the online context is automatically copied into the question editor).

Thus the condition of "noticing" necessary for implicit learning to occur is addressed over ELLON.

Additionally, having to identify chunks of language and formulating questions on them, is a condition that leads to increasing “noticing” of chunks.

**Concepts.**

The second knowledge unit that will flow over the model is that of "concept". I use the term concept in my model to refer to any type of generalisation or pattern the learner can deduce from attention given to either the MDE chunk (as explained above) or a question relating to any of the competences detailed in the list given in chapter 2.

A concept refers to any type of comment that shows the learner is explaining MDE in view of teaching and generalising its use to peers. In this way, concepts may be of a purely linguistic
nature, and refer to a learner's initiative, for example, to provide any slot-and-frame patterns, drills, and declarative pedagogical grammar rules related to MDE. It is also refers to any general comment on the nature of regional Englishes, differences between formal or informal specific MDE utterances, instructions on using ICT, any intercultural knowledge, information on online politeness conventions, and alternative examples of use of MDE referred to in the main question.

A concept is a unit of explicit competence learning, or declarative knowledge, that users themselves or other learners will be able to apply to future MDE use contexts. A concept is user-generated: it may express any conscious learner knowledge on chunk patterns, rules by which to combine words so they reflect a certain meaning, constructions, schema, grammar rules, explanations, etymologies, formulae, prototypes, and conceptual categories, in summary, any type of elicitation, that reveals a deeper understanding on the part of the learner of regularities in MDE use, understanding the link between verb form, word placement and meaning given to them. Importantly, it can be illustrated as mentioned, when the student elaborates a different example of the same concept, which is a way of sharing a language regularity.

An important part of a network design according to Carvalho and Goodyear (2014) is "designs that appear to encourage "semantic profiles" that would favour knowledge building processes in our networks: a sequence of tasks where students are exposed to increasingly progressive levels of generalization and abstraction." (Carvalho & Goodyear, 2014, p. 266).

Over ELLON, learners are encouraged to draw generalisations, recognise patterns and develop concepts as defined above from the answers they receive to their questions: when formulating questions and answers over the language object editor, a field called "concept" is recommended to be filled out. This gives them extra points counting towards their grade. Progressive levels of generalisation are also projected to be achieved by reviewing the whole set of
LLOs composed by the group of peers. This exposure diversifies the learner’s repertoire of MDE and repeated exposure should eventually lead to developing implicit knowledge as like in children “picking up frequent patterns from what they hear around them and only slowly making more abstract generalizations as the database of related utterances grows” (Ellis, N., 2001).

The explicit personal realisation and formulation of this concept is deliberately designed towards learning: by defining particular concepts, learners are paying more attention to them, they should notice them more frequently, internalising them over time more readily. The content of the knowledge unit has just been described. But how design towards facilitating exchange and use of that knowledge unit online?

5.2.3 Microcontents for Knowledge Flow

Definitions of units of knowledge based on chunks and concepts for language learning, can be related to broader findings from empirical research on knowledge building online. Wise, Zhao, & Hausknecht, (2013) found from their study on how student attend to posts in online discussions that:

posts of moderate length best support rich dialogue since very short posts tend to be shallow in their presentation of ideas (Dennen, 2001) but long posts are often perceived as overwhelming and are thus not read (Peters & Hewitt, 2010). (...)

Research on microcontents for learning indicate how to reify knowledge to increase its probability of flow between learners. Microcontents are “a (very) small unit of digital information (...), that is short, structured. It is single-topic centred” (Dash, 2002), “focused, self contained, indivisible” (Leene, 2006). It presents itself in various formats: text, video, audio, interactive
(Zhang and Ren, 2011) and allows use/reuse in different loosely structured macro-contexts and macro-containers. (definition retrieved from the microlearning Website: http://www.microlearning.org/). Multi-platform contents, across different technologies, are required to serve in new channels of communication and to increase levels of interaction between people and the content itself (Souza & do Amaral, 2014).

Examples of pre-existing microcontent formats are: SMS, micro websites, blogs, podcasts, and tweets. The freedom of use deriving from microcontent alluded to previously, in a context of exponential interpersonal exchanges over networks (Web 2.0), together create conditions that potentially enhance our learning processes. From a network learning perspective, English language knowledge units need to be packaged and circulated in a manner that allows ease of assimilation and speed of exchange between learners. Microcontents reveal themselves as a useful format to reach learners (Sagar, 2014). To summarise, borrowing a connectivist conceptualisation, Figure 14 below shows the advantages of microcontents for networked language learning.

![Figure 14. Advantages of microcontents for network language learning.](image)

Note: Figure adapted from “Daily Recreation: De-authoring Knowledge and Connecting Microcontents” (Sagar, 2014).
Tags.

The obligation to tag questions and answers according to the language competence being learnt is another task towards conceptualisation. By tagging, they are realising the competences that are part of overall language skill and their chances of noticing competence gaps in the future are greater.

Progression towards conceptualisation of language knowledge is also reflected in reuse of LLOs: when consulting an LLO in the future they will not only consult a concrete MDE need (MDE language or competence based) but a generalisation deriving from it.

Finally, to reinforce concept internalisation, tasks where those same concepts have emerged in other ELLON learner tasks can be automatically found (through analytics) and proposed as a new starting point to an ELLON course so they practise their use of those concepts.

This "sub-task" of conceptualisation episodes leads to progressive strengthening of semantic meaning and reinforces the semantic density of the model as learners are lead to increasingly progressive levels of generalisation. This does not undermine semantic gravity (knowledge related to concrete use and context) as learner questions and answers are tied to context of use. ELLON's semantic profile thus allows for cumulative knowledge building (a growing number of chunks and questions) as well as a series and growing number of abstractions tied to a variety of contexts of use of language in succession.

Based on the findings above on online knowledge building, the knowledge unit that will be created over ELLON, and circulated, is therefore reified in microcontent form (format and content). The content of the learner-generated Language Learning Object, will be composed of:

- The context of language use (automatically copied)
- A language chunk
• A question
• A language concept "discovered" during the learner's subtask.

The format will be compatible with navigators, and content can be freely copied so that users may circulate the content of the LLO at will. The object itself should preferably be attachable to messages, or integrated into other web platforms.

A limit to the length of the language chunk, formulation of question and answer must be given for flexibility of use and ease of assimilation. This means that in the case of long conversations and discussions, users either break questions and answers down into manageable micro-contents, or declines to turn them into LLOs.

As Arcos et al. specify (2009) “a lot of learning does not come from knowledge resources at all, but stems from the activities of learners solving problems, interacting with real devices, interacting in their social and work situation or in the classrooms”. Where does the learning effectively take place over ELLON? To summarise, over ELLON, language learning essentially occurs over three forms of activity, or “tasks” that can be conceptualised threefold:

1) the online “task”, that should engage the learner. Learning here is implicit, internal, through language practice in real situations. Exposure to language regularities in online content and interactions lead to “Implicit” language learning (Ellis, 2008).

2) the sub-task of noticing chunks and formulating questions: we progressively associate meaning to form through repetition of use and noticing of language. Context of use has a major role in determining meanings (of a particular form). The more the contexts of use and variety, the richer and more complex our exposure and capacity to associate meaning to form and form to meaning. Formulation of questions at point of need provide focus on meaning necessary for
implicit language learning. Rich, ongoing and diverse exposure and interactions, through our real online task that is autonomously led, represents the naturalistic setting for implicit learning.

3) the sub-task of peer feedback and negotiating meaning over the chat medium means learners are making explicit emerging concepts: we deduce generalisations and patterns of use of form to reflect meaning. The recognition of these patterns and generalisations means we can reproduce them, apply the pattern to a different combination of words.

This sub-task is reinforced by the learner’s obligation to produce a learning object from the previous query. The learning object is the explicit formulation of the learners question, answer and conceptualisation, that the learner knows will then be published for use by other learners. The learner will be guided in this LLO creation thanks to the editing fields and search engine feature of the LMS platform. Moodle glossary is an example of such a function, though as we will see further, some adaptations to Moodle Glossary are required to execute this LLO creation feature.

**Multi-Dimensional English competences and micro-contents.**

Below I propose to show how our two defined types of knowledge units can be considered to be the building blocks in the construction of different competences that I defined as part of Multi-Dimensional English in chapter 2.

Competences that are part of Multi-Dimensional English, are either practised in real context or/and conceptualised by the learner:

- through the process of reification of knowledge the learner notices and externalises a question relating to that competence, and subsequently enters the LLO editor fields (after the peer and teacher collaborative processes).
through practice at using MDE online over a real online task and within a more general environment of assistance represented by ELLON

Table 3

*How MDE Competences are Learnt*

<table>
<thead>
<tr>
<th>Competences learnt by “doing” the task</th>
<th>Competences learnt by asking questions over ELLON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercultural awareness and competence</td>
<td>Questions on intercultural awareness and competence</td>
</tr>
<tr>
<td>Digital literacies hypermedia, authoring and publishing skills</td>
<td>Questions on literacies hypermedia authoring and publishing skills</td>
</tr>
<tr>
<td>Intercultural skills and know-how</td>
<td>Intercultural skills and know-how</td>
</tr>
<tr>
<td>General phonetic awareness and skills (using videos, podcasts)</td>
<td>Questions on general phonetic awareness and skills</td>
</tr>
<tr>
<td>Study skills and heuristic skills, designed into ELLON specifications.</td>
<td>By effective use of ELLON, meant to develop reflexes for efficient online exploration sequences and internalisations</td>
</tr>
<tr>
<td>Lexis and grammar in context</td>
<td>Questions on lexis and grammar</td>
</tr>
<tr>
<td>Communication based on the values, cultural norms and needs of learners Choice of task online by learner, or guided personalisation by teacher</td>
<td>Questions on values, cultural norms and needs of learners</td>
</tr>
<tr>
<td>Phonological, orthoepic traits of language: when task requires oral interactions</td>
<td>Questions on phonological, orthoepic traits of language using audio online tool</td>
</tr>
<tr>
<td>Dialect and accent regional variants</td>
<td>Questions on dialect and accent regional variants</td>
</tr>
<tr>
<td>Register differences</td>
<td>Questions on register differences</td>
</tr>
<tr>
<td>Expressions of folk wisdom</td>
<td>Questions on expressions of folk wisdom</td>
</tr>
<tr>
<td>Politeness conventions</td>
<td>Questions on politeness conventions</td>
</tr>
<tr>
<td>Linguistic markers: Practice according to online communication needs in context</td>
<td>Questions on linguistic markers</td>
</tr>
<tr>
<td>Discourse and functional Competences: specific task selection</td>
<td>Questions on discourse or functional competence</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
The following competences may be addressed through questions over ELLON, but also require specific training:

- Knowledge of the world / empowerment through English over networks
- Attitudes; personality factors, values

**ELLON and the 4 skills: reading, writing, speaking and listening online**

ELLON provides conditions for practice of the four language skills in their “online” version. Learners can ask questions on online reading (web page written contents); writing (online writing over different formats and supports: email, chat, twitter, forum posts, etc.), speaking online (using voicechat, videoconference software or recording videos or podcasts of one’s own oral productions online, participating in videoconferences) and audio/video comprehension (comprehension of videos or podcasts of one’s own oral productions online, participating in videoconferences, understanding voicechats, etc.). In some cases the format of the audio/video content may not be easily copied, linked to or reproduced in the question context field and generally sound functions need to be promoted within WALL and LMS for language learning purposes (Ruipérez, 2001). Speed of reproduction and download will also depend on speed of internet connection that may not always be satisfactory. This represents a potential limitation of using ELLON for audio or video contents in English online and the learning of audio video listening and output competences.
ELLON question types and tagging.

The first step in conceptualising knowledge of language is when learners tag the nature of their questions. Tagging contributes to "noticing" of chunks. I predefine the tags in Figure 15 below based on the competences defined as part of Multi-Dimensional English.

![Figure 15. Basic language tags defined from definition of MDE](image)

While tags are a complementary way of conceptualising their own explorations and building a learned attention to language, a second and equally important purpose of tagging questions is
generating learning analytics (see the Learning Analytics section to see all applications). Some tags address the nature of the question in terms of MDE, as illustrated in the figure below.

The rest of the tags correspond to the area of competence the question is part of, listed in the table below. An empty tag field is made available allowing users to build their own categorisations of language knowledge. When filled out, they turn into new tags automatically appearing in the predefined tag list. This is another way learners co-configure ELLON and shape their own activities. To summarise, over ELLON, learners formulate any questions that emerge and that fall into the following categories, represented by tags:

- Global Inter-relations and Intercultural awareness
- Digital literacy and multimodality
- Lexis
- Linguistic discourse markers
- Register
- Chunk
- Politeness conventions
- User-defined tag

Table 4 below gives a definition of each tag.

Table 4
Multi-Dimensional English Question Tags

<table>
<thead>
<tr>
<th>Tags</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global inter-relations</td>
<td>Knowledge of the networked world, English as a door to international commerce, travel, finance, arts, science, etc.</td>
</tr>
<tr>
<td></td>
<td>Discovery of online communities, networks</td>
</tr>
<tr>
<td></td>
<td>Awareness of empowerment that can be acquired by entering the networks of speakers of the world’s lingua franca.</td>
</tr>
<tr>
<td></td>
<td>Knowledge of the spread of English and how peoples' lives are increasingly affected by international networks, operating via financial markets, transnational corporations, and the Internet.</td>
</tr>
</tbody>
</table>
Intercultural awareness
Discovery of multiplicity of English language varieties
Discovery of different "cultures of use" of online media
Discovery of cultural differences
Understanding relativity of cultures
Gain knowledge and awareness of the pluricentricity of English and the plurilingual nature of today’s communication
Knowledge of the nature of language diversification and dynamism

Digital literacy and multimodality
Pragmatics of written and oral ICT use
Hypermedia authoring and publishing skills
Effective presentation of material
Semiotic systems that cut across reading, writing, viewing and speaking
Knowledge of online tools and resources

Linguistic discourse markers
Connecting sentences, marking opinions, etc.

Register
Nature of formality or informality of chunk
How and when to use informal net style standard English and when not to

Chunk
Idioms, grammar rules, structures, expressions, common constructions, patterns, lexis

Politeness conventions
Net versions of politeness conventions

User-defined tag
Learner defined for own convenience

5.2.4 Expansive Knowledge and Co-configuration

For a language learning scenario to qualify as a “network”, it should lead to network effects.

These effects, according to Zourou and Lamy (2013, p.4) refer to “the value of information (or data) that increases with the number of users appropriating it”. Users are therefore central to creating the value of the network, and the learning scenario therefore has to be open. If “the key to web 2.0 is not just user participation, it is participation leading to reuse” (Musser et al., 2006, p.30), then Lamy & Zourou (2013, p.4) argue that providing tools to students so they can create and remix content is necessary to characterise social networking. Lamy & Mangenot (2013, p.211) also highlight the difficulty in building effective learning networks, with social networking characteristics, that combine the seemingly contradictory conditions of control and openness,
where “formal and informal processes are perpetually combining and recombining” (p.212). Can we define ELLON as a network meeting these criteria of: content reuse; horizontal participation and increasing value over time?

Figure 16 below shows how ELLON allows information and content from outside the institutional context to flow into the formal learning scenario and back.

**Openness of ELLON.**

In the figure above, openness is reflected in the freedom for learners to interact with any content or person over Internet, using tools of their choice online, then select digital content, and use it as learning content within the LLO question and answer editor. The online resource field is another way to allow free information flow from the open Internet into the LMS system and
reusable LLO. At the same time, each learner asks one question, and that question becomes a reusable knowledge object. Horizontality of participation is reflected in this equality of generation of learning content: one question per learner, leading to related sub-tasks leading to one learning-object that goes back into the initial learning environment. Teachers intervene at the point of each learner’s individual need to complete the LLO, not in the delimitation of learning content or internet activity.

**Participation leading to reuse.**

LLOs can be used by others entering ELLON sessions, language questions made a second time can already be answered when the learner uses the LLO at point of need.

LLOs can also be the object of a further exploration because they are re-editable.

For example, if an ELLON participant consults an existing LLO and does not understand or agree with its content, it can apply a new question using the answer content within that LLO as the basis for a new question.

This way passed learning conversations are reused and extended by posterior users.

**Growing network value.**

Knowledge creation about Multi-Dimensional English is incrementally produced by ELLON participants, as they can build on previously ELLON-generated LLOs. Because the LLOs can be used by others entering ELLON sessions, language questions made a second time can already be answered when learners use the LLO at point of need as mentioned before. Therefore, learners normally externalise a different question than that already answered in previous ELLON sessions, because they would have consulted the answer to the question over the existing ELLON database.
This means that each new session will necessarily engender new language and MDE competence related points of doubt and questions that will complement the existing repository. Thus the language chunk repository is set to increase in diversity (different questions every time), quantity (as long as ELLON is being used) and depth (when the content of an existing LLO itself is object of a new LLO) at each new ELLON session.

**Developing habits of use.**

Learners should be encouraged to use online language tools as a reflex. Linguistic assistance is reflected in the use of online language tools, via continuous and public forums where speakers discuss language questions openly, and where crucial specifications as to the use of determined expressions or terms or translations are given. Questions language learners may have could already be addressed on such websites.

The Word Reference dictionary website is an example of this type of language online tool. Below is an illustration of one of its forum entries, where a user has answered in Spanish to someone who asked what “to reflect back” means in English. This example in Figure 17 below clearly shows language learners' need to contextualise language utterances and the insufficiency of traditional dictionary entries themselves:

![Figure 17. Example of a post over an online language tool “Word-reference”](http://forum.wordreference.com/threads/reflect-back.436915/?hl=es)
5.2.5 Design Traversing and Connecting Digital and Material Spaces.

The generation of these chunks or microcontents in context could effectively equate to a “chunk dictionary”, as referred to by Krishnamurthy (2003) and Ellis (2003).

Krishnamurphy (2002) explains how certain EFL dictionaries use a corpus of authentic texts to produce language references. This is what ELLON proposes to do in an altered way: it takes learner generated, negotiated, teacher reviewed explanations of MDE chunks or competences in context and reifies those contributions as a reference for future use by any MDE language learner. As we comment later, it can also be used to be associated to a given real life online context such as a language module relating to a particular online course, representing the typical difficulties the English language used in that course may generate for non native participants.

This is an illustration of the view in connectivism that digital networks allow us to participate into the real time creation of knowledge, or language knowledge as in our case.

The learner's whole experience (as a learner) over an English language online task, is reflected in reified questions, answers, translations or concepts. These can be used by any other non native speaker doing that online task. ELLON not only serves as a repository but as an open reference of previously built knowledge. It turns individual exploration into reusable references and knowledge, as the contributions are shaped from the start in view of their reusability. Because learner experience and practice is reflected in the generation of searchable and accessible LLOs, learners who did not participate in the network will be able to benefit from them when performing their own tasks.
5.2.6 Externalised Explorations to Enhance Future Internalisation.

Contributions are not only used by others, but also by oneself. In fact maybe "I can learn from myself": the MDE chunk or competence I explored one day, may be forgotten by myself in a month and in a different context. My own exploration may be forgotten. Finding it back and reusing it thereby shows that knowledge belongs to the network (that has objectified knowledge) and is not dependent on my memory or acquisition. It is because I connect to that network that that knowledge is used and therefore exists. It is logical to assume that when consulting my own exploration a second time, I will naturally recall it, or "internalise" it better than if I cannot find trace of my first exploration.

Thus externalising exploration, objectifying it in a consultable way for further consultation should also lead to individual acceleration of internalisation thanks to a renewed access to my own externalised exploration reinforcing the chances of definitive acquisition through memory and use, and spacing effects (Ebbinghaus, 1913).

From the SCT viewpoint, both the process of building knowledge artefacts and being able to consult past explorations contribute to internalisation and acquisition.

Learners are also co-configuring the ELLON environment at each new use: because previously created LLOs become part of the new language tools available through an LMS plugin from the Internet, their "learning environment" is differently configured at each new use.

More generally, Hodgson, McConnell, & Dirckinck-Holmfeld elaborated design principles (2012) for a learning network. I explain below how each are reflected in ELLON:

- “Freedom and responsibility of learners in their own learning” (Hodgson et al., 2012): reflected in their participation in their own online task, question formulation initiative and knowledge construction over chat using online resources.
“Openness in the educational process: learning seen to occur in a social context and as a consequence learners begin to address learning from a qualitatively different, meta-level.” (Hodgson et al., 2012): this meta-level is attained through the initial online task designed to be a real-world one.

“Self-determined learning, where learners take primary responsibility for identifying their learning needs and help others in determining theirs” (Hodgson et al., 2012): ELLON users determine the content of their tasks in so far as it is their questions that constitute the learning content. They also collaborate in dyads and groups.

“A real purpose in the cooperative process” (Hodgson et al., 2012): the online task is a real task related to the ELLON user’s professional or other needs.

“A supportive learning environment: where learners encourage and facilitate each other's efforts, while maintaining an intellectual challenge” (Hodgson et al., 2012): reflected in peer collaboration controlled by peer support grades.

“Collaborative assessment of learning: self-peer-tutor assessments. They support the cooperative process.” (Hodgson et al., 2012): learners can self-assess themselves by using the learning objects as self-tests, they are further evaluated by peers and the teacher on their participation and LLOs.

“Assessment and evaluation of the ongoing learning process. Learners must feel that there is a real opportunity to change the design of the course: this can be achieved by the tutor and learners working together in regular group processing” (Hodgson et al., 2012): learning processes over ELLON can be partly adapted by learners: they can adapt the temporal distribution of questions, add tags defining the types of questions they can ask and change the online task they are on whenever they like.
5.2.7 Formative Assessment and Social Learning Analytics

Formative assessment has been found to be a necessary and important part of online learning as “Among learners, formative assessment encourages learning and to take responsibility about their learning” (Black and William, 2009).

Particular online learning of the English language “may be best situated within a need to foster online learner interactions with a range of speakers and make sense of a wide range of online text types” (Brown, Lockyer & Caputi, 2010; Kramsch and Thorne, 2002). Lankshear and Knobel (2006), commenting on social network sites for language learning (SNS) argue that “ideally, over SNS, assessment designs would make use of a range of text types and modalities in ways that would foster “new literacies” amongst learners”. Formative assessment combines formal and informal processes to improve learners’ performance through feedback (Frey and Fisher, 2011).

Problems with peer-assessment.

When left to free learner initiative online over a social networking site, it has been found that peer assessment is dysfunctional because of lack of consistency and responsibility on the part of learners (Bennet, 2002). The author suggests to provide learners with model responses and rubrics, while Stevenson and Liu (2010) suggest that instruction should also provide assessment on a learner’s ability to search foreign language sites effectively.

This does not mean than peers cannot effectively provide each other with formative assessment. Formative assessment has been shown to be successfully realised between peers over Blended Learning models, such as the one put into place by Arcos et al. (2010). The authors
designed a course where clear instructions, rubrics and formal obligations, modelled over the Moodle Workshop module, lead to an increase in student competences.

Formative assessment over ELLON consists in learner evaluations on the one hand and recommendations based on learning analytics on the other. Through the use of tags, ELLON may generate recommendations via computer-based algorithms. These functions can be executed over an LMS.

**Short-term recommendations and formative assessment.**

Short term recommendations can derive from grades being given by other users within a single ELLON session. If the learner receives very low support grades for example, an automatic message reminding the learner to support peers can be sent. At the end of a session, memory building tests or resources the students valued in particular can be proposed.

**Long-term recommendations.**

Long-term recommendations are based only over many sessions of use of ELLON.

The table below shows what statistics could be generated based on the tags used over ELLON, thus in the long term, it should be possible to study:

- a learner's progress in asking ever more difficult questions
- the covering of different competences
- competences that have not been addressed through questions.

If a learner never asks questions relating to a particular competence, this can mean either:

- that the learner is proficient in this competence and does not have any questions to ask;
either the tasks the learner chooses never present opportunities of practice of that competence;

or that the learner does not notice own need for assistance.

Analytics can help discover which reason it is. By proposing LLO tests of that specific competence, it is possible to know whether the learner is in fact proficient in that competence; if tasks never present those difficulties, that can be checked by either checking what LLOs the task has generated for other students, or (if the task has never been done by another student), it may be necessary to inform the learner that certain competences are not being practiced and appropriate tasks (based on ELLON URL statistics) can be suggested; in the last case where the learner does not realise own need for assistance, a series of tasks and tests can also be proposed.

**Generating a learner's personal MDE curriculum.**

As mentioned, if learner contributions are systematically tagged, then it is possible to generate statistics that tell learners what competences they have been addressing through their questions and with which frequency. In the case where learners choose similar tasks online, they may be failing to address other competences (for example, they are never having to develop intercultural awareness because they never do online tasks that involve people from other countries). This is useful if learners have an individual need to exercise that competence in relation to their profession for example.

Based on statistics relating to generated language concepts, it may be found that another learner competence to improve is the ability to recognise language concepts and ability to generalise answers to questions.
Statistics will also allow evaluating how much of a particular skill (reading, speaking, listening or writing online) the learner is practising and then orient the learner to tasks that require one or more skills the learner is not practising.

**Proposing practices targeted at discovering student needs.**

Other analytics such as recurrent competence questions may reveal certain similar or typical language assistance needs according to language concept. In that case it is possible to automatically propose LLO tests addressing those concepts. Learners can do those tests alone informally or as part of an official exam.

**Determining learner MDE proficiency.**

Over time, it will be possible to determine the language difficulty of a given webpage, online task over the open Web (an online course for example), by the collection of statistics of learner questions relating to that page or task, or the amount of consultations of ELLON LLOs (originally generated from that page). It will also be possible to determine the questions that that task provokes in the learner. Comparing task difficulty and learner questions, it will be possible to evaluate the learner's proficiency level. A more accurate evaluation would be produced by extracting an average grade over a greater quantity of tasks.

**Selecting tasks according to the questions they provoke.**

Directly related to the latter point, if learner questions are related to competence tags, it will be possible to define, by calculating an average, whether certain online tasks bring about learner questions relating to a particular competence.
For example, it may be that one learner has asked a very great number of intercultural awareness competence questions, over the task. In this case, learners who are found to rarely or never ask intercultural competence questions could be advised to to that task, with the expectancy that the task will also bring about similar questions with that learner.

In fact, it can be possible to extract the learning values of different tasks (according to learner levels, B1, B2, etc.) based on these questions.

**Defining complementary group online tasks.**

According to statistics relating to an online task, typical difficulties for a given level of proficiency, and particular competences addressed, a teacher may voluntarily assign a different task per user, so that they together build on complementary skills and competences. As learners help each other, and all need to validate a particular LLO, they will all be exposed to the variety of task competences and skills.

Building on from that "variety", it will be possible to then interchange over the subsequent sessions, the choice of tasks with a new set of complementary tasks.

However, this does imply learners will not be choosing their main Internet task, and considerably alter the conceptual basis of ELLON.

**5.3 Social Design of ELLON**

The second layer in a learning network architecture proposed by Carvalho & Goodyear (2014) is social design. Pinto (2013) defines this layer as how participants' activities reshape and re-organise the environment, defining interpersonal relationships and divisions of labour, the role
of co-creation and co-configuration, in other words, how participant activities reshape and reorganise the environment.

Based on the dimensions of the social learning design space (Shum & Ferguson, 2012) referred to earlier, I highlight four social learning conditions that are addressed through design features and important pillars in the ELLON architecture:

- formalising dialogue so that it becomes educational
- introducing diverse meaningful connections, contents and viewpoints
- reifying traces of learning.
- learning analytics

ELLON's social design features fall into the following categories: preparing learners to adopt network learning behaviours; design for community building; features to help students fulfil their distinct roles; and teacher roles.

As the transmission and classroom model dominates education today, learning over ELLON requires students to become fully aware of the learning mechanisms at the heart of the learning network, and from there, build their sense of responsibility in participating in the network. Indeed, students have to be made aware of how their contribution will allow themselves to learn and will also have a direct effect on the learning of others. A series of explanations and guidelines proper to "Network Learning" can therefore be suggested to learners such as those below.

5.3.1 Building Network Learning Behaviours

While in chapter 4, I reported findings that a group of learners is capable of generating contributions to L2 knowledge that is richer than learners on their own, it has also been found that leaving a learner alone over a network, with potential access to peers, will not necessarily lead to
learning (Mackness et al., 2010). Learners are not necessarily aware of the possibility of learning from peer interactions, nor of the particular affordances of Web 2.0 for learning.

Table 5 gathers guidelines on how to prepare students to use the network.

Table 5

Network Learning Behaviours of ELLON Users

<table>
<thead>
<tr>
<th>Network Learning Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy and training</td>
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<tr>
<td>Trial of ELLON</td>
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<td>Unlearning classroom behaviours</td>
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<tr>
<td>Conscience of the value of an online learning network in itself</td>
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<tr>
<td>Understanding the role of connections and network effects</td>
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<td>Understanding the “online” environment as a “real” environment</td>
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<tr>
<td>Developing a mindset of dual attention: main task / exploration spells</td>
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<tr>
<td>Exploiting resources and tools over the Internet</td>
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<td>Learning about their existence</td>
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<tr>
<td>Keeping up to date with latest language assistance tools</td>
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<td>Downloading and using online language tools</td>
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<tr>
<td>Understanding their limits</td>
</tr>
<tr>
<td>Externalising one’s exploration processes</td>
</tr>
<tr>
<td>Understand the necessity to express one’s questions</td>
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<tr>
<td>Understand the necessity to externalise one’s knowledge and answers</td>
</tr>
<tr>
<td>Develop a habit of openness in extrapolating and deepening concepts</td>
</tr>
<tr>
<td>Cultivating both weak and strong ties online</td>
</tr>
<tr>
<td>Develop a sense of peers as “legitimate knowers”</td>
</tr>
<tr>
<td>Learning to give support to peers</td>
</tr>
<tr>
<td>Seek diversity of opinion online</td>
</tr>
<tr>
<td>Reuse of knowledge</td>
</tr>
</tbody>
</table>

177
Understand the general interest in clarity and format
Understand the value of micro-content format
Understand the use of tags and their importance

Below I explain the general guidelines in the table above.

**Autonomy and Training.**

While for many of us still, our experience of learning is predominantly face-to-face; "many learners who function well in a classroom context are not necessarily ready for online learning" (Martinez, 2003). Various studies have shown that it is necessary to prepare students for online learning: "In the framework of online learning, students must possess deep learning strategies (for analysis, synthesis, evaluation, creation) and not only superficial learning strategies (for reproduction and memory)" (Vovnenciuc, 2014). There is potential for learner training (Hubbard, 2004) as what learners do “naturally” with the affordances of technology is often at odds with what is ideal for autonomous language learning. Even though they may be confident users of IT, many learners are new to e-learning, and they may not understand what is expected of them.

Open web courses to prepare for online learning could be taken before learners start to use ELLON, (for example: https://sites.google.com/site/deprinderidelis/).

Apart from a specific module to prepare students to learn over ELLON, productive use of the network is dependent on students becoming familiar with it on the one hand and an appropriate design that "invites" students into performing activities that lead to learning on the other.
**Trial of ELLON.**

So first, ELLON should be "tried" by students so they learn to use it before starting an official session. During this trial, they should be brought to witness the implications and the rewards of active contribution (badges, sense of community, publishing of produced knowledge).

Second, the design of the learning network should play its role in inducing productive activity from the learner (Carvalho & Goodyear, 2014). I explain in the following sections how ELLON is designed for carrying participants into exploration and peer learning.

**Autonomy and selection of online tasks.**

Over ELLON, learners are not left to complete freedom online because of the specifications of the model. However, their freedom is reflected in their choice of online task, through their choice of knowledge unit for exploration, and the way they externalise their explorations.

If online contexts of use become a start and end point of learning spells over ELLON, then selecting them may require some skill at identifying those real life online contexts that:

- provide a context for explorations,
- are sufficiently motivating to sustain interest,
- adapt to learners' general personal and professional goals,
- lead to complementing existing learner knowledge
- provide tasks that are compatible with their current abilities
- provide the appropriate level of difficulty: the task itself is within their reach though presenting some challenges that peer and teacher assistance over ELLON can help overcome.
This choice is at the heart of a redefinition of curricula in the digital age: what should we learn and for what? What criteria should learners use to decide which online contexts should be part of their education? In the case of the English language subject area we explored the answer in chapter 2.

**Technical support.**

Technical support is recognised to be essential for smooth use of online learning (Lin, 2012) and learner training before using a tool can be considered to be required (Moody, 2004). This would be ideally the case before starting to use ELLON from the technical point of view.

**Unlearning classroom behaviours.**

It has been shown that certain student behaviours are associated to the classroom context. These include a certain inhibition, and viewing the teacher as the ultimate reference of knowledge (Mehan, 1979; Cazden, 1988). A triadic pattern of discourse in classroom contexts has been found to dominate (Mehan, 1979) in 70% of classroom discussion, where the pupil is limited to replying to a question made by the teacher that is subsequently evaluated or commented -the "IRE/F pattern" (Mehan, 1979; Cazden, 1988, 2001). However Cazden also found that instances of pupil self-initiation, spontaneity, conversational-type discussion, symmetrical interactions, pupil-pupil exchanges were the types of interaction that led most to pupil engagement, exploratory talk, and eventually "real thinking" (Cazden, 1988). These explicit explorations were found to be in fact rare and occasional in classroom contexts.
Online behaviours.

This is a very important finding that supports the development of distinct learner behaviour online, where learners not only lose their reliance on a unique and central source of knowledge (a teacher) but also develop distinct social skills tuned towards knowledge building. Knowledge is not provided. It has to be co-constructed and recognised as such as it dynamically emerges from connections between peers. Peers must start to be understood as valuable companions in the knowledge making process, and as we will see later, potential "legitimate knowers".

In a networked learning scenario, learners must grasp that their online learning is both individual and social: they must seek diversity of opinion as a condition for learning, exploit strong and weak ties towards their own goals, that they set themselves. Conversely, they must learn to be conscious of the value of their own knowledge, and the importance of externalising thoughts and knowledge, through conversation, to contribute to group knowledge as a whole and to peers on a one to one basis.

Students should be made aware of the validity of peer answers and evaluations, of internet linguistic sources and their use, of their own individual value as teachers at specific moments, and, more broadly speaking, of the potential collective knowledge produced by groups of students or online networks.

This represents a different mindset when approaching the learning of language within an online group, and requires students to trust the network model and firmly believe in its value as a learning environment.
Using language tools.

Students during this preparative phase should be guided into downloading selected language tools to incorporate them to their explorer window. They should test and understand both the utility and limits of current language tools in assisting them at point of need: using online language forums, selected bilingual dictionaries, automatic translations (examples of errors).

This way, if they learn to use online language tools, the questions they will eventually ask to their peers will be those they cannot answer when they are working on their own.

They will be learning the competence of using internet resources while also learning how to discriminate when they can provide sufficient assistance and when they cannot.

Allowing others to view one's personal explorations.

What students do for themselves individually (exploring the language in our case) is simultaneously of use to the community of learners. So students should explicitly be induced into:

- externalising doubts, in other words giving a voice online to their questions, and losing shyness in expressing those thoughts that are usually kept to oneself in classroom contexts.
- understanding that the value of their contributions lies in their personal language exploration. Not only answers but questions are of value to their peers.
- that overt deepening or extrapolating is desirable and encouraged.

It may be tempting for learners to use the network as a quick language problem solver, rather than as a language learning course. So it must be made very clear to learners that the "slowing down" of their online activity because they make a halt over ELLON is where their learning lies, and constitutes the online formal "lesson".
Reuse of knowledge over networks.

Once learners understand the value of their exploration, they must understand the importance of the form given to its expression for its publication and reuse by others. They should say to themselves: "My question or answer has a learning value for other learners, therefore I must formulate it clearly" (over an online network in this case).

Showing and distributing it requires an added action on the learner's part over the LLO editor: clear question, answer and concept formulation, appropriate choice of tag, and respecting a certain "micro-content" format. Learners must understand the effects of the format of "Microcontent" for spreading their own learning spells, and thus applying a format that is consciously designed for others to understand and circulate online. This understanding corresponds to responsible network learning behaviours.

The act of tagging the question, clarifying it, and formatting it, is not purely selfless: it is part of learning because it helps to notice and remember a language concept. Further, they will be able to use the object themselves, so their own publication equates to externalising and increasing their own memory.

A second important habit to adopt is that of demonstrating support to peers. This should be understood as necessary and effective to advance the learning of each group member. This affective support between peers, little exploited in classroom contexts, and little if ever mentioned in traditional education, must be understood as a pedagogical value and be actively put into practice over the network over online exchanges.
Network awareness.

At the same time, learners must not be too distracted by informal chat, and must not stray from their main objective, which is that of completing their real online tasks, for their own sake, as part of their own life curriculum. So learners need to understand that one can learn while executing a task and it is even desirable to set the act of learning or the formal "class" within a broader life of English use online, at least as far as language learning is concerned. This requires learners to focus on two goals at the same time: completing their real online task, and participating over ELLON. This mindset, (also proper to mobile learning) is important to encourage not only for language learning. General understanding of "situated learning" should therefore be transmitted, all the more so that it is generally unknown in an era where classrooms are still the dominant learning setting, and are associated with the act of learning more than any other setting.

Another aspect of network learning behaviour is that of cultivating weak ties. This translates in our model into contacting users of English from outside the LMS group and over Internet, for example over online language forums, and then bring this knowledge back into ELLON for peers to learn from. Cultivating both weak and strong ties is part of the learning process.

Discovering reuse of their own contributions.

The number of consultations of LLOs can be recorded in the LMS database. This figure can be brought to the attention of learners so they become aware of how much their generated contributions become an object of reference and consultation for other learners.
Conclusion to Network behaviours.

To conclude, online network learning in our model would be improved and reinforced, if accompanied by a specific mindset students progressively acquire. This specific mindset can be summarised as the realisation that each learner is a potential teacher over micro-episodes of learning through guided participation, and that each question and answer made individually, when assembled, becomes a lesson for the group as a whole, but also may live over the broader internet or emerging networks, afterwards. Thus, realisation of the importance of asking questions in a clear way and providing accurate and well expressed answers should lead to making learners feel their responsibility over networks and their contents. This sense of responsibility may also be formative for learners generally in understanding the potential power of their own connections and contributions over networks.

Besides these initial guidelines, a system of badges and grades explained later is designed to reinforce these very network learning behaviours.

5.3.2 Community Building and Engagement

The lack of face to face meetings and physical "whole experience" of contact with others in the community has been found to lead to attrition (Owens, Hardcastle, & Richardson, 2009). Two major factors have been identified that may result in a student withdrawing: 1) lack of engagement (Owens, Hardcastle, & Richardson, 2009), and 2) lack of technical support (Owens et al., 2009; Perreault, Waldman, & Alexander, 2002; Stracke, 2007).

It is necessary to take measures to prevent lack of engagement. For this, research on community building online can inform us on engagement design. Engagement has been found to benefit all students by improving desirable outcomes (Trowler & Trowler, 2010).
Lamy & Mangenot (2013, p.203) propose that for online peer assessment to work, the online community may require a pre-existing basis of trust. Similarly, the inclusion of description of online member profiles have been found to lead to interpersonal learning episodes (Fuchs & Snyder, 2013, p116). Research findings indicate that students feel comfortable online making friends with a classmate or someone they know (Liu et al., 2013 p.152; Harrison and Thomas, 2009). It has also been found that learners also seek similar age and country of origin in their online friends (Lamy & Mangenot, 2013, p. 152). These findings support the argument that online learning can be made more efficient through the use of online communities based on pre-existing classroom groups, who share similar ages and country of origin, or whom they already know. How encourage engagement over ELLON? The following functions are incorporated into ELLON reflecting findings from empirical research in engagement building.

**Strong relationships.**

First of all, deriving from the above, there is reason to believe that the application of ELLON over an LMS within an institutional context may lead to more positive learning results as the online community reflects a group that is brought together in real life. Within the virtual group, in order to strengthen relationships, learners are encouraged to post personal profiles (McInerney & Roberts, 2004). According to Nichani (2000), online learning communities will only work if learners build strong relationships with others, and according to Mann (2005), without communication between tutors and learners, and learners and learners, online communities may not be able to engage learners (Mann, 2005). Communications ensured between tutors, learners and peers are incorporated in the very structure and working of the network (see overall social design), network behaviour building as described above will illustrate to future participants their
responsibilities towards each other. Their interdependence over the lesson generator in providing each other with the content of lessons, their obligation to evaluate each other, send support messages to each other, should lead to regular communication in the sense of Rice-Lively (1994). As synchronous communication is recognised as a ground to increase strong relationships (McInnerney & Roberts, 2004), learners are encouraged to use chat and in particular voice chat in the language exploration phase in addition to, rather than instead of, asynchronous ones.

**Practice Group Constitution.**

I call the group of learners the "Practice Group". The Practice Group is the group of peers over the LMS session who will be together generating their own lessons and language learning objects. The number of participants in a practice group must not be too small, or the advantage of diversity of views and complementarity of knowledge will not be able to come into play. However the number of members within the practice group must not be too large either or the learner workload will become too heavy.

A practice group of 10 people may reach the right balance. The bigger the group, the smaller the minimum number of questions set for each participant. The smaller the group, the higher the number of questions for each participant. They should share the same native language, to focus cognitive attention to the substance of discussions and similar language difficulties. For the same reason, the practice group should have a similar level of proficiency, so their mutual questions are of relevance to each other. This also allows them to build a sense of community, for example sharing humour over the chat. However diversity of personal and professional interests within the group is to be encouraged as it leads to further diversity of content covered.
Badges.

Another strategy for learner engagement is to issue badges for learners’ skills and achievements (Hakulinen, et al., 2013). During ELLON sessions, badges are dynamically and automatically calculated in real time based on grades given by learners in the course of their activity (see set design) and appear next to learner name over ELLON. The following badge attribution system is designed to encourage active participation and learning network behaviours.

Table 6.

Summary of Badge Attribution System.

<table>
<thead>
<tr>
<th>Badges</th>
<th>Attribution of badge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great supporter</td>
<td>Based on likes or grades given by learners after chats</td>
</tr>
<tr>
<td>Good questions</td>
<td>When members receive the periodic list of all questions, they grade the question they select according to its utility or value. ELLON calculates the average question evaluations per learner.</td>
</tr>
<tr>
<td>Good answers</td>
<td>Based on likes or grades given to answers (including concepts).</td>
</tr>
<tr>
<td>Exploration</td>
<td>An Exploration grade is calculated automatically as it counts the number of questions an answer has provoked.</td>
</tr>
<tr>
<td>Originality</td>
<td>Corresponds to broadening language exploration, jokes, interesting remarks, any unpredictable relevant contributions.</td>
</tr>
<tr>
<td>Good Grader</td>
<td>This badge is calculated based on the difference between grades given by the teacher and grades given by the learner. The closer the learner grade to the teacher’s, the higher the grade-giver score.</td>
</tr>
</tbody>
</table>
Start and end date.

Instead of flexible enrolment dates, having a clear start and end date can create a natural sense of group, which may be another way to increase engagement and reduce attrition in online education. The literature suggests that students involved in cohort programs typically have a sense of belonging and social bonding (Barnett & Cafarella, 1992). Learners in the same cohort share more similar levels of interest in the subject and are motivated to discuss similar topics. They may be eager to share and exchange ideas and learn from each other (Norris & Barnett, 1994), and have positive learning experience (Chairs, McDonald, Shroyer, Urbanski, & Vertin, 2002).

ELLON could be a permanent ongoing network however that would make it impersonal and peer relationships would not be pressured into strengthening. ELLON is therefore framed within sessions of use within clear start and end dates, all the more so when the LMS group is formed from classroom contexts. A determined number of sessions, and a limited number of participants is recommended to be set.

Moreover, time limits to accomplish tasks (send questions, answers and formulating questions and creating LLOs in the LLO editor) frame and should motivate learner activity. Notifications of time left, remind learners of their obligations towards the network and other peers. They are aimed towards discouraging passivity and "forgetting" about their session.

5.3.3. Bridging a Spectrum of Informal, Structured and Formal learning

The choice of web task is entirely based on own personal, informal or professional needs. It is not determined by an external institution or teacher, unless the learner asks for assistance in
defining it. This should link linguistic exploration, that will be formalised over tasks, to personal motivation, and independent use of built knowledge to achieve a real world task.

However, informal, unstructured participation in online networks does not necessarily lead to an increase in language proficiency. In his Livemocha study, Lin (2012) found that increased active participation led to increased errors. The author explains that possibly, "LLSNSs promote social interactions leading to a trade-off between language forms and communicative competence." Learners, as they feel ever more engaged, focus their attention on content and participation, while paying less attention to form and they take more risks. This would mean that participation does lead to more participation, as we had suggested in chapter 3, but not to direct improvement of language use. This justifies intervening in the learner's participation process, obliging learners to pay attention to form.

Over ELLON, when learners naturally encounter a language difficulty, a succession of subtasks are presented to them, as seamlessly as possible, through participation in an answer-building dialogue with their peers.

Formality is introduced within peer interaction, and this breaks with the freedom of interaction that usually characterises the use of forums or wikis in educational contexts. This formality is introduced because a user, on a platform, does not necessarily know what connections to make, that will lead to creating knowledge. If the platform only shows names and dates and numerous, or even countless discussion threads, where, how and when do learners know how to start or continue the best discussion thread for them? The platform must induce to connections, either by the possibility of putting learners in relation to one another, (interaction online, with an initial subject), or by exposing contents, previously entered by users, once they have been transformed into connectable contents so they can be searched for, recognised, and be used at
point of need. If the platform does not provide this service, there is no reuse of knowledge, no expansive network effects and network openness is affected: learner contributions are under-exploited because they are lost in a list.

The answer-building dialogue sequence obliges all ELLON participants to notice the knowledge built over that dialogue as they reformulate question and answer after the end of the conversation, and chat with the teacher once they have co-constructed language knowledge (for posterior reification as a language learning object and reference).

The underlying aim is that of spreading touches of formality and informality across a learning session to increase the overall learning process. We bring formality to informal learning, and informal learning to formal learning. Learners may choose their degree of formality by setting their own amount of questions to be externalised on the one hand, and choosing to explore to a varying degree their questions outside the ELLON network on the other. They go in and out of anonymity as a factor to enhance their externalisation according to need, allowing participants to control the level of privacy of their contributions (Berlanga et al., 2009).

However, single attention to form, without independent reuse of the language concept, or the chunk in its correct or improved form, does not lead to internalisation of the concept as we saw in our review of SCT theory for SLA. Reusing constructed knowledge is therefore part of the learning process, (and later acquisition through internalisation) and is an integral feature of the network architecture.

While the online task should represent an integral part of their own lives, in whatever context that may be (personal, informal, leisurely, professional), the process of exploring language is guided, structured and part of a formal context that can even lead to formal education grades.
Informality for anxiety-free knowledge building conversations.

Another aspect of informality is the use of the chat tool and indeed the freedom to use any contacts, whether weak ties or strong ties, native speakers online, friends, family, etc. to enrich online conversations.

As commented in chapter 4, there is a need for strong ties in language learning to tackle anxiety and discouragement, and to build the confidence to externalise questions and expose one's gaps in language knowledge. The chat function moves learners closer to face to face behaviours, where exchanges are intimate, informal, unrecorded, unsupervised, and can be spontaneous. Chat figures as one of the most useful functions provided on the Livemocha language learning platform (Lin, 2012, p.66). Voice chat has been shown to be used specifically for certain types of negotiation of meaning (Levy, 2009).

To summarise, the start and end context of ELLON is informal, while the emerging learning needs are captured, and guided into a learning sequence, including deadlines, sub-tasks for externalisation and internalisation, and where the productive traits of informal discussion are incorporated into structured knowledge-building peer conversations.

Temporal distribution of questions.

The learner needs to ask one or more questions (according to ELLON settings) over a defined period of time.

Several options present themselves, according to needs, learning profiles, task difficulty or learner time disposal. Three options are possible.
**Option 1: Fixed amount of questions for all learners per day/week**

The first option is that a minimum and maximum amount of questions can be set daily, so as to produce a "daily" session by the ELLON teacher/manager. This has the advantage of exerting formal pressure on students to pursue their task and engage in exploration spells, but has the disadvantage of not following the necessarily natural emergence of needs of assistance. It also has the advantage of creating a stronger sense of community as interactions are daily.

**Option 2: Minimum and maximum amount of questions for all learners per day/week**

The second option is that a minimum and maximum amount of questions per student can be set periodically, over a week or a month for example. This has the advantage of making the generation of lessons more dependent on learner's actual needs, without the pressure of having to produce questions. On the other hand, the pressure on students is lifted and it may lead to less intense efforts to pursue their tasks and learn. The other disadvantage is that as interactions are fewer and further between, the sense of engagement is lower.

The right balance needs to be found, and the setting of the minimum and maximum number of questions may also depend on the objectives of individual learners, the time they are able to dedicate to their ELLON participation, on the teacher or course manager objectives, and on the difficulty of the tasks.

**Option 3: Learners set their own amount of exploration episodes**

The third option is that learners set their own degree of participation from the start to suit their own time schedules and then be more or less obliged to respect their set target.
Formality to learner questions.

The question editor transmits formality because despite the fact that chat is used to combat student anxiety, learners must also feel this is an essential part of their learning process, and not a quick fix to language questions.

After all, this is the "lesson content". A sense must be conveyed that this stage is not less important than the learner's online task, and that it will lead to language reference generation for future use as previously commented. The formality of this responsibility may be transmitted by interface graphics. I now turn to describe the dimensions of student roles in social learning over ELLON, before addressing those of teachers.

5.3.4 Student Roles

Commenting on networked learning, Pinto (2014) specifies that "The structure put in place by a teacher/designer only forms the initial infrastructure: it is only when the design is enacted by the participants that a network comes into being." This highlights the importance of how learners use and react to the network infrastructure of ELLON. They will be "learning from themselves", and their individual behaviours are critical in producing activities the architecture is designed to encourage.

The fact that students may visualise how their contributions become open language resources available on the web to any other learners, should motivate them and allow them to progressively understand the philosophy of the network: their own externalisations have value for others, and for themselves for future reference.
Learner viewpoint sequence in ELLON

From an ego-centred viewpoint, learners’ tasks over ELLON consists in:

- asking one question a day and replying to two answers over a chat that they evaluate. They then produce one language learning object by formulating a question and answer that summarises discussions with peers. They are thus exposed to two viewpoints as to the answer to questions before producing the LLO. This LLO will be evaluated by peers and teacher before being corrected or improved and validated by all.

- answering to two other questions they choose from a list of 10 over a chat. The learner is thus exposed to two other learner questions and contexts of use of English other than the ones they are on.

- they will also validate ten language learning objects. they all now have the option to contribute to all the other questions and are exposed to question diversity.

- they will now read teacher comments and improvements that did not emerge from learners.

As reviewed earlier, empirical studies have indicated that it is not because students are simply put into contact that they necessarily initiate and complete knowledge building conversations. In ELLON, the learner pursues independent goals online, but relies on three levels of social interaction to achieve their independent goals: over an open network, over one to one chat, and within closed group interaction.

We saw in the "Online Life task" section above, that learners could use existing language tools to overcome the obstacles in their online communicative needs. However, using the knowledge of a peer, or a language tool at point of need to get passed a hurdle does not
necessarily lead to learning. It has been found that learning requires an extra effort of consciously understanding and or remembering the answer to a question (Schmidt, 1990, Ellis, 2008).

In a study by Wise et al. (2013), on social learning analytics, the authors begin by defining what consists in “traces of learning” in online discussions. They synthesise varying academic formulations and accounts on same underlying mechanisms, two basic processes that learners must engage in: “speaking” (externalising one's ideas by contributing posts to the discussion); and “listening” (connecting to the externalisations of others by accessing existing posts). They found that:

Posts whose arguments are based on evidence and/or theory can also trigger others to build on or contest the points productively (Clark, Sampson, Weinberger, & Erkens, 2007), and responses that clarify points, elaborate or question existing ideas, or synthesise different ideas together help deepen the exploration of ideas and move the discussion forward (Pena, Shaff & Nicholls, 2004).

Students have the following roles over ELLON:

1. externalising their questions
2. "teaching" peers over micro-episodes: paying attention to peer questions, evaluating them, answering and providing peer support
3. internalising (reformulating question, answer, conceptualising, and reusing in context)
4. independent reuse of co-constructed knowledge.

I now review how these sub-tasks are designed for over ELLON.
Student role 1: externalising over ELLON.

Systematically externalising one's doubts and thoughts is not necessarily encouraged in classroom and traditional educational settings because of the time and material constraints of the classroom: the teacher does not have time to address all the questions of each individual (Cazden, 1988).

In our case, it is important that students get into the habit of giving a voice to their questions, while realising the value of the question for the learning group as a whole. Measures are taken in the social design to increase student externalisation: we leverage the distinct qualities of anonymity, ease, playfulness and informality of chat, and allow use of native language to make it easier for students to externalise their explorations.

Medium

As reviewed in chapter 4, feedback addresses a learner's ZPD if contingent on learner questions as they arise. Adapting scaffolding "in real time", is a possibility in face to face dialogues, but it is also possible over interactive exchanges online outside the classroom context. As reviewed in chapter 3 and 4, online networks allow humans to use social inter-psychological exchanges (in Vygotsky's sense) “on demand”: we can reflect our questions, and through them our ZPDs, because we can “publish” them, in context and/or explaining their context, free from time constraints (we don't have wait to be in the presence of another more able self), from context constraints (we don't need to be in the situation of need itself at that moment) and physical expressive constraints (many to many interactions).

Thus many barriers to the externalisation of support needs, or making public our need of assistance come down with the medium of networked communication. To summarise, online
communications allow our ZPDs to be addressed “on demand” if they are exploited for learning purposes. For this to happen, learners must learn to develop the habit of externalising their questions, get used to being assisted online without a physical presence.

Within this second level in the set design is the chat function, the learner can chat or talk using an internet connection, a mobile device or computer with a peer, or anyone in one’s personal circle, in an informal and personal way.

Thus the functions of chat / voice chat, that precede learners’ question formulation, are designed towards negotiation of meaning (Long, 1983; Pica, 1994) among other explorations which have been found to occur over the medium of anxiety free chat (Jepson, 2005; Levy 2009; Lin, 2012).

Anonymity

Anonymity can be a powerful drive for externalising questions, and combatting anxiety. This option is therefore available to students with the aim of “freeing” individual externalisations, whether in questions or answers. An option of posting a question anonymously is given to:

- encourage freedom of expression
- combat anxiety
- combat shyness
- focus on the content of question or answer and not its author

Students do not need to define themselves as anonymous throughout their tasks, this option can be switched on or off according to the content of their contribution.
**Native language**

It has been shown that use of native language can regulate thinking activity as well as inter-subjectivity between participants in collaborative tasks (Anton & DiCamilla, 1998). Secondly, it is necessary to encourage a habitual and fluid use of the network. If the difficulty in asking a question is high, learners may lose motivation to participate actively in it. In cases where learners wish to simply ask how to express their thought in English, they may simply type the desired utterance in their native language, and wait for peers to suggest an answer, translation or help.

**Student role 2: Teaching over micro-learning spells.**

**Support peers.**

Students are encouraged to motivate, encourage, congratulate and generally show a positive attitude to their peers as they explore answers to questions (Oliver, 1999). The use of humour is part of this peer support.

**Generate learning content.**

Students should work towards providing higher value learning contents, whether in questions or answers. The fact that they can view how previous learners have produced valid LLOs, or the fact of consulting their own previously generated LLOs, should motivate them and progressively understand the form of the best contributions. This should also help them to gradually improve their own way of formulating questions and answers over subsequent sessions.

**Questions.**
Some questions will be of low learning value, for example if questions on how to translate a common word that is easily solvable independently using an online dictionary, or a simple chunk such as "where was the book?" (in the case of intermediate levels). In these cases, on the one hand, the learner is wasting personal time by not solving own questions instantly using online resources, and carrying on with the task. On the other, they will receive a poor grade within the ELLON network. The network will thus discourage poor value questions (a poor grade that will reflect how intensely they were learning for themselves).

In cases where a translation or a simple vocabulary question (answerable using online language tools) are asked, the content of the reply to the answer must then build on the translation knowledge, either by conceptualisation (extracting a grammar rule for example) or by broadening the scope of the chunk by giving a different context of use, or whatever relevant remark the learner may have. A grade is given also to that reply for motivation.

Answers.

Students can select questions they are going to answer to, according to their own knowledge. Here, complementarity of student knowledge comes into play. While learners may have a similar proficiency, it is likely for some learners to possess knowledge others do not. The motivation to choose the question according to the complementarity of question content and their own knowledge (rather than according to the author of the question, for example a friend-if the practice group know each other), is that the outcome of the discussion will be given a grade by the teacher. The more they answer questions they can help with and give relevant comments, the more probable the ultimate question and answer will obtain a good grade.
Some answers will be of low learning value, for example giving a translation without explaining it, or an answer to a conceptual question without explanation.

ELLON discourages poor value answers via the scoring system (a poor grade by the learner who asks the question, and a poorer grade for overall "exploration enhancing" factor of questions and answers). Learners have the freedom to contribute any relevant knowledge they may have, and freely extrapolate, share experiences or opinions. All these contributions are valued.

*Answers leading to exploration.*

Beside the main online task as a source of language questions, previous answers given by peers may lead to further questions by the receivers of those answers. This exploration is encouraged over the model, as new questions can either be generated from previous answers, or from further online life tasks. This is seen as a learning value, and should not be discouraged.

*Evaluate peers.*

As we saw above, it is important to evaluate their peers' answers, questions and support to encourage it. This evaluation is part of their tasks, and that skill at grading is given a grade itself.

Peers evaluate how much they have provided positive and supportive remarks, humour, encouragement, side comments, cheering, basically showing any type of personal involvement and engagement.

*Student role 3: language reference editor.*

As reviewed in chapter 4, language learning can be stimulated on the inter-psychological plane when the learner is engaged in exploring language collaboratively with peers, responding to the learner's real communication need in the language online. Language exploration thus
stimulated will then be internalised on the intra-psychological level, which the learner will then apply autonomously in language use.

The learner's ZPD, as seen as the distance between what learners can produce in MDE alone and what they can produce with the help of others, is reflected in the questions the learners ask and are sent to ELLON.

MDE knowledge built collaboratively will then be internalised on the intra-psychological level, when learners reformulate the questions and answers in the LLO editor, and then again, when the learner uses built knowledge independently over the personal online task (see next section).

When learners build the LLO, they must be conscious of the fact that it may represent a true language reference for MDE users like themselves who visit the same webpage or have similar questions. The learner must therefore be aware of this knowledge-generating role, and the responsibility that goes with it.

**Student role 4: MDE independent online user.**

Learners pursue their task online whatever their next move is meant to be, for example using the answer in written or oral production online or pursuing reading, or answering a question online thanks to the improved understanding of the question or text.

In the case of improving oral or written comprehension, there is no direct external trace as to the learner's reflectivity following the exploration of the answer over ELLON.

However, in the case of written or oral production online, reflecting the correction or enrichment provided, a trace of this "use" is left online. An option is therefore that learners may include this trace within the LLO, by copying their contribution as an example into the LLO.
Besides reusing answers in context, internalisation may be further stimulated by formal exercises, given by the teacher, after the end of the ELLON course. These are reviewed in the following section.

5.3.5 Teacher Roles

Teachers should also motivate students and provide the necessary scaffolding to enable students to fully participate in online communities. It has been found that teachers’ encouragement affects the frequency with which students use the technology (Wiebe & Kabata, 2010).

It has been argued that in the particular case of English as a global language, because of the disconnection between theoretical aspects and multiplicity of practical requirements (teacher cognition, learner perception, societal needs, cultural contexts, political exigencies, economic imperatives, and institutional constraints) of language pedagogy, practitioners generate "their own" local pedagogy based on their own local research taking into account local context and teacher intuitions and understandings, to construct valid, practicable approaches of their own (Kumaravadivelu, 2002, p. 29). This "post-method" implies there is no longer one embracing method relating to "how to teach English" but as many methods as there are teachers in specific learning contexts. While a large part of the pedagogy is designed into ELLON, the teacher role complements the model design by contributing adapted input to learners at different stages, adapted to learner profiles, and in the case of using ELLON from within a classroom-based course, based on the knowledge the teacher has of learners themselves and their needs.

Main teacher roles over ELLON are summarised as follow:

1. Preparing learners to use ELLON.
2. Configuring ELLON for specific learner context
   - Group constitution
   - Pre-included LLOs
   - Temporal distribution of questions

3. Supporting and encouraging users

4. Completing group-generated contents
   - Avoiding error proliferation
   - Assisting in multimodal communication
   - Respecting contingency of assistance

5. Giving grades

6. Personalising tasks
   - Interpreting learning analytics
   - Suggesting main tasks
   - Proposing CELLOs (see section 5.4.7 in this chapter)

7. Contributing to LLO validity

   The following sections describe in more detail each teacher role in the table above.

*Teachers as Legitimate knowers*

   To reinforce legitimacy, teachers should be familiar with the semantic profile of the Multi-Dimensional English that will be used over the group's main tasks. Teachers over ELLON generally should be aware and sensitive to the varying semantic profiles, and open as to English varieties so as to be able to hold relevant discussions with students that manifest the teacher's understanding of each student's use of English. Ideally, teachers should share the same native
language as learners, or know and understand the region they come from so as to understand their previous exposure to their regional variant of English and the significance that the English language as a global language has in their specific social contexts.

Teachers should also be familiar with online communications and its semiotic systems, and the particular variety of net English.

**Teacher role 1: Preparing to use the network.**

As we saw earlier, teachers have an active role in helping students practise using the network before starting an official session, evaluating their online learning skills, and providing them with access to autonomous learning training as described above.

They also if necessary have an active role in helping students identify their main English language online task. They may help students browse the Internet in English looking for a task if the learner doesn't have a predefined real life need to start with. It is not always easy to browse Internet in an L2 language, so the teacher may help the learner find the correct key words to enter in online search engines and help the learner browse in English until the task (web page) is identified.

It has been argued that teachers of English as an International language have a social role in understanding and defining “how are learning English, and being someone who knows English, related to designing a productive, fulfilling ‘social future’?” (Kumaravadivelu, 2001).

If learners have not identified any personal or professional task to accomplish online at the start of ELLON, it may be incidental, but it may be because learners have not yet approached activities integrated into English and international networked exchanges and use of resources and
Web 2.0. They may need initial guidance to commence their process of integration through a choice of relevant and approachable task.

Impossibility to determine such a task puts into question whether learners have any motivation to learn the language, and will make them ask themselves that crucial question.

**Teacher role 2: Configuring ELLON for specific learner contexts.**

If ELLON is used within an LMS as a formal task leading to a grade, then the following variables will have to be determined at the start of the course by the teacher:

*Practice group constitution.*

The group of learners is called the "Practice Group". The Practice Group is the group of peers who will be together generating their own lessons and language learning objects.

*Pre-included LLOs.*

The teacher can check that a sample of LLOs adapted to learner contexts are pre-included, for example, if ELLON is used for native speakers of Spanish with B1 level of English, then LLOs in Spanish addressing questions typical of that level of proficiency should exist to show learners what LLOs are expected of them.

*Temporal distribution of questions.*

The teachers need to decide the amount of questions to ask over one session and the time to reply to them. This can be decided according to an average of learner preferences within a practice group, or the requirements within the institutional setting (desired intensity of learning according
to broader curriculum and time dedicated to English language learning). As explained in the Set Design section, this can be: fixed amount of questions for all learners per day/week; minimum and maximum amount of questions for all learners per day/week; or allowing learners to set their own amount of exploration episodes.

**Teacher role 3: Giving support and encouragement.**

Over ELLON, teachers have a supportive role, they prepare learners to use the network, and crucially provide encouragement or personal attention where needed to maintain active learner participation. They build a sense of community through any conflict or disagreement solving, and initial preparation.

**Teacher role 4: Completing group generated contents.**

Teachers help learners complete their tasks and knowledge through other assigned roles described below.

*Avoiding error proliferation and improving or enriching answers.*

The teacher-curator is a contributor at peer level, who intervenes only when the group as a whole needs expert knowledge and cannot achieve it independently.

Among the teacher's contributions, is that of contributing a broader experience of language use in context. In this way, the teacher may improvise new roles allowing making unplanned enrichments to learners' questions: dynamically, online, "the teacher can also re-theorise her teaching approach on the basis of critically framing the meaning-making that the students do and her participation in it." (Nelson & Kern, 2012, p.60). In other words, the teacher can confirm or
introduce the nuances and relativity of the meaning of words according to their actual current context (as copied into the learner question) as well as introduce general or particular (linguistic or non-linguistic) knowledge to reinforce an understanding or expression, a context related to its use (social, political, economical, international, etc.)

**Assisting in multimodal communication.**

If using English online is considered to be not only a linguistic competence but also a multimodal competence (Nelson & Kern, 2012), then teachers also have a role in assisting learners on the "creative (and transformational) use of symbolic resources" (Nelson & Kern, 2012). They could suggest ways of communicating in English that include specific formats, symbols, smileys, adding podcasts to written texts, creating videos etc.

**Contingency of expert knowledge.**

The intervention of the teacher occurs only when the "group's knowledge" shows errors or limitations, they cannot together answer individually-asked questions. The teacher checks answers given to questions and evaluations of answers only to intervene when necessary, that is:

- to correct a misconception generated by peers and risks being diffused and appropriated.
- to deepen or broaden a question when judged relevant, necessary and enriching for students in accordance with their "ZPD".
- to contribute to the reliability and depth of network LLOs.

Thanks to teacher supervision prior to knowledge chunk reification, the content of knowledge that is reified for future use openly over networks is validated by an "expert". The
expertise of teachers finds a way of "penetrating" internet resources, and thus finds its way into increasing the quality of informal learning and the existence of reliable LLOs in microcontent format over the Internet.

Teachers may not always themselves be able to answer questions because of the dynamic nature of Multi-Dimensional English. In this case, if a consensus is reached as to the group and teacher's inability to answer a particular question in context, the provisional LLO enters a repository of "unanswered LLOs" that other ELLON users can access and address as a specific task.

**Assisting in questions left unanswered by peers.**

If members of the practice group have a similar proficiency, it is likely they want to all answer the same easier questions, and leave out the more difficult ones. If a question is left out, first, this means the question is difficult, stretching peers to the limit of their language knowledge and ability to find solutions within their own networks. It also means the question cannot be easily answered by pre-existing internet-based language reference websites.

If the question cannot be answered either by peer prior knowledge, nor by consulting the Internet, then this question embodies a valuable language learning opportunity, corresponding to both a learner's ZPD, and the group's ZPD (to use the ZPD term loosely, referring to what the group cannot learn together independently). It justifies teacher intervention.

Questions left unanswered are automatically assigned to learners who haven't yet selected the questions they want to answer. When the automatic assignment takes place, the question is given priority in teacher's attention, and the teacher is included into the chat to the learners'
knowledge. The exploration chat thereon takes place with the teacher, asker and assigned two peers.

In this chat phase, the teacher tries does not to give a quick solution, but asks further questions to bring on discovery of answers by learners, when possible, for example by indicating an online language resource.

Here the grading system changes slightly: the student who asked a difficult question is given a "difficult question" extra point.

Thus formulating difficult questions is valued as much as efforts put into answers.

**Teacher role 5: Giving Grades.**

Teachers:

- grade the Language Learning Object formulated by the learner before teacher validation.
- adds a point for learners who effectively asked a question that could not be answered.

The following grades are calculated automatically:

- "good grade-giver" grades: difference between peer generated grade and learner grade
- peer grade averages for: peer support, content and external resources.

**Teacher role 6: Personalising complementary tasks.**

Teachers may analyse ELLON learning analytics per user and discover:

1. learners’ specific weaknesses (if the learner asks questions relating to similar difficulties)
2. what learners do not seem to have practised (either because they dominate the competence or because the need has not been identified).

Based on this analysis, the teacher can prepare complementary exercises to:

- balance skills (production or comprehension in online writing, reading, audio or video)
- balance competences (part of MDE)
- cover further language areas of use (if the learner is likely to use English for a variety of specific purposes)
- cover a medium and its corresponding register (chat, email, podcasts, videos, blogs, etc.). This ensures the development of digital literacy as well as English adapted to each medium
- cover a regional variant, or international variant.

The teacher has two ways of acting on the learner's orientation:

- either by interfering with the learner's choice of online task for a new ELLON session
- either by giving formal exercises based on generated LLOs.

The choice of online task is explained in its dedicated section above.

As to using LLOs, the teacher can propose either to:

- use them as an exercise, by hiding answers. The learner then has to find an answer for each question. The teacher chooses CELLOs (see section 5.4.7 in this chapter) corresponding to the skill, competence, medium, subject area or regional variant that needs to be further practised.
- using them as a test (graded or not)
or recommending them for students to self-test or practice on their own. The use of the MELLO as a test (see section 5.4.7 in this chapter) can be also used to revise language learnt during an ELLON course, informally. Students give an answer to a question, and then check their answer with that recorded when the object was reified.

**Teacher role 7: Contributing to reusable resources.**

The overseeing by experts and teachers within this network thus gains additional scope. They ensure that the information is accurate at the point of creation of these learning objects, and thus take on a general responsibility as to the quality of learner-generated resources for learning that are open to use over networks and the Internet. A bridge is created this way between formal institutions and informal learning: educational bodies and teachers, by contributing to networks such as that described in this study will be influencing the quality of resources and thus the learning episodes of Internet users (if they use the learning objects) whether formally or informally initiated.

Teacher competence becomes exponentially critical to a wider learner community. The role of the teacher expands beyond the classroom as teacher contributions leave a persistent trace of expertise.

To summarise this section, Table 7 shows how ELLON addresses the tuning of social interactions for learning based on Shum and Ferguson's model:
# Table 7.

Social Design in ELLON

<table>
<thead>
<tr>
<th>Social media Tuned for Learning?</th>
<th>ELLON Social Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning peers/mentors who both affirm and challenge</td>
<td>ELLON Teacher and learner Practice Group</td>
</tr>
<tr>
<td>1-1 mentoring (Shum and Ferguson, 2012)</td>
<td>Individual questions and answers addressed</td>
</tr>
<tr>
<td>learning conversations (Shum and Ferguson, 2012)</td>
<td>Sequenced, formalised externalisation and exploration</td>
</tr>
<tr>
<td>Reflection encouraged by the UI (Shum and Ferguson, 2012)</td>
<td>Obligatory Conceptualisations and evaluations</td>
</tr>
<tr>
<td>meaningful connections (Shum and Ferguson, 2012)</td>
<td>real task based questions, knowledge creation goals, use of language tools</td>
</tr>
<tr>
<td>learning analytics (Shum and Ferguson, 2012)</td>
<td>Tags and ELLON calculation of learning analytics</td>
</tr>
<tr>
<td>recommendations based on learning profiles and activities (Shum and Ferguson, 2012)</td>
<td>Generation of Recommendations by teacher based on analytics.</td>
</tr>
<tr>
<td>a secure portfolio to evidence learning (Shum and Ferguson, 2012)</td>
<td>Automatic recommendations</td>
</tr>
<tr>
<td>verifiable accreditation by trusted platforms (Shum and Ferguson, 2012)</td>
<td>Portfolio of LLOs generated per learner.</td>
</tr>
<tr>
<td></td>
<td>Official grades given according to institutional choice</td>
</tr>
</tbody>
</table>

5.4 Set Design of ELLON

The first network layer is the material space and tools themselves, used by learners. Carvalho & Goodyear (2014) call this layer "Set design", defining it as the "physical architecture, digital and material spaces, both local and remote, and digital and physical resources that may constitute online networks".

ELLON is set up and executed from an LMS, accessible by the members of the class or practice group, whether defined by the teacher, or upon student initiative, who enrol into ongoing ELLON sessions.

The set design in our framework consists of four embedded physical levels: 1) from real online tasks in English where an ELLON plug-in is embedded; 2) learners enter Multi-Dimensional English explorations over a chat tool; 3) following this collaboration, learners then formulate their questions and collaboratively built answer in a dedicated Editor; 4) this formatted question and answer is then submitted to teacher revision before becoming a Language Learning Object in three different versions available to use. ELLON then uses recorded learner data to generate recommendations and reiterate a session.

Figure 18 below illustrates the basic ELLON set design levels.
In this section, I describe the basic specifications of each set design level in view of potential development of the network architecture environment.

I give indications as to tool design to improve legibility and minimise interpretation efforts on the parts of users. I insert graphic illustrations enabling to visualise the environment and providing an illustration of possible interfaces.
If ELLON were to be built in a dedicated prototype software, technical specifications are required. These are beyond the scope of this study and pertain to an IT field of specialisation.

Nonetheless, a study of Moodle enables defining which functions are already developed over that LMS environment. Figure 19 below provides a general view of what ELLON design levels are covered by Moodle functionality, but the detail of each necessary function is analysed in the sections that follow.

Figure 19. ELLON functions already existing in Moodle
In the following sections I describe each set level functional requirement. At the end of each section, a summary of functions is given in a table that specifies whether the feature is already programmed in Moodle or not. This enables me to specify which additional functions are needed in Moodle that would allow executing the ELLON model over this LMS.

5.4.1 Set Design Level 1: Administration Tools

Users.

Users sign up to the ELLON course, where they can choose a course name, or use their own personal name. Learners must agree to the reuse and open access to produced knowledge based on their LLOs. They must also agree to provide their learner profile data which will be used by ELLON's analytics.

The minimum data that should be entered should include: age; native language(s); level of proficiency (CEFR official standards for example); what purposes do they use English language online (professional, leisure, any other); username; email address.

From within an educational institution, the ELLON username can be linked to the learner’s real name to recover generated grades or any other type of evaluation.

Practice Group Constitution

The group of learners is called the "Practice Group". It could correspond to all or part of a classroom's members.

The Practice Group is the group of peers closely tied, who will be together answering each others' questions and generating language learning objects.
Pre-included LLOs

The first time ELLON is ever used, pre-designed examples of a variety of LLOs should be included as part of initial ELLON database content, to inspire its first users, illustrate their tasks' goals and give examples of formats and formulations.

Temporal distribution of questions

The learner needs to ask one or more questions (according to the minimum number of questions decided when setting the ELLON options for a particular group) over a defined period of time. Several options present themselves, according to user language needs. According to the option chosen, the corresponding parameter variable must be adjusted in the set design, so that ELLON can calculate individual questions left to ask and deadlines to ask them. This in turn will allow ELLON to correctly send notifications of relevant deadlines and amounts of questions to be asked to individual participants. The following options are set in a dedicated corresponding field by the ELLON manager or user before the start of the course.

Option 1: Fixed amount of questions for all learners per day/week

The first option is that a minimum and maximum amount of questions can be set daily, so as to produce a "daily" session by the ELLON teacher/manager.

Option 2: Minimum and maximum amount of questions for all learners per day/week

The second option is that a minimum and maximum amount of questions per student can be set periodically, over a week or a month for example.
Option 3: Learners set their own amount of exploration episodes

The third option is that learners set their own degree of participation from the start to suit their own time schedules and then be more or less obliged to respect their set target. For the sake of my description of ELLON below, I set the temporal distribution as one question per learner every day, within a practice group of 10 members. Every member must answer two questions. So every question receives two answers. Thus 10 questions are generated every day.

ELLON and Moodle: Administration

The table below summarises what features exist over Moodle to execute ELLON and which would need to be added.

Table 8

ELLON Administration Tools and Moodle

<table>
<thead>
<tr>
<th>ELLON and Moodle Administration tools</th>
<th>Comments or Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session settings</td>
<td>New course over a Moodle site</td>
</tr>
<tr>
<td>ELLON user accounts</td>
<td>Enrolments to site and course</td>
</tr>
<tr>
<td>Constituting the ELLON group</td>
<td>Creating a Group of users</td>
</tr>
<tr>
<td>Learner data information:</td>
<td>Create corresponding user profile fields in Moodle</td>
</tr>
</tbody>
</table>
  * username
  * Interests in using English/Profession
  * English Level of proficiency
<table>
<thead>
<tr>
<th>Pre-included LLOs</th>
<th>This would correspond to pre-created entries in the Moodle DB, or including “example submissions” in the Workshop module</th>
<th><a href="https://docs.moodle.org/29/en/Building_Database#Importing_a_preset">https://docs.moodle.org/29/en/Building_Database#Importing_a_preset</a> or <a href="https://docs.moodle.org/29/en/Workshop_settings#Example_submissions">https://docs.moodle.org/29/en/Workshop_settings#Example_submissions</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporal distribution of questions</td>
<td>Fixing the date and time for a database entry (ELLON question) to be entered</td>
<td><a href="https://docs.moodle.org/29/en/Database_activity_settings#Entries_required_for_completion">https://docs.moodle.org/29/en/Database_activity_settings#Entries_required_for_completion</a></td>
</tr>
</tbody>
</table>

### 5.4.2 Analytics

Per user, ELLON is recording learner data that learning analytics can then be applied to. This is allows to automatically send attribute badges, grades and recommendations.

**Badges.**

A system of badges can be optionally put into place to reflect a user's participation value. During the ELLON course, Badges (or average in stars) can be dynamically calculated and appear next to username over ELLON. ELLON calculates participant cumulative scores, based on participant and teacher attributed grades for:

- Best chunks
- Best concepts
- Best questions
- Best peer supporter
- Interesting resources
- Best grade-giver
Grades.

Grades are automatically calculated per learner using the grades given during the session by peers and the teacher. Evaluation is generated over one session, and broader evaluation can be obtained over an increasing number of sessions. At the end of an ELLON session, grades are sent, calculated the following way:

- Questions grade: how many difficult questions were asked requiring teacher assistance. These points are attributed automatically as mentioned.
- Accurate grade-giver grade: average difference between teacher and learner grades given out to contributors.
- Peer support grade: average grade given by other peers in the evaluation fields.
- Most useful concepts: average grade (between learner and teacher grades) given to answer contents.
- Interesting resources: teacher and peers also grade resources and any weak tie contributions (information from broader online connections, native speakers, etc.)

Over several sessions

Data in Table 9 is recorded over learner ELLON sessions. They reveal statistics to the learner and teacher regarding the learner's participation and use of MDE. For example, ELLON, after a given number of sessions, can generate statistics on the number of occurrences of questions each learner asked according to skills, domain of interest, formal or informal style, and type of destination. Table 9 below summarises statistics gathered for each learner.
Table 9

Learner Data Collected Over ELLON Sessions

<table>
<thead>
<tr>
<th>Evaluation of Network learning competence</th>
<th>Grade</th>
<th>Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer support grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources grade</td>
<td></td>
<td></td>
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<tr>
<td>Conceptualisation grade</td>
<td></td>
<td></td>
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<tr>
<td>Knowledge grade</td>
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<td></td>
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<tr>
<td>Good Question grade</td>
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<td></td>
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<tr>
<td>Good grade-giver grade</td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Language exploration occurrences - Sphere</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>International Destination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Destination (specified dynamically here)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal English</td>
<td></td>
<td></td>
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<tr>
<td>Informal English</td>
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<table>
<thead>
<tr>
<th>Language exploration occurrences - Medium</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td></td>
<td></td>
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<tr>
<td>Chat</td>
<td></td>
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<tr>
<td>Forum</td>
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<tr>
<td>Twitter</td>
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<tr>
<td>Video</td>
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<tr>
<td>Podcast</td>
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<table>
<thead>
<tr>
<th>Language exploration occurrences - Skill</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading online</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing online</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking online</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening online</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language exploration occurrences Area of Interest</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Over time and many sessions of use of ELLON, it may appear that learners ask the same type of questions, for example: they ask more questions on the skill of talking online, or their
questions concern informal English questions, or they tend to only address Spanish speaking communities online. Based on this calculation, learners and their teachers can then be sent, by way of an automatic notification, a summary of the characteristics of their ELLON learning activity, for example specifying:

- which competences and which skills they have been practising
- how many different competence areas learners are covering with their questions
- how many good questions the learner is asking
- concepts, that is how good they are at generalising language knowledge from an answer to a question
- Peer support grades, showing how good they are at giving support to peers

From these statistics, the teacher and learner may draw conclusions, for example:

- high grades in peer support and interesting resources may allow to conclude the student is good at community building and internet search.
- their tendency to broaden their language knowledge reflected through the diversity of their question domains and tasks, purposes of use of English, cultural variety of destination of interlocutors; formal and informal registers; medium used. Poor diversity may reflect weakness at broadening and exploring the domain of MDE.
- their tendency to deepen their language knowledge by asking difficult questions
- automatic comparisons with skills and competences covered by other students may also be interpreted
Data interpretation: evaluating learner progress over time and over various sessions.

ELLON accumulates data from learners so these same statistics can be given on the longer term, which will make them more meaningful: whether the learner improves in proficiency by using ELLON, or outside of the ELLON context, the next time learners use ELLON.

ELLON will be able to evaluate whether questions have progressed to representing more difficulty (for a given proficiency level group), whether the learner obtains better scores at peer support, grade giving, answers, conceptualising and providing interesting contributions.

Learners are given grades for difficult questions (i.e., those that no other peer selected to answer in the list) or “good questions” (as given by peers). So if, for example, a learner asked no “difficult” questions during the first term of an academic year, and asked 5 difficult questions in the last term, then one can conclude that either:

- the task is more difficult
- learners have developed the habit of answering their own easier questions using resources outside the ELLON group.
- or, that the learner has increased in proficiency.

These tendencies can be interpreted by the teacher together with the learner to either reveal: a tendency not to broaden the type of tasks, type of skills, type of public the learner addresses online. This tendency may be deliberate (practising a given context of use of English for future job requirements for example). If it is deliberate, the teacher may discuss the utility with the learner of practising other online contexts of use of English to broaden experience.
However, if these tendencies are not deliberate, they may reveal certain weaknesses such as not trying to practise a given online skill, even though this skill will be useful to acquire, or shying out of accomplishing online tasks that may situate the learner within broader cultural communities online. If this is the case, the teacher may direct the learner to online tasks that bring the learner to practise a balanced variety of skills. Statistics on learning value of given URLs may help the teacher and learner decide which online tasks can be suggested to the learner.

Another weakness that may be revealed through ELLON learner statistics could be the difficulty for students to generalise answers to their questions. Recognising this weakness can lead teachers to set certain tasks of practice of conceptualisation, by giving the learners some CELLOs to do. Generally speaking, automatic offering of related "tests" corresponding to areas of weakness can be either offered, or requested from the teacher.

ELLON gathers student grades, as well as the statistics based on the tagged questions: which competences, which subject areas, which mediums (chat, forums, blogs, etc.), which target English (regional, international), which sphere (informal, formal) have been addressed.

**URL analytics and interpretation of data.**

ELLON has not only gathered data on learner exploration tendencies, but also on the number and type of questions a particular online ask or web page tends to provoke in learners.

Because a learner's web page task is recorded, it is possible to deduce which tasks induce which questions, relating to which competence, per learner native language and proficiency level. This way it is possible to propose a task that provokes certain questions based on learner needs to balance competences, or types of task that are similar.
This data will be all the more valid as the specific URL is used over and over again by different learners. If the web page in English is used only once by a learner, the questions that learners ask remain subjective. However, if the same web page is used over and over, and is found to generate the same or similar types of questions across different learners, then it is not unreasonable to deduce that that web page presents difficulties that are typical for certain profiles of learners, and has a learning value, because of these difficulties, for those particular areas of MDE language competence. The table below summarises the data ELLON can gather as to the frequency of question types over a given webpage for MDE. As ELLON has gathered information on learner level of proficiency, it is possible to sort the questions a webpage inspires according to learner levels. In the table below the proficiency level of the CEFR scale is used as an example.

Table 10
URL Learning Value Analytics

<table>
<thead>
<tr>
<th>URL</th>
<th>Learning Value Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per URL: statistics on questions asked over a specific URL</td>
<td></td>
</tr>
</tbody>
</table>

This URL led to the following number of questions related to the communicative contexts of..

<table>
<thead>
<tr>
<th></th>
<th>A1</th>
<th>A2</th>
<th>B1</th>
<th>B2</th>
<th>C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Destination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal English</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informal English</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This URL provoked the following number of questions related to the Medium of...

<table>
<thead>
<tr>
<th></th>
<th>Email</th>
<th>Chat</th>
<th>Forum</th>
<th>Twitter</th>
</tr>
</thead>
</table>
This URL provoked the following number of questions according to the skill of...

Reading online
Writing online
Speaking online
Listening online

This URL provoked the following number of questions on the subject area of...
specified dynamically here. Examples below:

Economics
Education
Biology
Health
Technology
Etc.

The purpose of obtaining this data, is that it enables a teacher to deduce the specific learning value of a webpage concerning English language use, and propose a task to a learner in need of practising a specific aspect of online Multi-Dimensional English. For example, if a learner is found to never ask questions on listening comprehension online, or in the field of finance, or only asks questions on informal English, then a teacher or learners themselves, can deliberately choose an Internet page that has previously inspired questions on listening comprehension; in the field of finance; and/or formal English.

These statistics basically inform on the potential learning value of webpages used over ELLON.
ELLON and Moodle: analytics.

Table 11 summarises the functions of analytics and if and how Moodle implements them.

Table 11

<table>
<thead>
<tr>
<th>ELLON Analytics and Moodle</th>
<th>Moodle</th>
<th>Comments or Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badges</td>
<td>Badges</td>
<td>Badges need to be configured so they are rewarded upon “activity completion” <a href="https://docs.moodle.org/29/en/Badges_FAQ#Can_I_award_a_badge_based_on_a_specific_grade.3F">https://docs.moodle.org/29/en/Badges_FAQ#Can_I_award_a_badge_based_on_a_specific_grade.3F</a></td>
</tr>
<tr>
<td>Grades entered by users and the teacher during ELLON sessions</td>
<td>Grades.</td>
<td></td>
</tr>
<tr>
<td>Statistics that calculate data per user and per URL: number of occurrences of specific tagged fields entered and average grades per criterion)</td>
<td>Database report configuration</td>
<td>Would need to recover statistics of tag use per user</td>
</tr>
<tr>
<td>Display of statistics into a table</td>
<td>Configure the table</td>
<td>Extend the Report function to include the statistics above</td>
</tr>
<tr>
<td>Notification to teacher and learner of personalised statistics</td>
<td>Define notification</td>
<td>Include related notification (by email or emerging message)</td>
</tr>
</tbody>
</table>

5.4.3 Set Design Level 2: Activities

I summarise the different nature of activities below, and their chronological succession over one ELLON session.
ELLON Internet plug-in.

Learners need to be on their main online task over an Internet browser and be able to, as seamlessly as possible, express a question over online English language content they either want to understand or express, orally or in written form.

Access to the open Internet is obviously the most basic requirement. Learners must in this phase be able to: consult Internet pages, where they identify communication needs of what they want to understand or express (oral or writing). This constitutes a purpose for interaction and linguistic exploration to achieve filling out that communication need. It involves higher order thinking (applying language in a real-world context). The internet page must therefore be in a readable size and preferably from the original Explorer page (not imported into the LMS, but existing next to it) so as to reinforce the authenticity of the users actions in English language.

Situated question formulation.

In this phase, while pursuing the online task in the main task window (probably an Internet explorer window), the learner identifies an MDE chunk requiring assistance or discussion, and selects it with the mouse. Here are the different types of questions:

- oral podcast or video extract comprehension
- written text comprehension
- written production
- oral production (own voice recording)

This is straightforward if it is text: either the learner selects the text chunk with the mouse, or types the written production.
In the case of oral media, a tool to extract frames from a video or cut a podcast extract will need to be accessible from ELLON. Users must have learnt how to use them with ease, so that the difficulty of selecting the oral extract does not represent a barrier to externalising these types of questions. The more seamless the transition between online real world task and online question formulation, the more learners are encouraged to use the exploration function because it is perceived as assisting their major goal: achieving and completing their online task.

Ideally, the learner should not have to exit the webpage to ask the language question.

**Figure 20.** ELLON appearing menu option for chat over main online task

In Figure 20 above a learner is accomplishing a personal online task (reading the contents of a webpage in English in this example), and stumbles upon an utterance not understood. At a
simple right-click, the learner can choose the “ELLON Question” option the appearing menu, which automatically opens a Question Editor.

This Question Editor automatically displays the URL, utterance and context of utterance, in its semiotic context. This means the program must capture the screen, not simply display the words of the utterance.

*Figure 21. Browser plugin enabling asking contextualised online questions*
The window as illustrated in Figure 21 above includes:

- automatic paste of selected content (reproduction of context) together with its original semiotic online frame. Layout, colours, and film or audio extract are copied (screen capture) or embedded (audio and video) into the question window.
- the URL of the original source page is copied into its dedicated field in the window
- a chat field where the learner formulates the question.
- a “Send” button for the learner to submit the question to the group once the question has been formulated. This button sends this question to a window where all learner questions are displayed at the next step.

The Question Editor can be visualised in a parallel window to the main task webpage and is permanently there, thus reminding learners they are part of the ELLON network, and dispensing with having to right click when a question is made. The user can also automatically paste the content of tool help, so that learners may chat about it.

**Seamless language tool integration**

Access to language reference tools should be available from the real life task internet page. Language reference tools, selected for their reliability and ease of use by the ELLON Manager could appear in the toolbar to encourage systematic use. The visual existence of this tool will represent a constant invitation for learners to use it, rather than leave it to their personal initiative or "habits of (dis-)use".

The selection of language toolbars should be such that learners keep those toolbars in their own exploration page after the use of ELLON, in other words that the toolbar exist openly on
Internet so users continue to use it after they have signed out of ELLON. Examples of openly available toolbars include:

- WordReference (http://www.wordreference.com/english/Toolbar.asp)

Other online language tools that do not provide a toolbar option include:

- Linguee: http://www.linguee.es/

Language objects generated by ELLON and openly published will add to the available language tools.

**ELLON and Moodle: activities.**

Table 12 below summarises ELLON functions at this set level, and their implementability in Moodle.

<table>
<thead>
<tr>
<th>ELLON activities and Moodle</th>
<th>ELLON</th>
<th>Moodle</th>
<th>Comments or links</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELLON</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menu option from users’ usual Internet Browser</td>
<td>Not found</td>
<td>Media Drag and Drop</td>
<td>It is possible to manually drag and drop from a source page to a Moodle page, but this obliges the user to have two screens open, and an appropriate Moodle page pre-open. A direct menu option from an Internet Browser would facilitate question externalisation because the collaborative function is brought to its site of need.</td>
</tr>
<tr>
<td>Tools to select audio and video content</td>
<td>Media Drag and Drop</td>
<td>Media embedding</td>
<td><a href="https://docs.moodle.org/29/en/Media_embedding">https://docs.moodle.org/29/en/Media_embedding</a></td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Replicate selected online language use      | Automatically include:  
  - The original source URL in one field  
  - Instantly copy a screen capture or video/podcast extract of the question context into a DB entry  
  Text: capturing a section of a screen, using technology similar to Windows 7 “Snipping tool”  
  Video, Podcast: ideally only the extract corresponding to the question should be embedded. No technology seems to exist to cut audio or video extracts automatically and embed partial content. Users would have to save, download, edit, and reload to Question Editor. While this is a possibility, copyright issues would come into play, and the length of the process would discourage students from asking questions on audio comprehension or speaking. |
| Media Drag and Drop                          |                                                                                                                                                                                                             |
| Media embedding                              |                                                                                                                                                                                                             |
| (Single link copy in cases of server issues.)|                                                                                                                                                                                                             |
| Question field                               | This could be a Glossary Entry or a prior DB entry field. Fields types can be defined.                                                                                                                      |
| Reproduce URL automatically in question header| An URL attachment can be done manually in the Moodle Database.                                                                                                                                               |
| Submit to Group Button                      | The “Waiting approval” function, if interpreted as a group submission function, in Moodle Glossary only applies to teacher approval. A Moodle Quiz Question can be submitted to a group. In Moodle                                                         |
Common module settings, there is a group mode. In the Workshop module, there is a submit button when sending an assignment. However there is no option to submit all group member assignments to all group members over one page.

<table>
<thead>
<tr>
<th>Time countdown</th>
<th>Glossary entry or Assignment time limits</th>
<th>Either fix Database Availability <a href="https://docs.moodle.org/29/en/Database_activity_settings#Availability">https://docs.moodle.org/29/en/Database_activity_settings#Availability</a> or set Workshop submission times <a href="https://docs.moodle.org/29/en/Workshop_settings#Availability">https://docs.moodle.org/29/en/Workshop_settings#Availability</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous button</td>
<td>Not found.</td>
<td>There is a possibility for “anonymous reviewer” in Moodle Workshop.</td>
</tr>
</tbody>
</table>

It would be necessary in this case to add to Moodle a mobile learning approach, translatable though the function of bringing Moodle functions to place of learning, or use of knowledge, rather than importing selected knowledge into Moodle.

This additional function reflects a change in pedagogical perspective: it's bringing formal learning processes to the place of use of knowledge online, wherever that may be online, rather than pre-selecting content for learning and importing it into an LMS environment.

Another function that does not exist in Moodle is the choice of students to remain anonymous (towards the group) according to the episode of participation they are in. This choice of anonymity will not affect end grades, as the LMS internally records who is deciding to be anonymous and the grade given to that apparently anonymous user. The difference lies in bringing down barriers to thought externalisation, that is any user participation anxiety with regards to the rest of the group at specific moments.
ELLON question selection platform.

Exposure to all practice group questions.

When the time limit to ask a question over a chat is reached, each learner sees all questions asked by the practice group in a single ELLON window. A notification is sent to group users (via email, SMS, chat), with a link to open the question display.

Figure 22 below illustrates the grouped question page generated from learner questions that were individually edited.
Figure 22. Display of all MDE questions from individual question editors

Each question comes with its copied online context and link to original web page where the MDE content is sourced, whatever the media. Figure 23 below shows an example of what such a page could look like.
Figure 23. All questions displayed at deadline

The display of questions with their context and webpage link allows learners to choose the questions they are going to answer to.

*Question selection.*

Each learner selects two questions, by direct answer into chat Answer fields. By then pressing an "OK" button to send an answer, the user confirms own choice of questions. From then on, a new display appears where only selected questions appear.

A button, "Back to All Questions", could be added at the bottom of this window so that users can go back to view all questions, change the questions they want to answer (among the available ones left), or answer additional ones.
When a question has obtained two answers from two different peers, the Question appears greyed in the list (indicating that the question has already been "taken").

Below, the question and two chat conversations corresponding to the answers appears.

Question selection is based on a first come, first serve basis. This motivates learners to promptly select and answer.

*Not getting there on time.*

What happens if learners did not get there on time, but had a valid contribution to make to a question that has already been taken by two peers? They will have a chance to add this contribution during the LLO generation phase. If this valid contribution was indeed complementary, it will be integrated into the answers already given by the learners.

*Questions left unanswered.*

Questions left unanswered are automatically assigned to learners who haven't yet selected the questions they want to answer. When the automatic assignment takes place, the question is given priority in teacher's attention. The exploration chat thereon takes place between the teacher, asker, and two peers assigned.

The student who asked a difficult question, (in other words, when a question receives no answer by the question making deadline), is automatically given a "difficult question" extra point.

The table below summarises adaptations needed in Moodle to put this specification into practice.
### Table 13

**ELLON and Moodle Group Question Display Function**

<table>
<thead>
<tr>
<th>ELLON</th>
<th>Moodle</th>
<th>Comments or links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification sent to learners who have not submitted question shortly before deadline</td>
<td>Moodle assignment Deadline notification</td>
<td><a href="https://docs.moodle.org/26/en/Assignment_settings#Due_date">https://docs.moodle.org/26/en/Assignment_settings#Due_date</a> <a href="https://docs.moodle.org/26/en/Assignment_settings#Notify_graders_about_submissions">https://docs.moodle.org/26/en/Assignment_settings#Notify_graders_about_submissions</a></td>
</tr>
<tr>
<td>Notification sent to users when all 10 questions have been submitted and at deadline</td>
<td>Moodle notification</td>
<td></td>
</tr>
<tr>
<td>Display of all 10 questions in one screen for peers to choose from with “Choose” or “Answer” field for users to select the question they will discuss</td>
<td>No function found</td>
<td>A Wiki can show all group contributions, but here the group display must be automatically generated from individual user question edits, and include a “choose” button</td>
</tr>
<tr>
<td>Pressing on this button, a chat is automatically opened with the peer who asked this question</td>
<td>No similar function found</td>
<td>Chats or messages can be opened but here, direct and automatic chat opening is needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In Moodle Workshop, peer assignments are manually assigned to peers by the teacher or by “Random allocation”. There is no possibility for students to choose themselves.</td>
</tr>
</tbody>
</table>

Teacher notification of non-selected questions

Extra point to student for question left unanswered
Peer chats.

Peers on Livemocha tend to embed their corrections and suggestions within positive affective feedback (Lin, 2012). As Lin (2012) specifies: "One potential reason may be to mitigate learners’ negative feelings arising from corrective feedback. Though the strategy may appear simple, the prevalence of positive affective feedback may provide learners with a motivation to keep practicing.” Learners also used chat to seek assistance at point of need, at any time within an open environment. ELLON provides a chat medium, where learners can express support while they correct errors. Learners communicate within a chat box displayed inviting to ask questions and discuss answers.

The choice of using the chat medium is to create conditions of communication that are as anxiety-free as possible. Anxiety has been shown to negatively affect language learning and contribute to mental blocks (Bailey, P., Onwuegbuzie, A. J., & Daley, 2000). Studies have shown that online communication reduces it (Shang, 2007).

The chat box, where the context of the question has been automatically produced, must transmit through its interface style, a sense of freedom and even anonymity if wanted. It must be clear that contents expressed here remain invisible to the teacher and other peers, and is not part of any evaluation (except in the case of difficult questions as explained above).

Learners can also enter contact via a synchronous voice chat, or send each other asynchronous voice recordings instead of typing their comments. They can also switch from one to the other according to which medium allows them to best externalise their thoughts.

At the same time, this chat session must be understood as a step within a larger process towards formulating an "official” question.
This duality should be expressed in the design and format: choice of font, or resemblance with popular chat app formats may invite anxiety-free use. At the same time, reference to ELLON and sequence of question formulation to come can be discreetly visible from the chat window, in its frame for example.

During the "discussion phase", the user is simultaneously holding 3 conversations: with two peers on own question and answering two other learner questions. So two windows are displayed

*Figure 24. Lesson contents: three chat conversations*
The illustration in Figure 24 above shows how users can have the option of contributing "anonymously". On the right, the learner chose to ask the question as an "Anonymous" person. One of the peers answering the learner also chose that option.

Table 14

ELLON Chat Dyads and Moodle

<table>
<thead>
<tr>
<th>ELLON</th>
<th>Moodle</th>
<th>Comments or links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Chat with question in</td>
<td>No</td>
<td>In Moodle the chat subject is manually entered by teacher.</td>
</tr>
<tr>
<td>header</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chat box</td>
<td>Moodle Chat</td>
<td></td>
</tr>
<tr>
<td>Voice Chat</td>
<td>Need to use third party function</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="https://docs.moodle.org/29/en/Chat_FAQ#How_can_I_use_audio_chat.3F">https://docs.moodle.org/29/en/Chat_FAQ#How_can_I_use_audio_chat.3F</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sound interaction should be further improved over LMS (García, 2002)</td>
</tr>
<tr>
<td>Multiple chat dyad display</td>
<td>Function not found</td>
<td></td>
</tr>
<tr>
<td>Anonymous display</td>
<td>Function not found</td>
<td></td>
</tr>
<tr>
<td>Chat deadlines</td>
<td>Scheduling sessions and using activity completion condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="https://docs.moodle.org/29/en/Chat_settings#Chat_sessions">https://docs.moodle.org/29/en/Chat_settings#Chat_sessions</a> and</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="https://docs.moodle.org/29/en/Chat_settings#Restrict_access.2FAcitivity_completion">https://docs.moodle.org/29/en/Chat_settings#Restrict_access.2FAcitivity_completion</a></td>
</tr>
</tbody>
</table>

**Evaluation of peer intervention.**

Once the chat phase of answering questions has taken place with two other members of the practice group, the asker fills out evaluation of how each answerer gave affective support on the one hand and contributed to answering the question on the other.
This evaluation is invisible to other peers, and this invisibility must be obvious so learners are not worried that their peers will see their evaluation. At the same time, the evaluation boxes should appear next to peer contributions to be evaluated to make it easier. Figure 25 is an illustration of a possible format given to this box.

Figure 25. Peer chat evaluation fields

The evaluation fields appear in a new window to be displayed at the end of the chat sessions, the filling out of which is a condition to move on to the next stage of LLO creation.

So only once these boxes are filled out does the next LLO editor window appear.
Table 15

ELLON Peer Chat Evaluation and Moodle

<table>
<thead>
<tr>
<th>ELLON</th>
<th>Moodle</th>
<th>Comments or links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chat evaluation fields next to chat conversations</td>
<td>No function found</td>
<td>Forums posts (as well as glossary entries and DB entries) can be graded by other students. This function would need to be extended to chat sessions.  <a href="https://docs.moodle.org/29/en/Forum_settings#Grade">https://docs.moodle.org/29/en/Forum_settings#Grade</a></td>
</tr>
<tr>
<td>Counting peer grades towards end grade</td>
<td>Moodle calculation of end grades</td>
<td><a href="https://docs.moodle.org/29/en/Ratings">https://docs.moodle.org/29/en/Ratings</a></td>
</tr>
</tbody>
</table>

*LLO editor.*

Once the time has run out for discussing learner questions, and that all fields have been filled out (different chats, evaluations of peers) each learner sees an LLO editor appear next to the chat boxes. An illustration of a question box is given in Figure 26 below.
Figure 26. LLO Editor: Formulating and tagging the question

This is where the learner is creating a language reference object, in micro-content format, based on previous exploration with peers. The context of the language chunk exists already next to the question field. The Editor provides a Question field ("Write your question here" is written in a greyed format). The LLO editor:

1. provides 4 fields for typing the question to choose from, according to the skill the question addresses:
   - reading comprehension (any online text)
   - listening (oral comprehension of videos or podcasts)
   - writing (any online writing)
247

• or speaking (oral production over podcasts, videos...)

2. displays a drop down list of additional tags next to each field: learners choose the tag corresponding to their questions showing the competence to associate to it: chunk, Intercultural awareness; Global Inter-relations; Register; Politeness; Discourse marker, Lexis, and the possibility to create a competence category

3. calculates the length of the question and alerts the user when the limit has been reached, with a message such as "Message is 70 characters too long" or "Message is 2 minutes too long". Very long questions would make it more unlikely that the LLO be used by others in the future (as reviewed previously).

Once the learner has formulated the question, and tagged it, a similar window to formulate the answer appears. This window, as illustrated in Figure 27 below, provides an Answer field and a "Concept" field.
The Answer window in the LLO Editor:

1. Offers a "confirm" button and a button "view LLO" to preview it in its final version and then builds that view in a separate window.

Offers a "Post" button and asks the user: "Are you sure you want to post your Question?"

2. Has a fix message informing on the time left for the user to post the LLO. "You have 12 hours left to post your LLO"
3. Posts the LLO for a first validation by the practice group and teacher reproducing it in a format with the following characteristics: homogeneity, clarity and automatic filling out the following variables:

- name of user (if "Post" button was used)
- "Anonymous" (if "Post Anonymously" button is used.)
- context of chunk in corresponding format according to media used: podcast, text, video.

4. Records the user's posting of LLO for automatic counting of user generator LLOs.

**Resource field.**

An optional additional resource field may be filled in the LLO. This is useful for example if learners have identified on online internet language tool resource that addresses a particular area of specialisation of either subject or language, and that they believe anyone consulting the LLO in the first place would be interested in. For example if the question is on a very specialised legal or engineering term, and the learner found a specialised online dictionary, that resource can be mentioned here. It can also be a link to a relevant discussion forum, interest group, video, etc.

So the LLO editor also:

- provides a "resource" field, where the user can enter any relevant online links, tools, resources, or media
- provides a description of a resource field, that the learner must fill out explaining very briefly what the resource is.
- a tag: to specify the MDE competence addressed. This latter field functions by keyword to fill out (for example "aeronautical engineering", or "joke"). The resource must be in English.

**Questions from answers.**

It is possible that a new question arise while discussing the current question. If so, all function buttons and windows available for questions coming from tasks are available to use again by selecting the new context of the secondary question.

So during chatting, or when formulating the question and answer in the LLO editor, the ELLON menu option must be available at a right click. New emerging questions from within a session or from an Internet task are saved this way, so learner questions are captured for future externalisation and learning, as in the illustration in Figure 28. This new question is saved for future editing.
What happens when some learners have many questions?

Some learners may have many more questions than allowed by the question limit: learners must not be discouraged to ask questions, nor must there really be a limit to the amount of questions. The limit of questions should correspond to the limit in capacity of the network to answer them.

Additional questions arising are entered the usual way.
See peer questions

Before the time limit and the display of the 10 main questions, peers can optionally help out on any extra questions by choosing "see peer questions" option in the menu, if peers have the availability to do so. It displays the users' secondary questions because the learner must "keep" one question for the official question answering session. No extra grade is given for asking or answering these secondary questions.

If learners "cheat" and use one of these secondary questions as a main question, no cheating has actually occurred: the objective of learners asking questions and discussing with their peers is achieved. It was done in advance. In fact when learners have not achieved a satisfactory answer with peers informally and optionally, they will find the necessity to subject it over formal ELLON tasks, bringing a more difficult question -of higher learning value- to the whole group.

These optional secondary questions may become a useful preliminary to selection of questions, a way of providing immediacy of response, and a way of giving an outlet to the activity of more available and motivated students. This option may also reveal itself as a community building phase.

Independent knowledge use online.

No particular specification needs to be included here except the option to send, paste or drag and drop the trace of reuse to the LLO Editor field. A trace of reuse is thus recorded in the LLO in the answer field. This trace of reuse can substitute the need to write an answer in the Answer field or enter directly an example field, which constitutes the main motivation from the learner's viewpoint to use this option.
Time limits.

A time limit is given to enter obligatory questions, answers, and evaluations of answers. Time left to complete each step is notified to users either through a countdown displayed on the screen or via message alerts.

Formats.

Unified and systematic contribution formats are necessary for legibility. Homogeneous formats also build a sense of community by suggesting posts are part of the same formal collaborative task, rather than an assemblage of individual contributions.

In the following tables, I summarise the functions necessary to transform student knowledge building into homogeneous format, searchable, contextualised and openly published language learning objects. Moodle does not yet include functions in the learning process aimed at producing future learning objects from the very site of student exploration, where students themselves enter the descriptive learning object metadata (tags for example). In other words, if a learning object is considered in the general sense as any digitalised form of content for learning, then any work accomplished over Moodle can be considered a Moodle generated learning object (such as a pdf document for example). However in this case the formatting, tags and process is designed into the student’s enquiry phase. Moodle does not yet provide functions for this (see: https://docs.moodle.org/24/en/learning_objects), as they are detailed in the following tables.
Table 16

*ELLON LLO Editor and Moodle*

<table>
<thead>
<tr>
<th>ELLON</th>
<th>Moodle</th>
<th>Comments or links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display of related chat</td>
<td>Function not found</td>
<td>Function that automatically displays the relevant chat</td>
</tr>
<tr>
<td>Predefined online skill question fields:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tag drop-down selection list</td>
<td>Configure the DB</td>
<td>Corresponding “required fields” in Moodle DB can be set as well as “Field Types”</td>
</tr>
<tr>
<td>• Medium drop-down selection menu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Formal / Informal selection box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Public Destination box</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answer box</td>
<td>Function not found</td>
<td>Function that automatically displays the relevant question</td>
</tr>
<tr>
<td>Display of question field entered previously</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource tag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource description</td>
<td>Configure the DB</td>
<td>Corresponding “required fields” in Moodle DB can be set as well as “Field Types”</td>
</tr>
<tr>
<td>Editable Answer field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Editable Concept field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tag drop-down list</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example field that displays selection when “Send to LLO Answer” is selected</td>
<td>Configure the DB</td>
<td></td>
</tr>
<tr>
<td>Preview LLO option</td>
<td>Function not found</td>
<td>To be added as an option to DB entry</td>
</tr>
<tr>
<td>Back to Question Editor button</td>
<td>Function not found</td>
<td>Need to add a button</td>
</tr>
<tr>
<td>Post button</td>
<td>Function not found</td>
<td>Need to add a button</td>
</tr>
<tr>
<td>Post anonymously button</td>
<td>Function not found</td>
<td></td>
</tr>
</tbody>
</table>
| Notification of time left for LLO creation | Fixing the date and time for a database entry (ELLON question) to be entered   | https://docs.moodle.org/29/en/Dat
|                                         |                         | abase_activity_settings#Entries_required_for_completion                           |
5.4.4 LLO Validation Platform

After the time limit has been reached to fill out the LLO editor, they are posted in a list for student and teacher validation as in Figure 29 below.

*Figure 29. Display of all LLOs for group validation*
A chat box is displayed next to each LLO.

In this chat box, each and every peer can add comments. Then, the teacher can add comments if it is necessary to enrich or correct contents.

At the same time the teacher fills out an evaluation grade on the content of the LLO.

After the deadline for peers to add any contributions to each LLO, the teacher then evaluates the additional peer contributions at this stage. They count in equal measure towards final student grade. Figure 30 below illustrates the sequence of activities following the publication of all LLOs.

Figure 30. Teacher evaluation after display of all LLOs
Each LLO is then sent back to learners for correction, and then it is finally validated by the teacher as a final LLO that is published into the open persistent ELLON LLO database (that is dynamically expanding).

The table below shows functionality that Moodle can execute for the validation platform.

Table 17

**ELLON LLO Validation Platform and Moodle**

<table>
<thead>
<tr>
<th>ELLON</th>
<th>Moodle</th>
<th>Comments or links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display in one screen of all LLOs</td>
<td>No function found</td>
<td>A Wiki can show all group contributions, but here the group display must be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>automatically generated from individual user LLO edits and include a “choose”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>button</td>
</tr>
<tr>
<td>“Contribute” button, for peers to add any</td>
<td>No similar function found</td>
<td>Chats or messages can be opened but here direct and automatic chat opening is</td>
</tr>
<tr>
<td>contribution to LLO</td>
<td></td>
<td>needed.</td>
</tr>
<tr>
<td>Deadline for extra contribution</td>
<td>Fixing the date and time for a database</td>
<td><a href="https://docs.moodle.org/29/en/Database_activity_settings#Entries_required_for_compl">https://docs.moodle.org/29/en/Database_activity_settings#Entries_required_for_compl</a></td>
</tr>
<tr>
<td></td>
<td>entry (ELLON question) to be entered</td>
<td>etion</td>
</tr>
<tr>
<td>Teacher display of LLOs</td>
<td>Configure display for teacher only</td>
<td></td>
</tr>
<tr>
<td>Evaluation fields of LLO author (learner)</td>
<td>DB entry</td>
<td><a href="https://docs.moodle.org/29/en/Database_activity_settings#Grade">https://docs.moodle.org/29/en/Database_activity_settings#Grade</a></td>
</tr>
<tr>
<td></td>
<td>grades</td>
<td></td>
</tr>
<tr>
<td>Evaluation fields of end contributions</td>
<td>DB entry</td>
<td><a href="https://docs.moodle.org/29/en/Database_activity_settings#Grade">https://docs.moodle.org/29/en/Database_activity_settings#Grade</a></td>
</tr>
<tr>
<td></td>
<td>grades</td>
<td></td>
</tr>
</tbody>
</table>
5.4.5 Set Design Level 3: ELLON Database

Here the learner clicks on own LLO, integrates the teachers comments and peer comments, and clicks on Publish.

![Diagram showing the process of final validation and publication of the LLO.]

Figure 31. Final validation and publication of the LLO

Table 18 below summarises corresponding Moodle functions.
A database has collected user contributions, and sorted them based on tag and learner profile data.

5.4.6 ELLON Search Engine

A search engine is created automatically within the LMS with advanced search features, allowing to search by keyword or by URL. This means that a user can use the growing ELLON database as a reference or “dictionary” of the dynamic and growing manifestations of the MDE language online. The ELLON system is in fact a live dictionary, it is being dynamically generated in real time, where the basic corpus is no more a selection of thousands of written pages of English use, such as that used by traditional print dictionaries, but the traces of the use of English online, as selected by learners themselves as they use English over the Internet.

This generated MDE dictionary will be empty the first time it is used over an ELLON session. However, overtime, if used by many learners from different institutions, it theoretically has the possibility of growing as long as users accomplish tasks online in English or simply use
English online and use ELLON to turn their language questions into language references tied to context.

If a learner is consulting a webpage, and is concerned with understanding the English language used over that URL, this learner can enter the given URL in the ELLON search engine to see if this webpage has been used before by a learner over ELLON. If this webpage has been used before, then it is likely that language questions were generated, that may perhaps correspond to own language questions. The likelihood those questions be similar, is increased if the profile of the learner who initially used ELLON for that webpage is similar in level of proficiency and same native language.

The learner will thus know that linguistic assistance for the particular contents of that webpage is pre-existing. This may motivate the learner in reading that particular webpage or accomplishing any task related to it. The learner will have access to contextual dictionaries at point of need addressing the exemplars of MDE use of English in context.

Another search option is typing in the keyword of an MDE unit and seeing the questions and explanations the ELLON search engine can produce.

Ideally, it would be possible to search for assistance not only on written chunks, constructions or utterances, but also video, audio or podcast content in English. This would however require recognition of the video and podcast content by the search engine.

Figure 32 below illustrates how the ELLON search engine could look like.
5.4.7 CELLOs, MELLOs and YELLOs

The LMS should then offer to present the LLOs under three different formats detailed below.

Module English Language Learning Objects: MELLOs.

The first format is that of a dynamic dictionary. These language learning modules or objects are related to the contexts of use and linked to them online. For example, an online course in English could propose related language "FAQs" according to your native tongue, that were
previously generated from users over ELLON and its Lesson Generator. By simply selecting text or speech or video content online, learners could right click and have related questions appear (as the context was initially copied into the LLO, it can be automatically recognised and the related question and answer made to appear).

Figure 33 below shows an example illustration of a MELLO.

\[\text{Figure 33. Example of MELLO}\]
Your English Language Learning Objects: YELLOs.

The second format of learning object is that of a test: the questions asked in a session appear without the answers, but with a possibility to answer. The students can thus test themselves on language questions.

Each question is shown in a succession with an answer field, the user can choose to see 1, 5 or 10 questions in the same page at a time (for example).

The user enters the answer and clicks OK.

Then the original answer appears.

There is no way of calculating whether the answer is correct or not, this decision is left to users themselves by comparing their answer with the ones existing in the LLO.

A "grade yourself" field is optional: here users enter a grade for themselves for their own use and posterior reflection.

Another option is a "Keep" button: this option allows users to select language chunks they think complete their knowledge and will be useful for their own future tasks, that they wish to learn in advance. This option could also lead to the learners’ personalised dictionary of chunks, according to their own use of English.

Figure 34 below shows an example illustration of a YELLO.
A variant of this format is that of a test, but without the answer option. The teacher selects the questions and the amount of questions to address to the learners. Only the teacher has access to the answers and activates them when time to do the test is out. An option allows the teacher to select questions by:

- contexts of use
- level of language learners
- skill to practise: oral, written comprehension, oral or written production
- MDE competences

Preferably the format of this LLO can be integrated into most Learning Management Systems to fit into institutional contexts.

In all cases these objects are "contextualised" as they are simultaneously tuned to the following variables of MDE, and become references within that "tuning":

- Native Language of learner
- Level of Proficiency in English
- Subject area of use of English (specific purposes)
- Regional or International destination of the message
- Medium
- Semiotic frame

Figure 35 below illustrates a CELLO.
Table 19 below summarises corresponding Moodle functions.

Table 19

**ELLON and Moodle: Search Engine and Display Options.**

<table>
<thead>
<tr>
<th>ELLON LLOs DB Search engine and display options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELLON</strong></td>
</tr>
<tr>
<td>Search engine</td>
</tr>
</tbody>
</table>
### Choice of display mode of LLO (CELLO, YELLO, MELLO)

<table>
<thead>
<tr>
<th>Hide option</th>
<th>Answer option</th>
<th>Dataform module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link LLOs to original site of use (open URL)</td>
<td>No function found</td>
<td><a href="https://docs.moodle.org/29/en/Database_auto-linking_filter">https://docs.moodle.org/29/en/Database_auto-linking_filter</a> Mood does have an auto-link function that links for example Glossary entries to occurrences internal to the Moodle site (autolink” function.) This function requires using the memory of the link and the place of the occurrence within that link to enable an emergent consultation of relevant LLO at point of need.</td>
</tr>
<tr>
<td>Publish LLOs Database transfer Publishing a course</td>
<td>No function found</td>
<td><a href="https://docs.moodle.org/29/en/Database_transfer">https://docs.moodle.org/29/en/Database_transfer</a> <a href="https://docs.moodle.org/29/en/Publishing_a_course">https://docs.moodle.org/29/en/Publishing_a_course</a> The LLO Database can be transferred to another ELLON course. The ELLON course can be also shared through the community hub so the course and ELLON LLO database reaches a large number of students across institutions who use Moodle. Contents can be exported to another Moodle course or via SCORM to other LMS</td>
</tr>
</tbody>
</table>

### 5.4.8 Summary of Adaptations of Moodle for ELLON

The previous sections have shown which features exist over Moodle and which features are needed for ELLON to be executed from Moodle. A summary of what features need to be added to Moodle is given in Tables 20, 21, and 22 below.
Table 20

Moodle Adaptations for Situated Learning

Summary of functions to add to Moodle
Towards situated online learning

<table>
<thead>
<tr>
<th>Feature</th>
<th>Explanation</th>
<th>Pedagogical Implications</th>
</tr>
</thead>
</table>
| Contextual question plugin       | Browser Moodle activity option in appearing menu | Situated learning
For Language learning: real context of use is motivating and necessary to personalise language learning contents
Effect on habit forming and motivation |
| Web content automatic copy       | Copy of web content by simple selection into activity (in our case, chat). Need to extend drag-and-drop to simple selecting | Help learners to externalise (ask questions), and reveal their ZPD to their peers
For Language learning: no loss of semiotic context of language use |
| Keep original link and place to relate to corresponding produced LLO | This function allows future users of real web pages to seamlessly consult LLOs on content being consulted | Bring digital traces of peer to peer explorations to site of use of knowledge. Make it consultable to future learners
For Language learning: no loss of context-enriches understanding of real language use |
Table 21

Moodle Adaptations for Collaborative Learning

<table>
<thead>
<tr>
<th>Feature</th>
<th>Explanation</th>
<th>Pedagogical Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous Chat option</td>
<td>This does not mean learner contribution is not traceable back to learner.</td>
<td>Combats anxiety and free of externalising knowledge and doubts</td>
</tr>
<tr>
<td>“Submit to group” button</td>
<td>Questions from all are submitted to all with a button next to each</td>
<td>Exploit asymmetrical knowledge distribution within a group by allowing learners to select the questions they feel they can answer (or are interested in answering). This allows leveraging peer to peer learning potential according to knowledge question rather than according to predefined peer pairings.</td>
</tr>
<tr>
<td>Group question display</td>
<td>for individual selection by learners of which ones will become their task.</td>
<td></td>
</tr>
<tr>
<td>Chat link to user From Group</td>
<td>The user chooses to chat directly after selecting the question to answer to</td>
<td>Enhances invitation to collaborate by making chat seamless</td>
</tr>
<tr>
<td>display window</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple chats in one screen</td>
<td>Makes peer interaction task easier by saving the learner to have to switch chat sessions</td>
<td>Multiple peer conversations</td>
</tr>
<tr>
<td>Chat evaluation fields</td>
<td>Conversations, over chat, can also be considered as knowledge building and lead to grades</td>
<td>Provides extrinsic motivation to actually build knowledge and peer support using chat affordances, rather than use chat for superficial “chatting”.</td>
</tr>
</tbody>
</table>
### Table 22

Moodle Adaptations for Learning Object Editing

<table>
<thead>
<tr>
<th>Feature</th>
<th>Explanation</th>
<th>Pedagogical Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display of related chat</td>
<td>The learner summarises knowledge built over chat in the LLO editor. So a visual reminder of learning conversation is needed.</td>
<td>Using peer interaction as the source for knowledge object construction.</td>
</tr>
<tr>
<td>Display of question field entered previously</td>
<td>The learner does not have to retype the original question.</td>
<td>Using peer interaction as the source for knowledge object construction. Making the link between both direct (by)</td>
</tr>
<tr>
<td>Example field that displays selection when “Send to LLO Answer” is selected</td>
<td>This refers to embedding or copying web contents into the Question Editor.</td>
<td>Language Learning: links real independent use of language to a reference language concept. Allows to conceptualise real language use through direct provision of exemplars. Provides motivation to use language correctly (because the chunk then becomes an example of reference).</td>
</tr>
<tr>
<td>Preview LLO</td>
<td>Allows learner to preview future created reference of knowledge.</td>
<td>Added motivation in realising that they have created a learning object for others.</td>
</tr>
<tr>
<td>Post anonymously</td>
<td>Anonymity is an option to combat shyness with respect to the practice group. The system remembers the user for grading purposes.</td>
<td>Shyness is a barrier to externalisation of questions, ideas, thoughts and knowledge a learner may hesitate to share. This option enhances in this sense the exchange of thoughts, questions and knowledge.</td>
</tr>
<tr>
<td>Display all LLOs in one screen and “contribute” button</td>
<td>Once LLOs have been created, this option enables everyone to check whether they have a contribution to make to other peers’ LLOs.</td>
<td>Provides the conditions for the totality of group knowledge to be externalised over a specific question. Exposes learners to a greater diversity of MDE questions, and other learning paths.</td>
</tr>
<tr>
<td>View of final contributions</td>
<td>Same as above</td>
<td>Same as above</td>
</tr>
</tbody>
</table>
If a module such as this were to be built over Moodle, it could be found to extend Moodle’s inherent constructivist pedagogic model towards providing features allowing to design learner-generated content and networked learning models as explained below.

The instruction design features proposed above encourage reuse of learner-generated knowledge, horizontal learning and learning network expansion.

The model is based on learner-generated contents because knowledge is generated by learners themselves and shaped by the LMS into micro-content formats that can be searchable and exploitable over a database on the one hand, but also tied to context of usage (over Internet) on the other. They are hyper-linked to their place of usage.

The horizontal and open approach to defining task contents is inherent: ELLON session lesson contents are entirely dependent on a learner’s definition of own assistance needs, because the task under supervision, control and assessment is that of answering peer questions in a controlled, knowledge-building mode. The teacher intervenes only once learners have generated contents themselves followed the LMS directed tasks.

The Moodle-based learning network is projected to expand. There are several ways the tasks give rise to potentially expanding connections: between learners, between learners and their YELLOs, MELLOS and CELLOS, and between Internet users and the LLOs. LLOs are re-editable by future learners, over the LMS group. LLOs are consultable at point of need directly where they are re-editable. Recommendations bridge learner generated knowledge from one session to another, from one group to another, different ELLON users wherever they may be, and any users authorised to consult ELLON generated LLOs.
5.5 Summary and Discussion of ELLON

ELLON is an online learning architecture, designed to be used from within an institutional context and executable from an LMS, based on user-generated content.

This study has proposed how an online learning architecture may provoke connection making, and help learning processes emerge. By intervening in learners’ tasks and setting sub-tasks, learners are compelled to externalise questions, connect with learners and experts, and deepen language meaning and expression. ELLON is designed to be used by MDE learners who master the language sufficiently to use MDE online. The learning processes are designed to make learners concentrate on acquiring the concrete MDE competences as listed in chapter 2. The model both addresses personal language learning needs, and realistic MDE competences while allowing learners to be exposed to real world contexts of use of MDE of their peers.

Cognitive exploration, in the real world of English use -online- is supported and pushed through a construction of sub-tasks ultimately resulting in creations of language references. The model is designed to leverage peer collaboration and temporarily empower learners as teachers by identifying momentary knowledge asymmetries. The model also teaches “network learning” reflexes to participants. Within the network, the teacher is an active participant within the network with precise roles.

Given the nature of the English language as a global language used online, the complexity of both the skills to use the language itself and the diversity of learner profiles, makes it difficult to rely on a standardised subject curriculum or teaching method applicable indiscriminately to all English language learning in any context.
Localised and pragmatic instruction practices, adapting to learners' needs and regional Englishes, to professional Englishes, to communication channels used to communicate in the language, are necessary to be defined and ELLON is one such proposal. The model is based on secondary research. It derives from a combination of findings from literature reviews in different research branches: CMCL, CALL, NBLT, online knowledge building and social learning websites for online language learning. The model bridges formal and informal language learning through the use of functions that invite the learner to address MDE questions naturally arising as learners use the language in authentic contexts online.

A distinctive feature of this model is the way it embraces formal and informal learning not only during learner activity but also after the end of sessions, as learners produce LLOs that can then be used any time and anywhere. This network learning model offers the opportunity for learners to use the language in real context, multiply its opportunities of use but also learn from other real contexts of peers. It therefore allows to apply conceptual or meta-linguistic knowledge but also allows to deduce it, over time.

5.5.1 Potential Value of ELLON for English Language Learning

The sections below summarise the distinctive features of ELLON and discusses its potential value as a learning network in the way it addresses English as an International language online, SLA research findings, digital era epistemologies and ways of learning, and ways of implementing the communicative approach.

Does ELLON address the specific challenges of teaching English as an International online Language?
• ELLON addresses this challenge in so far as its tasks are inherently based and directly derive from individual MDE learning needs. The MDE knowledge subject is not pre-defined by the teacher or a specific curriculum, but emerges from learner questions. In this way, it should in theory match individuals’ MDE learning needs and targets over time, and over iterations of ELLON sessions.

• ELLON has, designed into it, some of the macrostrategies that teachers should develop according to Kumaravadivelu (2002).

• If ELLON is correctly implemented, its use should lead to the ongoing creation of global (MDE) English language references. The greater the number of sessions and diversity of users, the greater the number of MDE LLOs, that are designed to correspond directly to knowledge needs typical of learners: the products of learning conversations themselves are reified, not only knowledge produced. Learner questions are typified (tagged) for future use by subsequent learners with similar profiles and searchable tags per content (rather than author or date as in the case of usual forums, FAQs and wikis).

Implications of ELLON grounding in SLA theory.

• The knowledge unit is defined according to Ellis’ study of how our minds “process” language, that is by chunking. Knowledge units address concepts of space around language and concept emergence rather than pre-defined metalinguistic knowledge that "simplifies" and diverts real language knowledge (Negueruela & Lantolf, 2006). The model brings about both implicit learning (through task completion) and explicit
learning (through concept creation over the LLO). The format of microcontents that LLOs are shaped into are also consistent with a connectivist view of learning, where connections between learners are more likely when the signals that are exchanged have a moderate length. Uniformity of format of these signals theoretically frees cognitive space to concentrate on their content rather than their format. The implication of this design is that circulation of MDE knowledge is facilitated both internally (within learners’ minds) and externally (over the online network).

- ELLON integrates findings from research in the SCT branch in its design of peer to peer collaborative tasks. Features are included to optimise peer-matching, peer to peer scaffolding, and group language knowledge. Collaborative sequences progressively expand according to need for collaboration: from learners on their own (acting independently within a broad network of potential connections, i.e. Internet) they are brought to collaborate one to one (chat dyads), then one to many and many to one (submitting an LLO to a group), and many to an expert (LLOs submitted to the teacher). The model also designs expert intervention only when the group, as a whole, needs assistance, that is when the group cannot assist each other sufficiently. This, I believe, is a potentially valuable feature of ELLON because it taps into the maximum potential of group collaboration, but it also optimises teacher intervention: the teacher intervenes not when an individual learner needs assistance, but only when this learner could not find assistance through online connections, or through peers. If this hierarchy of assistance were found to function as designed in practice, it would permit teachers to attend to a greater number of learners.
ELLON and digital era epistemologies.

ELLON addresses the learning of online language as it is reflected in its dynamic and real reflection of use online. Learners need to use any ICTs that their online task require. Because the content of tasks is dependent on how learners react to the use of English online, the model is resistant to any shifts in the knowledge subject itself due to changing technologies, semiotic frames, habits of use, and augmented assistance to second language production. ELLON addresses:

- online and multimodal use of language
- how to practise digital literacy
- learning to learn using online resources

Because ELLON tasks can be tied to any person's live use of English online at any time through the editing and consulting of dynamically shaped LLOs, the model's validity should not expire with improvements to language translation, assistance or interpretation tools, nor with changes to the English language itself, nor to evolving English language learning needs.

ELLON and learning network effects.

The model is an application of “social network learning” applied to language learning as it fills the conditions, at least in its design, of reuse of learner generated content, openness and horizontality of use, and expansion of network (Zourou & Lamy, 2013).

- Openness of ELLON: horizontality of participation is reflected in the fact that it is learners themselves who generate “class” task contents. Each learner is also equal: one
question per learner, leading to related sub-tasks leading to one learning-object that goes back into the initial learning environment. Teachers intervene at the point of each learner’s individual need to complete the LLO, not in the delimitation of learning content or internet activity. Openness is also reflected in the student questions, as they flow in an ongoing and unpredictable way from an open environment, the Internet, where not only questions but any resources and online interaction can be reflected in generated LLOs.

- Participation leading to reuse: LLOs can be used by others entering ELLON sessions, language questions made a second time can already be answered with the LLO at point of need. LLOs can also be the object of a further exploration because they are re-editable. In this way, passed learning conversations are reused and extended by posterior users. ELLON serves directly one’s own MDE subject memorisation through the use of YELLOs.

- Growing network value: knowledge creation about Multi-Dimensional English is incrementally produced by ELLON participants, as they can build on previously ELLON-generated LLOs. Because the LLOs can be used by others entering ELLON sessions, language questions made a second time can already be answered with the LLO at point of need. Therefore, learners normally externalise a different question than that already answered in previous ELLON sessions, because they would have consulted the answer to the question over the existing ELLON database. This means that each new session will necessarily engender new language points of doubt and questions that will complement the existing repository. Thus the MDE repository is set
to increase in diversity, quantity and content depth (when the content of an existing LLO itself is object of a new LLO) at each new ELLON session.

**ELLON and the communicative approach.**

ELLON’s instruction approach can be considered to comply with the communicative approach. The essential components of this approach are set out by Jacobs & Farrell (2001) as follows:

1. Focusing greater attention on the role of learners rather than the external stimuli learners are receiving from their environment. Thus, the center of attention shifted from the teacher to the student. This shift is generally known as the move from teacher-centered instruction to learner-centered or learning-centered instruction.

2. Focusing greater attention on the learning process rather than on the products that learners produce. This shift is known as a move from product-oriented instruction to process-oriented instruction.

3. Focusing greater attention on the social nature of learning rather than on students as separate, decontextualised individuals.

4. Focusing greater attention on diversity among learners and viewing these differences not as impediments to learning but as resources to be recognised, catered to and appreciated. This shift is known as the study of individual differences.

5. Focusing greater attention on the views of those internal to the classroom rather than solely valuing the views of those who come from outside to study classrooms, evaluate what goes on there and engage in theorising about it. This shift led to such
innovations as qualitative research - with its valuing of the subjective and affective, of
the participants' insider views and of the uniqueness of each context.

6. Along with this emphasis on context came the idea of connecting the school with the
world beyond as a means of promoting holistic learning.

7. “Helping students to understand the purpose of learning and develop their own
purposes.

8. A whole-to-part orientation instead of a part-to-whole approach. This involves such
approaches as beginning with meaningful whole texts and then helping students
understand the various features that enable to texts to function, e.g., the choice of
words and the text’s organisational structure.

9. An emphasis on the importance of meaning rather than drills and other forms of rote
learning.

10. A view of learning as a lifelong process rather than something done to prepare for an
exam. (Jacobs, G. M., & Farrell, T. S. C., 2001)

Over ELLON, tasks are learner-defined via their individual questions (point 1 and 9), sub-
tasks are constructed following a cognitive process of exploration (point 2) diversity of practice
group viewpoints are confronted and made to complement each other over the varying geometries
of chat dyads and knowledge asymmetries (points 3 and 4); peers evaluate each other (point 5),
language in its real, social use online is the object of learner questions (point 6), ELLON main task
is defined according to learner’s projected individual use of English (point 7 and 8) and the
model’s valuation system pushes the participants to “learn to learn” using online resources and ties
(point 10) leaving persistent leaving Language Learning objects potentially for lifelong use (point
10).
To summarise, definitions of networked learning (above) share common attributes with the definition of the communicative language learning approach. ELLON, as a language learning network, can be viewed as an online version of the communicative approach to language learning, in part because it is within an online network learning setting.

**Longer term objectives of ELLON: learning to learn autonomously, over networks**

A long term objective to be pursued through the reiteration of use of ELLON, is that, whatever subject it is applied to, it should develop the reflexes and connections online and ultimate "practice" of network learning behaviours: the exploration steps formalised over the model become internalised by the learner, who is acquiring habits of knowledge-building exploration and confronting viewpoints. The ELLON sequence of tasks should progressively become internalised, so learners gradually systematically notice their own questions, follow them up independently through online connections, or within dialectic or dialogic exchanges, until they formulate a clear, new understanding for themselves they can generalise, and reuse. Ideally, they should acquire the reflex of knowledge construction without being necessarily given sequenced sub-task deadlines, and evaluations.

The architecture itself is designed to teach how to create knowledge for oneself through connections, i.e. how to use networks to augment one's own learning and knowledge building capacity. This is in conformity with the conceptualisation of learning based on 21st century literacies. Learning is the reproduction at a micro, individual level of the macro, network, knowledge building process: defining a question, connecting, confronting viewpoints, selecting the best answer, concluding, publishing and using new knowledge in context.
The network learns

Also on the long term, a great number of iterations of ELLON sessions over diversified learner groups, should lead to the creation of localised knowledge and learner exploration of any online content. Via the plug-in linked to the dynamic database of generated LOs, any online content that was object of ELLON sessions will be loaded with the traces of previously made connections, for deepening and broadening of the content on that webpage by any user on that webpage. The value of these connections is that they reflect human learning paths, the very questions asked are those that other learners are likely to ask, so they are pathways generated towards humanly developed knowledge construction or node connecting, that can be reconnected to by posterior users in the same context.

Teacher or expert intervention over ELLON ensures information transmission that is less likely to be incorrect, or that is enriched with expert knowledge. Web contents thus get loaded with educationally valid "talk" or connections, accessible informally as well as formally, according to context. If the ELLON network comes to life as it is designed to, then the model may be interpreted as a way of incorporating institutionally defined educational standards into self-directed learning over open and free use of connections over the internet.

A model that can be applied to other subject areas than languages

In so far as this network architecture provides a physical online architecture for guiding meaningful conversations at point of need, and based on learner interests, it can be used for many learning contexts online, and not only in the subject area of language learning.

As mentioned earlier, the ELLON model is in fact a framework for individual exploration that introduces a sequence of tasks and subtasks that simulate the cognitive exploration phases a
student should make the effort to follow, no matter what subject is being learnt: the process of asking oneself a question, discussing a possible answer over conversation, and making a conscious effort to acquire that new knowledge by using it, is broken down into: question, clarify own question, look for answer independently online, chat with peers, seek legitimacy of answer by exposing question and exploration to a group and teacher, publish expert and group validated answer for own reuse, and for reuse by other learners as reference knowledge (that can be reedited and modified in the future). Expansion of knowledge content proper to the learning process is possible because we can now objectify the "products" of learner explorations, thus setting the path for further explorations that build on those that are already manifest.

Let’s specify that it is the unique affordances of the digital and open environment, that enables this externalisation of individual thinking, collaboration and reuse of knowledge learning processes.

More broadly speaking, this model is designed to allow making exploratory conversations emerge on any subject, at any time, within online contexts, relying on P2P collaboration, and producing knowledge objects tied to the context for future reuse by any Internet user. Online tasks relating to health issues, biology, mathematics, literature, can all come with an ELLON plug-in that users can select at point of need, when the online content leads to questions in the reader’s, viewer’s or listener’s mind. Using the plug-in, the learner submits an exploratory question (related to biology, mathematics, literature, etc.). Subsequent learning conversation and Learning Object ensues. However for each subject, specific tags and competences need to be defined.

Below I explain in what way ELLON addresses the requirements for language learning instruction that have been interpreted and summarised by two different authors: Ellis, R. (2005), and Kumaravadivelu (2003).
5.5.2 Instruction Principles and ELLON

Ellis, R. (2005), seeks to answer the question: how can instruction best ensure successful language learning? In so doing, he chooses to embrace an analysis of the different theories and findings and then identify a number of general principles which can provide guidance for curriculum design and classroom practice. Because Ellis adopts a multi-conceptual view, which is the viewpoint taken in this dissertation, I propose to expose Ellis's principles and discuss how the design of ELLON fulfils those conditions below. Again, only by testing the model will we know to what extent these principles are applied.

- Principle 1: “Instruction needs to ensure that learners develop both a rich repertoire of formulaic expressions and a rule-based competence” (Ellis, R., 2005). The “rich repertoire” is projected to stem out of learners’ exposure to real MDE contents online, and the diversity of tasks learners will engage in over time. Learners are projected to gradually build their “rule-based” competence through their conceptualising tasks when writing the LLO.

- “Principle 2: Instruction needs to ensure that learners focus predominantly on meaning” (Ellis, R., 2005). Learners' main task is a real life task to accomplish online. Learning explorations over ELLON emerge from that main task where meaning making is the primary objective, so in theory, meaning over ELLON should be at the heart of learners’ questions and tasks.
• “Principle 3: Instruction needs to ensure that learners also focus on form” (Ellis, R., 2005). Learners’ attention is brought to form when entering chat-based explorations and building language learning objects.

• “Principle 4: Instruction needs to be predominantly directed at developing implicit knowledge of the L2 while not neglecting explicit knowledge” (Ellis, R., 2005). Through online tasks, learners’ use MDE and implicit knowledge is built unconsciously whenever learners do not formulate questions. When formulating questions and then answers on MDE over ELLON tasks, knowledge becomes explicit, thus addressing both cognitive processes as enunciated in the principle.

• “Principle 5: Instruction needs to take into account learners’ ‘built-in syllabus’” (Ellis, R., 2005). This condition is fulfilled by the basic working of ELLON based on contingency of learner questions. Assistance is only given at point of learner need, thus taking into account this built-in syllabus.

• “Principle 6: Successful instructed language learning requires extensive L2 input” (Ellis, R., 2005). Extensive input is provided by repeated online tasks, within English language web contents.

• “Principle 7: Successful instructed language learning also requires opportunities for output” (Ellis, R., 2005). The choice of tasks online with interactive opportunities
(forum, webcast presentations, etc.) can ensure the need for learner active contributions in MDE.

- “Principle 8: The opportunity to interact in the L2 is central to developing L2 proficiency” (Ellis, R., 2005). To embody this principle over ELLON, choice of main task can focus on web platforms where there is necessary interaction with native and non native speakers of English (such as online MOOC courses for example).

- “Principle 9: Instruction needs to take account of individual differences in learners” (Ellis, R., 2005). ELLON takes into account these individual differences in two ways: as to the learner’s goal in acquiring MDE (choice of main task according to personal needs, interests and regional, socio-economic context) and learner's own ZPD in MDE, as individual questions define emerging learning tasks.

- “Principle 10: In assessing learners’ L2 proficiency it is important to examine free as well as controlled production” (Ellis, R., 2005). Over ELLON, grades are given by peers on assistance received (free production), and by teachers on learner formulation of language questions and answers (controlled production). However, learner production over main task is not examined, and this is a limitation of ELLON that is referred to later.
5.5.3 Kumaravadivelu's Macrostrategies and ELLON

Kumaravadivelu (2002) formulates macrostrategies for teachers to adopt in the “English as an International Language” classroom, where the complexity of learner needs in English are addressed by an active and aware teacher. In so doing the author draws insights derived from various disciplines including psycholinguistics, sociolinguistics, cognitive psychology, second language acquisition and critical pedagogy to propose a theory of practice that translates into concrete classroom initiatives. This practice is oriented towards classroom teaching, however ELLON’s epistemological and social design can be found to reflect, to a certain extent, an online network version of the teaching processes proposed by Kumaravadivelu. The complexity of the teaching functions is partially reflected in ELLON design features.

Below I detail how ELLON design embodies Kumaravadivelu's macrostrategies.

- “Maximising Learning Opportunities” (Kumaravadivelu, 2002): this strategy refers to a teacher's role in creating and utilising learning opportunities. “Teachers need to constantly monitor how the lesson is unfolding and make suitable changes as necessary” (Kumaravadivelu, 2002). Over ELLON, within a session, contingency of teacher intervention, both at chat level (when peers cannot answer questions) and LLO validation level, reflects the dynamism of the teacher's role in detecting emerging learning opportunities. The teacher's role in interpreting learning analytics and proposing a personalised series of tasks also contributes to this dynamic shaping of the currículo from one session to the next.
• “Minimising Perceptual Mismatches” (Kumaravadivelu, 2002): this macrostrategy aims to minimise mismatches between learner and teacher perceptions of what is available to learn. Over ELLON, the general freedom the user has, accompanied by any guidance the learner asks from the teacher, to choose MDE contents or contexts should prevent this mismatch from the start. Additionally, learners are exposed to other learner's main online tasks, which represent other examples of what is available to learn, in the form of real and diverse learning tasks.

• “Facilitating Negotiated Interaction” (Kumaravadivelu, 2002): this strategy refers to giving students the opportunity to go beyond passive classroom “react and respond” behaviours and engaging in meaningful learner-learner, learner-teacher classroom interaction. Given that ELLON is based primarily on peer to peer interaction, and teachers intervene when a need for expert assistance is revealed at the group level only, this meaningful interaction condition may be considered to be reflected.

• “Promoting Learner Autonomy” (Kumaravadivelu, 2002): the author explains that “A crucial task of the teacher wishing to promote learner autonomy is to help learners take responsibility for their learning, and to bring about necessary attitudinal changes in them” (Kumaravadivelu, 2003). Over ELLON, learners build autonomy by fulfilling their respective roles, as they lead both their own online task, and act as teachers for their peers (answering, encouraging and grading). They also actively formulate their own questions and answers received and are responsible for creating LLOs. Their
sense of responsibility is further developed by their awareness that those LLOs are published for open use on the web.

- “Foster Language Awareness” (Kumaravadivelu, 2002): the author here refers to the teacher helping students pay attention to and notice formal and functional properties of their second language (L2) in order to increase the degree of explicitness required to promote L2 learning. Design of learner tasks over ELLON encourages attention and noticing by the obligation of formulating a question, deriving emerging concepts and turning the learning episode into an LLO. During these tasks, the learner is concentrating on making explicit language form and function.

- “Activating Intuitive Heuristics” (Kumaravadivelu, 2002): the author refers to “the process of self discovery part of the learner” (Kumaravadivelu, 2003). The very design of ELLON uses learner capacity to identify questions and infer language regularities and communicative use as their own questions and answers are the constitutive tasks of the lessons themselves.

- “Contextualising Linguistic Input” (Kumaravadivelu, 2002): this strategy highlights the need to propose thematic contexts reflecting the natural use of language as English is shaped by “linguistic, extralinguistic, situational, and extra-situational contexts” (p. 39). Over ELLON, as the main task is a real context of use of the English language online, contextualised and natural use of language is inherently part of the learning design.
• “Integrating Language Skills” (Kumaravadivelu, 2002): referring to the skills of listening, speaking, reading and writing that have been traditionally separated for pedagogic purposes, the author stresses the importance of teaching them holistically because “language skills are essentially interrelated and mutually reinforcing” (p. 228). Over ELLON, language skills become "online" language skills (reading and writing over different computer mediated supports -chat, email, tweet, etc.- speaking and listening over podcasts, videos, etc.). Learners may externalise questions relating to any of these mediums, tasks are not divided into specialised skills.

• “Ensuring Social Relevance” (Kumaravadivelu, 2002): the author calls attention to the need for teachers to be sensitive to the societal, political, economic, and educational environment in which L2 learning and teaching take place. Over ELLON, learners choose main tasks that are relevant to their realistic and projected use of English that naturally is in accordance with their own socio-politico-economic and regional context.

• “Raising Cultural Consciousness” (Kumaravadivelu, 2002): the author emphasises the need to treat learners as “cultural informants”. ELLON encourages the competence of cultural awareness by way of the inclusion of this competence in the tag list. Social learning analytics can inform learners and teachers whether learners actually do ask any questions related to cultural awareness and if not, help to choose tasks that do raise this issue to balance the practice of competences.
The approach of building an English language curriculum from the ground up, at the heart of ELLON, would seem to address the challenges that Kuramavadivelu raises as to how to teach English. The use of the learner's context as a base for learning, allows personalising not only to a regional use of English but to the specific use of English by each individual learner within a region.

To summarise the potential value of ELLON, ELLON addresses several requirements EIL pedagogy sets forth such as the need to contextualise the use of the English language, the need to involve teachers in the creation of knowledge; the need to learn English as used in its channel of expression (online); the need to acknowledge varieties of English and cultures, taking into account online communication, regional English, in fact any variation of English that is recognised as "used". The learning network architecture is built around the variety and variables of English as a subject matter. The model can be adjusted to any English language learning context. ELLON also addresses broader competences of English as an international language. How is this achieved?

5.5.4 Reversal of the Knowledge Transmission Model

The model is designed by integrating a conceptualisation of language and language learning stemming from a review of research on SLA (see chapters 3 and 4). Rather than a body of knowledge, with a predefined rule system, language as a subject is viewed as a skill, that is exercised and applied contextually. Any user, including its learners, can be regarded as one of the countless agents that have an effect on the ongoing creation and continuation of the live representation of the language. The process of learning the language, is not viewed as a learners' assimilation of some language “knowledge” that exists as an external target. Rather, the learning process is part of the process of recreating language as learners are responsible for generating the live contextual references of how the language is used in real communicative situations.
The approach underlying this model is thus different from traditional classroom approaches: rather than predefining the whole of the language subject content based on a curriculum, itself, elaborated on a hypothetical projection of its future use common to all pupils, (a top-down approach), the approach becomes bottom-up: students start by using language in real contexts online, requiring them to join a community of users of MDE (represented by any online contents and speakers in English).

Thanks to the functions within the LMS, as learners make their enquiries explicit over the online medium, lessons emerge from learner defined questions and a series of tasks, designed for in the LMS, bring learners to build knowledge collaboratively and produce LLOs from their own explorations. This scheduled, ordered, LMS-based exploration process is possible thanks to the environment of the LMS, and its link to the Internet. These LLOs then become MDE language references directly consultable via a link at its point of use online. This is a reversal of the knowledge transmission model, as knowledge is the end result of the individual learning process and not its point of departure. Furthermore, this model does not require simplification of language, such that occurs when elaborating general rules and lexis definitions (Negueruela & Lantolf, 2006). The nuances and complexity of language use in context is preserved because the language reference remains in its real context of use.

It is the distinct affordances of online networks that allow a ground-up approach to personalised curricula, peer and group created knowledge, to the creation of dynamic language references, where the context of use is reproduced within those very references and may reflect more accurately the complexity of meanings arising from MDE. Therefore, we have here an example of how an architecture of an online network can theoretically solve physical and
classroom setting limitations, at least in the case of the subject of English as an international online language.

5.5.5 Compatibility OF ELLON with the CEFR

The Common European Framework of Languages, (Council of Europe, 2001), hereon CEFR, advocates a complex view of language, as deeply situated in context of use, it considers that:

Language use, embracing language learning, comprises the actions performed by persons who as individuals and as social agents develop a range of competences, both general and in particular communicative language competences. They draw on the competences at their disposal in various contexts under various conditions and under various constraints to engage in language activities involving language processes to produce and/or receive texts in relation to themes in specific domains, activating those strategies which seem most appropriate for carrying out the tasks to be accomplished. The monitoring of these actions by the participants leads to the reinforcement or modification of their competences.

The CEFR is an action oriented and situated approach, where language as subject area is contextually defined, where a series of learner inter-relating competences are taken into account and where the teacher or institution is responsible for personalising their teaching to groups or individuals.

The CEFR, addresses language use in face to face physical contexts, unsurprisingly as one of the goals of the framework is to promote European integration of EU citizens as they travel to different EU countries for work or other motives. ELLON addresses MDE, which means the
model does not address "language use in physical contexts" as is the assumption of the CEFR. However, ELLON addresses “real” use of English in context and shares a common conceptual framework and learning approach, as it is situated and pragmatic: users and learners are social actors who need to accomplish a task, in context within a particular field of activity.

According to the CEFR, teachers are asked to forecast the exact contexts of use of their pupils’ likely use of language and adapt language learning to those needs. We are a short step away from learners defining their context of use themselves on an individual basis. This becomes possible over online learning models such as ELLON.

In sum, the European framework is based on the assumption of a top down approach: the teacher defines content. However, the definition of language learning objectives is relative to the learner's context, in other words, they consider a bottom-up perspective: language cannot be detached from the learner's forecast situation of use. The variables: learner competences; language in context; medium of language; learner goals and learner needs, provide the background to defining lesson content.

These variables are taken into account in ELLON’s network model because the approach is ground up from the start.

5.5.6 Limitations of ELLON for Language Learning

Whilst only testing the model will reveal exact limitations of the network when in operation, I can describe here limitations that are inherent to the model of ELLON.
Minimum level required.

A setback of this model is that it can only address students who have a minimally sufficient proficiency level of English to engage in meaningful practice or communicative practice reflected in the online task. A beginner cannot face English content online without being constantly disrupted by emerging doubts. A solution to this setback is adjusting the online task to very simple content and respecting some personalisation by offering a selection of simple contents to choose from. However in this case it is unlikely they would be "real world" online tasks. The rest of the ELLON tasks could continue to apply.

Lack of overriding expert knowledge in context itself.

Online tasks may represent interesting opportunities for enriching one's language competences, but learners may not always spot these opportunities and such opportunities will be lost, because lesson content is entirely generated by their questions. Partially compensating this limitation is a learner's exposure to questions made by other students relating to their own online tasks. Exposure to a greater variety of MDE use and questions is thus attained.

ELLON does not address language use in physical contexts.

ELLON addresses Multi-Dimensional English online. Face to face speaking of English, requires practice in physical contexts that ELLON does not provide. However, it may be that oral practice online improve learner proficiency in physical contexts, and may be a starting point to build face to face skills. A learner could practise oral skills by posting pod or webcasts of own productions and submitting them to group and teacher discussion.
Audio/video comprehension and production: technological limitations.

While ELLON is designed to incorporate the practice of online speaking and listening (through audio and video materials as they arise in the learners’ real task) these media, in their current use and state online, are generally heavy to download, and it is technically difficult to reproduce the specific extract that is the object of the LLO question. This represents a barrier to the ease with which these resources are consulted and produced.

Disruption of online task

A setback of this model is that it disrupts learners' concentration on their online task, and may entail frustrating delays for peers to get an answer. However this is necessary as research has shown that mere participation without attention to form does not improve linguistic competence (Lin, 2012). Furthermore, users are conscious, or should be made aware, that their ELLON participation is their formal language learning process, not merely a tool to solve language barriers.

Independent use unchecked.

Another setback is the inability of the model to check whether the learner has applied knowledge built over ELLON to personal and real online task in English. No link is established between ELLON and the actual "performance" of the learner in English in the real world (which is also the case in classroom teaching where teachers cannot control how learners use English outside the classroom, nor assist them).
5.5.7 Testing the Model

This study aimed at defining a general design for a productive language learning network based on SLA research, empirical findings on social language learning and emerging concepts in network learning research to date. As this model has not been tested, it is difficult to know at this point in time how the network comes to life as a whole, in what way the set design, social design and epistemological design interact and are experienced in practical terms by learners.

Theory building

Can we consider that an online "connected" learning network represent an especially adapted observation field for gaining insights into psychological processes? Generalised externalisation, using online writing or podcasts, of each and every learner, simultaneously, and revelation of ZPD through learner generated questions, with their traces left online, may serve as a means to collect language learner data enabling to pursue other open lines of research in SLA of which I give some examples below. ELLON sessions could possibly be used as units of analysis towards theory building of network language learning, in the socio-cultural tradition and/or to validate or not the conceptual framework put forward (at a risk) for the purpose of this study.

Using ELLON as a unit of analysis of the study’s SLA conceptual framework

Can an ELLON session be a unit of analysis for the conceptual framework proposed in this study? In other words, how can we test:

- that network participation and tasks equate to edge of chaos conditions for language learning?
that peers address each other language learning ZPDs leading to independent language use?

that the microcontent format is a cognitively advantageous format knowledge unit, and that it does enhance connection making as proposed by Siemens (2006)?

that the three components (web tasks, peer interactions and the flow of MDE microcontents between them) work together as a whole to lead to MDE acquisition.

It is necessary to test whether changing either of those components would weaken the efficiency of the model for language learning. In other words, we need to measure:

- the effect on learning of choice of online task as individually defined, and used informally and openly by learner (rather than predetermined content, imported into the LMS)
- the effect of the format of the microcontent knowledge unit (rather than not setting any knowledge format, for example allowing long paragraphs of language or single vocabulary questions)
- the effect of allowing the group’s complementary knowledge to come into play through group questions and LLO display (rather than randomly assigning dyads)
- the effects of evaluations and deadlines given to peer to peer conversations, on depth and diversity of knowledge-building (compared to open forum posts freely entered)

**Testing ELLON for individual MDE acquisition.**

We need to ask whether ELLON teaches or accomplishes what it sets out to do. Does ELLON usage increase skills proper to “network language learning” such as the ability of the learner to cultivate weak ties, strong ties, language online resources and ELLON LLOs?
• does ELLON lead to the building of the range of MDE competences? In other words is the knowledge building design, based on learner questions and answers, effective for learning those competences?
• does the use of ELLON lead to increased ability in mastering the multimodal aspects of online English?
• does the use of ELLON lead to greater learner ability for intercultural awareness and adaptability in online multi-cultural settings?

Main research questions to address when testing ELLON's efficiency for learning include:
• how concepts created in ELLON by users are then internalised and applied to new contexts by learners, in each field of competence.
• how much and if ELLON increases learner motivation to pursue online tasks in English.
• regarding achieving qualitative leaps in acquisition of Multi-Dimensional English: can they occur solely through ELLON practice? This could be researched by comparing learner progress in MDE through ELLON and learner progress in MDE through other learning and teaching approaches without ELLON.
• does the cognitive process of exploration through peer to peer conversation, that is directed over use of ELLON, become automatic over time, does it become a reflex in learners?
• effects of ELLON usage on acquisition of concepts, noticing and capacity to conceptualise.

I propose the following constructs as a basis to evaluate the efficiency of the model for Multi-Dimensional English competences. Large sets of data could be collected on:
• increasing diversity of learner questions: this calls for a precise definition of "diversity" per competence. Learner traces left over LLOs provide data to analyse and measure progress in diversity in so far as tags reflect the different dimensions of MDE and associated competences. Observing the statistics of the amount of different tags and the evolution of this number over time, provides information as to whether the learner asks the same types of questions or not in the long run, as well as to what extent learners start to ask different types of questions.

• increasing depth of learner questions: this calls for a precise definition of "depth" per competence. Depth of learner questions may either refer to the number of “difficult” questions (not easily answerable) or the number of times learners ask a new question based on an initial question. In both cases, learner traces left over LLOs provide data to know the amount of difficult questions asked (and the evolution of this number over time), and the number of new questions that arise from older ones (the new context for a new question is copied from a previous ELLON chat).

• frequency of similar questions: using a specific learners' LLOs, one can evaluate to what extent learners ask a question that is similar to previous questions. The traces of similar questions come from similar tags on one hand, and low grades as to the question value on the other. If learners ask the same questions, this could mean that they are not completely acquiring the concepts they have created, because they are not being remembered consciously, or unconsciously and applied independently.

• increasing independence over English online networks: another measure revealing how learners internalise assistance over ELLON would be learners’ capacity to exercise, produce and understand online MDE competences never encountered before, using
online tools, or ELLON's contextualised LLOs.Submitting learners to two similar
tasks over a time interval, during which learners have used ELLON, could lead to
measure how independent they become. If learners have fewer questions the second
time, and in the mean time their only exposure to English was through the use of
ELLON, then it may be possible to assume ELLON increased their ability to perform
tasks independently in English (with or without Internet tools).

It can also be valid to compare how two similar groups of learners perform the same task:
one group using ELLON, and the other group without using ELLON, and repeating the test
exchanging roles. Comparing quantitative and qualitative data from both groups may lead to
conclusions as to the qualities and limitations of ELLON for improving individual capacity to
engage in MDE learning. Finally, it can be useful to test whether audio/video practice over
ELLON enhances oral production and comprehension in face to face contexts.

**Testing ELLON's network design.**

ELLON can be tested as to its own inherent affordances. Constructs need to be built that
operationalise network concepts presented previously: legitimacy of knowledge; semantic profile;
network expansion; how activities are shaped by ELLON design; legibility and interpretation of
tools. Questions such as those that follow can be addressed.

- Network expansion: ELLON expansion may be revealed through the observation of
growth in diversity and variety of generated LLOs, progressively covering an ever
wider sample of online English in all its dimensions (Multi-Dimensional English). Over
time, it will be possible to observe whether the number of users increase, whether
LLOs generate further explorations of meaning of MDE, and whether learners develop habits of use of LLOs. This may be analysed by collecting learner reactions on the one hand, and network produced knowledge on the other. Then one can triangulate the quantitative and qualitative data on all competences exposed.

A multiplicity of tests may lead to fine-tuning of design features, and formats, for example:

- capacity for learners to identify their own questions
- complementarity of group knowledge and legitimacy of knowers: tests may show to what extent ELLON design is made to reinforce legitimacy of knowers as projected.

According to Carvalho & Goodyear (2014) “We can measure legitimacy by calculating how strong and weak the emphasis given by learners to their epistemic relation to the claim, or their social relation to the author of the claim”. Over ELLON, the epistemic relation of users with learning content is direct: through their choice of online task, they are addressing both the general area of language they are likely to use, and, through their own generated questions, they are addressing the language difficulties and knowledge they need within that area. In terms of legitimacy of knowers, they are exposed to a teacher and peers, on the one hand (and visualisation of badges earned by certain students), weak ties over their broader task online (perhaps they are in contact with more proficient speakers than themselves, to whom they can ask for language assistance). They are also witnessing a knowledge building process that comes with its own checks and controls (grading, several viewpoints on the same question, final validation by group and teacher). Ideally, learners will build belief in the various confrontations of views, and interplay of peers, online language tools, teacher and
weak tie contributions to reach legitimate knowledge, the extent to which needs to be tested.

- ideal temporal distribution of questions
- most effective number of participants within a practice group balancing needed viewpoint diversity and community engagement.
- efficiency of peer scaffolding with respect to given competences: do users take the liberty of addressing, and do they identify, the variety of MDE competences listed in this study?
- the role of open network exposure and weak ties to achieve diversity of linguistic content and exposure
- if some competences are not addressed naturally through ELLON use, should they require face to face classes, or adjustment of tasks over ELLON?
- more generally, how would affordances of face to face interaction complement ELLON to improve MDE competence?

- ELLON semantic profile should be tested. Over ELLON, semantic gravity illustrates the dependence of language context of the generated learner question and answer. Semantic density corresponds to the micro content format given to the knowledge unit, and the way the LLO is written, the amount of language knowledge that is included within the pre-defined format. It may be that learners include symbols or icons that reinforce the meaning and density of knowledge, or add their language "concept" that would also reinforce the density of the LLO. While Carvalho & Goodyear (2014) suggest that it is through the design of tasks, leading learners to be exposed to "progressive levels of generalisation and abstraction", over ELLON, learners are
exposed to both progressive abstraction (through their sub-task of deriving concepts from answers to concrete and contextualised language questions) and progressive diversity of exemplars of MDE competence through their main task, and subsequent tasks over time. Repetition of ELLON sessions should expose learners to both quantity and diversity of competences and explicit (meta-lingual) language knowledge, corresponding to the explicit and implicit learning that leads to acquisition (Ellis, 2008). Carvalho & Goodyear (2014) also remark that learners may generate knowledge that address changes in their own subject content reflecting wider social changes. This is also the case over ELLON: new uses of English, in terms of neologisms, expressions, multimodal varieties of use, etc. These can be addressed through questions and social agreement between ELLON participants and teacher during the LLO generation phase. Testing ELLON could reveal whether they actually are.

- shaping activities: testing ELLON can reveal what types of activities the network design actually shapes, in addition (or rather than) the ones initially projected. Interpretation and legibility of tools are important to test, improve and to validate, as they play a role in inviting and shaping learner activity. Particularly relevant to observe is whether ELLON leads learners to cultivate their strong ties, weak ties and the use of Internet online resources.

- co-configuration: how users create tags, and use their own generated LLOs can be a way of measuring to what extent learners shape their own network.

- it will be important to test whether generated learning analytics return accurate information on individual learner strengths and weaknesses, and the ability of ELLON
to provide adapted suggestions of tasks that do help the learner reinforce and diversify the practice of competences where they are needed.

**Which research method to test the model.**

Now I discuss, in light of the above reflection, which methodology may be the most appropriate to test ELLON.

As reviewed in chapter 4, methodological insufficiencies in second language learning studies include lack of longitudinal studies and the lack of comparisons of new instructional methods with current practices. Because the model is a learning design that is meant to both enhance learner exploration of MDE and create an expanding network of MDE, I propose that there are two ways of testing the model: from the perspective of ELLON as a learning design, that enables accelerating online English language learning within an institution’s curricular objectives; and as a longer-term network learning model, that accompanies learners on their lifelong language learning journey.

*Short-term testing of the model.*

It could be useful here to compare the efficiency of following student led explorations with the efficiency of pre-defined content transmitted by teachers. A comparative test could be made between current classroom teaching and instruction (or any other) and the practice of ELLON, by performing a test on the same tasks.

A first group can be identified and set-up over ELLON. The tasks that are chosen by each and every ELLON practice group member can then be given to members in another group in the traditional methodology group (as if it were pre-determined curricular content).
At the end of the ELLON sessions, when learners have completed their tasks, tests are given on either comprehension or production, oral or written, online, to both groups, according to what their tasks addressed. Comparative results of each group’s performance can then be drawn. A second test can be performed this time switching the groups around (those who worked over ELLON now follow traditional classroom practice). Comparative results of each group’s performance can then be drawn. Comparing the results in both tests may lead to drawing conclusions as to the different affordances of both learning designs (traditional classroom and ELLON) and possible improvements or advantages brought by the use of ELLON.

Data collection could be a triangulation of test results and data from surveys and participant interviews.

This type of test targets would give an indication as to the efficiency of ELLON for short-term language learning. However, ELLON is also meant to represent a longer-term learning system of MDE acquisition through network growth. To test ELLON as a life-long learning MDE acquisition network, a longitudinal study would be required.

**Long-term testing of the model.**

When testing the model, the objective should be to discover how the model may lead to learner acquisition of MDE. As we saw in chapter 4, a recurring limitation to research studies in language learning and acquisition is the lack of longitudinal studies. There are reasons to suggest that the ELLON model would require a longitudinal study. Firstly, it would take time for learners and teachers alike to get used to network learning behaviours described at the beginning of this chapter. Learning over ELLON requires a different mindset from the habitual one associated to language learning, i.e. a teacher centred classroom context based on a predefined curriculum. I
suggest a time allowance for this adaptation to take place would be necessary before starting to collect data. A parallel can be drawn in the change of mindset required from viewing a course as pre-determined and transmitted top-down content, to one’s own participation in an open-ended thought enhancing and exploration system such as ELLON.

Secondly, it is through the practice of MDE, (i.e. student real use of Internet in English, accomplishing tasks online), that learner ZPD in MDE will be progressively revealed through the question formulation. Learning is projected to occur when learners enter the formalised knowledge building sequence over ELLON. Time needs to be allowed for learners to have engaged in such explorations frequently enough to cover a broader range of MDE utterances and competences that are likely to be reused, or to reoccur online. In this way we can measure the correct reuse, or not, of language concepts or exemplars in context by the learner. In this case, we would have to check whether the acquisition of these regularities and skill in using them in context is the result of previous ELLON practice or whether a learner’s MDE skill acquisition resulted from other systems or sources of learning.

Distinguishing the exact origin of increased skill would present difficulties in this case.

Introspective methods such as comparing diary studies or retrospection, mixed with elicitation techniques such as questionnaires and interviews could bring to light the affordances that are specific to ELLON’s design within a learner’s general acquisition path. Given the amount of variables to measure, these ethnographic methods may allow to draw conclusions as to the direct and indirect effects of ELLON use, and, especially whether:

- learners develop habits of exploration thanks to their obligatory use and organisation over ELLON: reflex of noticing questions, searching for answers over online resources and conceptualising the answers.
• whether ELLON becomes a reliable and complementary source of MDE assistance at point of need.

• studying the ELLON database itself and user data will also be a source of data on:
  o reuse of LLOs (consultations of contextual LLOs)
  o whether learner questions (explorations) evolve towards covering more diverse competences.
  o whether learner questions evolve to being more difficult (detectable through the number of questions formulated that are not chosen by peers).

Eventually triangulating data collected through ethnographic methods and data collected on user questions from the ELLON database may allow to conclude on the consistency between both sets of data, and lead to conclusions related to the research questions.

5.6 Adaptations of ELLON

Below I propose a few adaptations of ELLON, remaining in the field of language education.

5.6.1 ELLON and Mobile Learning

Mobile learning (or “mlearning”) has been shown to enhance the qualities of open network learning (De Waard et al., 2013), and research on mobile language learning, in particular that led by Kukulska-Hulme (2008, 2009a, 2009b, 2012) shows that this area represents an expanding language learning universe where dimensions of time, context and space add to the richness and intensity of learning experiences.

Mlearning does not only find grounding in learning theory, it also creates learning opportunities and embodies a practical solution for remote regions, or areas where there is a lack
of teachers or lack of educational buildings and material resources: because mobile phones are universally possessed, they become a support for extending learning experiences to population groups deprived of educational infrastructure or time. An intergovernmental programme funding a massive mobile learning program “BBC Janala” to learn English in Bangladesh is an example of the exploitation of the possession of mobiles to teach the English language to 25 million adults on a nation-wide scale (Sagar, 2013). This educational initiative also demonstrates the particular role that mobile learning can play in the spreading of a global language such as English.

The essence of mobile learning is dependent on the fundamentally evolving affordances of technology on the one hand and adapted learning practice on the other (Palacio, G., 2014, p.8). Palacio (2014, p.10) summarises how mlearning technology physically bridges learning spaces:

mLearning allows creating broader time and exploitation scenarios for teaching and learning, using mobile devices to support cloud resources from Internet or residing in servers belonging to educational or business organisations, who develop contents specifically designed for mobile environments. (Palacio, 2014, p10, my translation)

Thus progress in technological affordances of mlearning potentially reinforces the symbiotic relation between living and learning, and extends the application field of connectivist learning. In our case, making ELLON compatible with mobile learning would signify extending the general context of exposure to English beyond the online task, to the learners’ life context outside the computer screen: learners’ daily lives would become a scenario of exploration of English whenever necessary, for example at the workplace, over just-in-time scenarios.

How make ELLON compatible with mlearning?

An option could be for learners to have an ELLON plug-in integrated into their mobile devices (tablets, smart-phones). They could capture in this case any English language content that
provokes questions in their daily lives, anywhere, anytime and cross-context. If the mobile device allows to capture a passing context of language use and deriving question, the learning opportunity would not be missed because the ELLON user could immediately pass the context into a chat question. This plug-in could send content selected, to the learner's ELLON database, where the learner can then reuse that context and question to formulate it explicitly over an ELLON session.

An analysis of current mobile technology and apps applied to education (Palacio, 2014) shows that mobile-based functions such as managing databases, capturing audio-visual and voice contents for sending through email or group chat, as well as task schedules and alarms (Palacio, 2014, p.76 and p.138-140) exist, in addition to free LMS designed for mobile use (Palacio, 2014, p.118-119). The mobile version of Moodle is currently being developed. These technologies make feasible and would facilitate building a full mobile version of ELLON.

5.6.2 ELLON and Exchange Programs

A variant of ELLON is that for each group of 10, a native speaker adopts the teacher role. Native speakers themselves are learning the native language of ELLON users. So, for example, in the case of Spanish speaking learners of English, native English speakers are simultaneously (or at a deferred moment), in an ELLON network themselves, with students from the original MDE practice group acting as teachers over the MDS (Multi-Dimensional Spanish) learning ELLON network. This may strengthen the sense of community and allow more groups to be working at the same time. For more control over learning, teachers may check the correctness and value of generated LLOs in both cases, to supervise the level of involvement and efficiency of their students when adopting ELLON teacher roles.
5.6.3 Language Modules for Online Courses (MOOCs or other)

Any online content in English directed to global consultation and use can represent main tasks and material for an ELLON session. ELLON allows to develop a user-generated, teacher validated, MDE assistance module to accompany online English language web platforms or contents. When used as a start and end task, especially if used by several different learners, it is possible to have a record of the language related questions the content provokes: it is possible to know whether it provokes many language questions and for which user profiles (according to proficiency level in English). It also provides a contextual answer to those questions through the LLOs (as language reference).

This implies that for future users of the content, a contextual dictionary that solves contextual difficulties is possible to access, and it is even possible to sort that dictionary according to one’s own profile so that relevant entries are provided.

Therefore, once specific online content has been used for ELLON across various learner experiences, that online content will have associated with it, a contextual set of LLOs solving its specific language difficulties.

It is possible to imagine that such language assistance modules become the norm for web contents of particular international nature, as can be the publication of certain scientific or research articles, international organisation publications (when these are not translated into all the different languages), corporation reports, etc.

This can be very useful for online contents such as "Massive Open Online Courses", where international participants are exposed to subjects in English language. It is commonly known that many students abandon such courses because of the language barrier (when they are not fluent in
English). To have access to contextual explanations at point of need, even encompassing discussions on the online content and focus on meaning itself, and in the participants' native language, could be a valuable addition, facilitating course completion. In this case the institution delivering MOOCs should also be the institution within which ELLON sessions took place or is authorised to use ELLON LLOs from other institutions.

5.6.4 ELLON for CLIL

Content and Language Integrated Learning (CLIL) is an approach that introduces language learning as a consequence of focusing on subject (content) learning. In practice, this leads to pupils being taught a subject which is part of their institution’s curriculum in the traditional classroom (biology, maths, history, etc.) in a second language. Its justification is that when learners focus on content in the second language, they focus on meaning and this pulls their acquisition of not only content itself but also its form (the language it is expressed in), and thus is compatible with aspects of second language acquisition theories (Dalton Puffer, 2008).

One advantage put forth is that “by realigning language and cognitive development, CLIL can combat the lack of relevance of language teaching based on grammatical progression and boost learners’ motivation” (Lasagabaster, 2009).

It has been claimed that CLIL can also “lead to greater intercultural understanding and prepares pupils better for internationalisation” (Coyle et al., 2009).

The CLIL approach has also been supported by recent findings in neuroscience. Ting (2010) explains that the requirements of presenting contents in a second language requires that both teachers and learners break content down into digestable chunks of both language form and meaning, in a way that is compatible with findings in neuroscience on how the brain processes
information. The author explains that by attempting to express meaning in a second language, the concept itself needs to be made more explicit, and by making the concept clearer, language is used in an authentic way. A secondary effect brought to light by the challenge of CLIL is that focus of class activity shifts from teacher-centred talk to centring on the learner's own process of receiving and obtaining information, precisely because of the increased need to break down content into comprehensible language. According to this view, meaning would no longer be hidden between the lines of uninterrupted teacher talk, but would rather be the dynamic result of interactions and negotiation of meaning between teacher and learner.

CLIL would thus call for the learning process to evolve from a passive explicit-information-absorption format into an active “you-work-it-out-using-language format” where knowledge is gained implicitly (Ting, 2007; Parise and Ting, 2010).

The rise of the recognition of positive results of CLIL has lead to a rising number of institutions applying CLIL in schools and is being officially promoted by the EU through project funding.

Effective CLIL is said to take place through 5 dimensions: progression in knowledge, skills and understanding of content, engagement in higher order cognitive processing, interaction in the communicative context, development of appropriate communication skills, and acquisition of a deepening intercultural awareness (Coyle et al., 2010).

Limitations of CLIL.

Difficulties linked to CLIL implementation in the classroom have been identified, that would be caused by insufficient resources in time and language focus, such as:

1. lack of teachers and resources (Mehisto 2008).
2. insufficient focus on form (Harrop, 2012).
4. low motivation and need for positive feedback (Hood, 2006).

To a certain extent, these limitations can be traced back to the specific socio-pragmatic conditions of classrooms that limit communicative practice (Dalton-Puffer 2007, Dalton-Puffer and Nikkula 2006, Lyster 2007).

Lyster (2007) suggests that to overcome these difficulties, CLIL lessons could introduce tasks that encourage learners to become more aware of form (Lyster 2007), use joint Foreign Language and CLIL assessment policies, and choose CLIL tasks that are “immediately obvious and part of the learners’ day to day experience”.

**How ELLON addresses some of CLIL’s current limitations.**

The specific affordances of online communication on one hand, and a model such as ELLON on the other, may provide a form of online “CLIL” where some of the challenges faced by competition of attention between form and meaning, as well as lack of learner motivation are partly addressed.

The ELLON model is distinctive in the way it obliges and rewards learners for paying attention to linguistic form, as well as providing freedom to discuss any learner (not predetermined) questions. Ting shows how teachers can make content explicit by focusing on form of meaning,
so when students take time over comprehension or output, thanks to textual mediation, online chat

textual mediation could turn into a solution for addressing both form and meaning.

Students may enter exploratory asynchronous dialogues that give them time to concentrate
both on meaning and form, thus relating content to form, and form to content. Rather than learner
determined tasks, a learner’s start and end "real online life task" over ELLON could become
curriculum based subject-area content (for example lessons in maths, biology, geography, etc.).

Complementarity of both MDE and subject area knowledge, may be allowed to come forth
over ELLON’s question choice by the group of learners. Both subject area content (production,
assimilation or comprehension) and language form given to it, could be evaluated over two
different grading systems within the knowledge object building phase. Assistance in expression
over the Question and Answer chats could accompany meaning-focues conversation. Allowing to
use native language to discuss meaning, and subsequent translation into the second language over
the chat, could help avoid simplification of meaning due to insufficient language proficiency.
Asynchronous communication gives time for learners to focus on form and meaning and a grading
system over that communication would provide learners with extrinsic motivation to do so.

Further, within the peer practice group, mixing language learners with native subject learners
could allow expert language knowledge to proliferate as an indirect consequence of subject
content.

Each individual chat question may lead to an LLO, where not only a language question is
made explicit with its answer, but also a content question is elicited with its answer or comment.

ELLON also provides additional possibilities for learners to support each other and attend to
each others' difficulties in an anxiety-free manner, thanks to the use of chat.
Assessment can focus on both content and language, as traces of learner output are left online. Moreover, by choosing the basic task that learners engage individually in, teachers can provide an environment that is multicultural: learning biology or maths curriculum items for example over a content that is presented in English, with chats organised with other English speaking students from different countries, or exposing students to real life discussion groups in biology or maths for example online. Figure 36 illustrates a CLIL interpretation of the use of ELLON, putting into contact English and Spanish speakers.

Figure 36. ELLON used for Spanish and English speaking CLIL students
Additionally, the online medium may be found to enrich subject content presentation with multimodal expressions, thus easing the understanding of meaning through the semiotic richness of web pages and the multimodal online expression of the subject (images, videos, oral and written productions, colours, layouts, etc.). Figure 37 illustrates how students of both Biology and English would address their questions using an ELLON Question editor design for CLIL.

![Figure 37. Example of CLIL question over ELLON](image-url)
Not only learners, but also teachers, have time to attend to both the subject content itself, and the language used to express it. Thus over ELLON, teachers’ attention would be dually channelled towards students questions on form and content.

Figure 38 below is an adaptation of ELLON for CLIL showing the sequence of tasks.

**Figure 38. ELLON steps adapted to CLIL**

To conclude, the learning design over ELLON can be configured over an LMS to address a CLIL learning approach. Table 23 summarises the settings to configure.
### ELLON and Moodle: CLIL

Table 23 below summarises the adaptations to make to ELLON so that it be used for CLIL.

#### Table 23

**Settings to Adapt ELLON for CLIL**

<table>
<thead>
<tr>
<th>ELLON Setting</th>
<th>Change</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main task</strong></td>
<td>Defined by teacher according to official curriculum</td>
<td>Whereas over ELLON, learners choose their task, in this case it is the teacher who defines the online content as it corresponds to curricular content and should be the same for all learners so they share the same content learning goals</td>
</tr>
<tr>
<td><strong>Practice group</strong></td>
<td>Same as over ELLON</td>
<td>In this case, content is negotiated between peers as well as meaning.</td>
</tr>
<tr>
<td>Option 1</td>
<td>Same as over ELLON</td>
<td>In this case, peers speaking different native languages will help each other over questions of language and meaning. Learners in both language should share a common interest in the main task (sharing the same curricular content for example).</td>
</tr>
<tr>
<td>Practice group</td>
<td>Must include L2 learners and 5 native learners</td>
<td></td>
</tr>
<tr>
<td>Option 2</td>
<td>Must include L2 learners and 5 native learners</td>
<td>In this case, peers speaking different native languages will help each other over questions of language and meaning. Learners in both language should share a common interest in the main task (sharing the same curricular content for example).</td>
</tr>
<tr>
<td>Question Choice</td>
<td>Restriction on choice</td>
<td>Each learner must choose a question from a learner with a different native language</td>
</tr>
<tr>
<td>CLIL0 fields Editor</td>
<td>Add content fields in the LLO Editor</td>
<td>This content field is where the learner discusses content rather than form (language used to express it). It is likely that learners mix both discussions over the chat. However over the LLO, the original asker of the questions must distinguish what has been learnt related to form (language) and content (subject).</td>
</tr>
<tr>
<td>Evaluation fields</td>
<td>Add “content” evaluation field separate from language</td>
<td>Peers and the teacher need to evaluate peer and learner contributions to not only the MDE field of knowledge, but also any clarifications brought to questions on meaning with the subject area (biology, etc.).</td>
</tr>
</tbody>
</table>
Such an ELLON design could be found to overcome several of the limitations discovered in the practice of CLIL in classroom settings. The ELLON model is distinctive in the way it obliges and rewards learners to pay attention to linguistic form through the setting of dual evaluation at point of language use. The ELLON format also provides freedom to discuss unpredictable questions from learners as chat encourages informal and anxiety-free open negotiation of meaning. The design could also address intercultural practice within the CLIL approach. Coyle et al. (2010) comments that:

An intercultural ethos is thus a defining feature of the CLIL classroom both at micro-level, through meaningful interactions in the vehicular language and potentially, at macro level, by providing pupils with the linguistic tools and knowledge to extend their interactions beyond the classroom.

Access through Internet and learning designs like ELLON can make real this extension of interactions beyond the classroom. The need to answer a question on meaning, for example, may lead to additional attention on form as the pupil is obliged to reach an understanding. There is additional need and motivation to focus on the form, to attend to meaning, and to interact with a foreign student.

It could be useful to study the use of ELLON for CLIL, so as to draw conclusions as to the potential of this type of “online CLIL” design, and whether it is able to address current CLIL limitations within classroom practice.
CHAPTER 6 CONCLUSIONS AND FUTURE RESEARCH

“The great end of life is not knowledge but action.”
Francis Bacon

This study proposes the design of a learning network architecture, that addresses the specific challenges of teaching the skills and competences required to master the use of English as a global language used online.

ELLON is a learning design that bridges formal and informal learning, allowing learners to intertwine their personal use and learning needs in English with formal curricular, teacher expertise and assessment.

This is achieved by bringing LMS-based learning processes to the learner at point of need when accomplishing any informal and personal task on the open Internet.

The approach is “bottom-up”, rather than “top-down”, as it imports formal exploration and thought activities at user's self-determined point of need.
The model is designed to adapt to any local and individual requirements of English language online skills and learning.

6.1 Summary of Findings

The main question in this study was: what architecture design would lead to a productive online language learning network for learning English?

This main question leads to the following secondary questions:

- Which subset of skills and language should constitute the learning goals of the network?
- What findings from theories on language acquisition on the one hand, and online communication and social learning networks on the other, should a learning design reflect?
- Lastly, what English language learning architecture can reflect those findings, what principles and framework can we propose?

All questions were addressed by means of secondary research. A literature review enabled me to propose a paradigm of Multi-Dimensional English (MDE): a definition of the skills and competences English as a global language requires to be mastered. A separate literature review enabled me to cross findings from the research domains of SCT applied to SLA, CSCL, CALL, social networks for language learning and social online knowledge construction.

With the specifications of the ELLON model exposed in chapter 5, I have shown that it is possible to design a language learning network architecture that: 1) leverages the distinct affordances that current technology can contribute to language learning, 2) addresses the
recognised challenges of the teaching of English as an international language, 3) reflects recent research findings in SLA and second language instruction and 4) is technologically feasible (and largely executable over Moodle).

My study also contributes to an updated paradigm of English as an international online language and proposes a conceptualisation of network language learning based on SLA research.

6.1.1 Redefining the English Subject for a Network Society

A review of research on English language competences for the digital age leads me to propose a "Multi-Dimensional English" paradigm as a continuation and complement to the evolving paradigms proposed by David Graddol among other authors. Many English language learners may never need to use English in face to face situations, but only through online textual or oral mediation. This changes the focus of English language learning, as the online context becomes the language's main channel of use and expression.

It is therefore necessary to teach digital skills with the language itself. Online use of English becomes a full experience of use of the language. This changes the view of online networks as a tool to complement language teaching towards a focus on online networks as an embodiment of a global society, with its networks, conventions, international culture, regional varieties and semiotic systems. The following list of competences are proposed to be part of the Multi-Dimensional English paradigm:

- Declarative knowledge: Knowledge of the world (awareness of the particular form of empowerment English can bring)
- Intercultural awareness: Modelling an understanding of cultures in intercultural communication through English as a lingua franca

- Inter-cultural competence: being able to communicate with anyone in the world and reach international intelligibility.

- Skills and Know-how: digital literacies, pragmatics of written interaction, as well as hypermedia authoring and publishing skills needed for the effective presentation of meanings

- Ability to Learn: language and communication awareness; general phonetic awareness and skills (video, podcasts); study skills (network learning); heuristic skills

- Linguistic competence: lexical, grammatical, semantic opportunities for communication based on the values, cultural norms and needs of learners; phonological and orthoepic competence through video and audio online.

- Socio-linguistic competence: "Net" English; register differences (formal and informal net style standard English); expressions of folk wisdom; linguistic markers; online social convention markers (netiquette); regional variants that are becoming increasingly established and official

- discourse competence

- functional competence

This definition of subject area influences the teaching and learning pedagogical approach to achieve proficiency. Widening our conceptualisation of online networked communication from a tool or platform for learning, to the very site of use of knowledge that we learn, we can learn while taking part in a real life activity, therefore: whole and real experience of English language use can now be the learning context itself.
6.1.2 Proposal of Conceptualisation for Networked Language Learning

A review of online language learning platforms existing today shows they share a common pattern: users study pre-loaded meta-lingual contents with or without memorisation techniques (such as flashcards, or tests). Learners are then given the opportunity to "practise" and apply that knowledge over a platform that puts other learners or native speakers into contact. These architectures reproduce transmission learning as learners are meant to receive, memorise and then apply predefined knowledge content to purposely created communication platforms.

Many functions offered by ICT are not exploited, although they have been identified as having learning affordances. A reflection on research findings as to how humans acquire a second language is required to tap into the unique characteristics of online networks and provide conditions for language learning. This is what I have attempted to do with my conceptual framework proposal and learning network architecture that I summarise below.

SLA research shows a tendency towards recognising the complexity of language acquisition and that it may never be possible to predict a learner's acquisition path. A learner's second language acquisition is based on a series of interacting internal neurobiological processes and their stimulation by external and social factors, studied under separate research branches, the main ones being cognitive approaches and socio-cultural approaches.

Applying a connectivist view of learning to language learning makes it possible on the one hand to conceptualise neural patterns and language utterance emergence as interrelated network connections. This in turn allows highlighting the distinct characteristics of connections over online networks to reflect the richness, diversity, autonomy and openness of that environment for providing potential second language acquisition processes online.
Research on SLA within the Socio-Cultural paradigm provides findings on how learning emerges from intra-personal exchanges online and the conditions for learners to internalise language. Research in the cognitive branch indicates that units of language processed in our memory are constructions and chunks.

Memory-compatible units of explicit knowledge such as constructions, chunks, concepts and other microcontents of knowledge can be reflected in online formats, in turn conceptualised as a necessary format for enhancing online connection-making (Siemens, 2006).

With the rising use of online social networks and their import into formal education, additional layers of authentic contexts for language use, and for social mediation peer/peer, peer/tutor/, pupil/teacher are truly and/or potentially changing the landscape in which a broader set of conditions for SLA to occur can be designed for.

Network learning research and the theory of connectivism in chapter 3 allow me to propose how learning occurs over Web 2.0 ecologies, based on increasing externalisation of our explorations, and connections between them, in this way:

- Internet provides an environment that reproduces at least in part the conditions of edge of chaos for learning due to interactivity, unpredictable situations of communication, diversity of contexts, and openness of participation, for SLA to occur.
- Online communications offer the possibility of designing various patterns of exchanges between peers and experts, and represent a privileged support for intra-psychological exposure.
- Language chunks in context and language concepts represent knowledge units that lead to language internalisation.
- Learning occurs when assistance is contingent and received at point of learner's need.
Language is progressively acquired through learner use and exercise of linguistic skill in real contexts.

6.1.3 Towards Learning Network Principles for Language Learning

Using networks in the larger sense of the word, language learning comes to encompass learning through practice where the learner traverses a network of connections between tools, peers, tasks and subtasks. Online networks are conceptualised as a second life of the English language, a parallel yet live context of Multi-Dimensional English, fit to serve as a milieu for naturalistic learning intertwined with explicit and formal learning processes based on unprecedented functions that ICT provide:

- adaptable geometries of learner competence dissymmetry;
- adaptable anonymity of learner contributions for freer externalisations
- objectifying learner explorations for future reuse;
- real language use contexts anytime, anywhere
- use of existing language reference artifacts and forums at point of need
- use of personal profiles and relationships to enhance motivation
- social learning analytics to provide a quantified basis for curriculum orientations and recommendations designed within an LMS such as Moodle.

While some of the above functions are usable from classroom contexts, over networks, they can become seamlessly integrated into learning processes.

There will always be a need for learner practice, because language is a skill (even native speakers need to practise their native language to maintain it). Thereon a connection to a platform that brings explicit instruction, acts as the “explicit” instruction that is necessary to complement
implicit learning episodes (Ellis, 2008). Real life experience, and augmenting it into a learning episode, occurs thanks to inviting users into using cognitive functions in a succession of sub tasks.

Socio cultural theory allows defining those tasks so they address our ZPD, and conceptualise subsequent internalisation of learning leading to individual development.

It is within an online network architecture that offers distinct computer mediated functions that all this is possible from within a digitally-connected life.

ELLON is based on principles deriving from findings or inferences from literature reviews and current technological affordances. After developing a prototype execution of ELLON over an LMS such as Moodle, and testing it, it will be possible to validate, invalidate or contribute to the principles of MDE network learning that I propose below:

- Using English over networks is a whole experience of the English language. We learn language by exposure and production of MDE in context
- Learner questions reveal learner ZPD
- Learner language assistance must be contingent, or "at point of need"
- Online communication allows configuring a smaller learning group within a larger real life network for learning
- Externalisation of learner language exploration can be guided and motivated
- Peer interaction can be sequenced towards knowledge building
- Different online communication options support different types of interaction, and can be defined according to the linguistic exploration phase
- Making our own exploration explicit enhances “noticing” and in itself is a learning process
- Noticing language questions and answers of others enriches our own learning
Individual language exploration can be reified mainly thanks to an online microcontent format

Individual exploration can turn into tasks for peers and presented as formal course content

A group and network's MDE knowledge is superior to that of each of its participants.

The sum of group knowledge can be distributed to each of its participants

Individual learning can affect how the network learns

Implicit and explicit language learning is possible to encourage in parallel through a dedicated online learning design

Network-generated knowledge exists as a separate entity and has a life of its own

Emerging knowledge reifications leads to the possibility of personalising learning paths, over time, using Learning Analytics.

Four-dimensional approach to learning design

The approach in this study may be reused for other subject areas. This approach consists in 4 general levels of analysis in defining the learning network:

1. subject redefinition: the subject is redefined according to its embodiment in our digital area. I analysed how the subject of the English Language needs to take into account its current definition as a “glocal” or international language, and its online form. Many subjects traditionally defined and taught within curricula are likely to require a new delimitation or definition as to its content and transmission format. For example, is the subject content related to medicine, geography or math different or affected by their networked knowledge matrix?
2. peer and teacher communication design: the study of how peers support each other, complementarity of knowledge of pupil groups, can be studied per subject, though validity of findings on the affordances of variable collaboration geometries thanks to chats and communication group platforms are likely to be relevant whatever subject they apply to.

3. reversal of the knowledge transmission model: the use of a networked knowledge matrix to produce new knowledge reifications is also likely to apply as a learning approach to different subjects. It can also be used for lifelong learning applications.

4. tag-based learning objects linked to context: more generally, the organisation of learning objects, and the way they are tagged for being consulted at point of need, and built upon by future participants is also of general applicability. This system allows using and editing knowledge objects according to their content rather than per user or date of creation. This in turn enables more focused connections on the part of learners and a way to limit dependence on non-content sorting criteria such as: order of appearance in search engines, name of author or date of creation or post (typical of Internet searches in general, or forums).

6.2 Continuing this Research

ELLON architecture needs to be developed and tested. I proposed above research questions and methodology in the event of testing a prototype. Here I propose some broader research questions.
Tasks for English as a global language competence.

Within English instruction, local teachers and institutions need to define online tasks that empower English language learners to use English in personally relevant ways. The English as a second language curriculum should perhaps include the understanding of the role of global online networks and where and how English is used over them.

A list of tasks that are considered basic for learners to exercise English language as a global language online could then be drawn and given to learners according to different socio-economic and geographical contexts.

Making group-generated knowledge reusable

Using online tools, learners can be formally induced and encouraged into identifying questions from real life participation (or task). Seamless integration of tool use supporting that development plays an important role in that invitation. But ELLON poses a wider question as to how to identify and format new knowledge created by groups so it can be identified and reused, not only by the group learning together at that time, but after the group has disintegrated. Knowledge is lost often over forums and other learning networks because it either hasn't been objectified in micro-content (published in an easily readable format), or is difficult to find (lack of tag, reference, common database and linkage to site of use). ELLON proposes a network architecture to address this problem, but broader research on this question to turn online environments into purist connectivist learning ecologies is needed. This leads to the following question.
**Human or Artificial Intelligence?**

Over ELLON, language knowledge is tagged by learners themselves, in other words, via human intelligence. I argued that tagging is a way of learning as it reinforces noticing of MDE features. However, public and private initiatives in educational software use artificial intelligence to recognise user contributions and tag them. It may be important to discover whether, when and for what, human tagging is more or less efficient than machine tagging in producing meaningful learning analytics.

**Individual learning styles and learning network design configurations**

A future line of research can be not only specific learning paths, but specific network "functions" that best adapt to an individual's independent learning style online: do learners need time limits to explore? Do they need to be interrupted in their online tasks? Do short or long tasks suit them? Do they learn better through chatting themselves and creating learning objects, or through traditional reading of books (print or digital)?

**6.3 Closing Remarks**

Kumaravadivelu (2012) reports difficulties facing the teaching of English as an International Language:

Several expatriate teachers teaching EIL around the world as well as teachers who hail from local cultural communities are slowly realising that the kind of personal and professional identities they bring with them to the classroom are becoming increasingly inadequate (Clarke, 2008; Widin, 2010).
If an epistemological break as suggested by Kuramavadivelu (2012), Siemens (2006) and Downes (2006) is actually taking place, English language instruction embraces a two-fold move: as to the very definition of language, and as to the possibility of predefining a curriculum for English, rather than letting the curriculum emerge. At the heart of each of these epistemological breaks is the knowledge structure of networks, both as cause for subject transformation, and as instruction solution to a moving target. If we are going towards a post-method era, it may be in the sense of a "ground up" approach. Kern and Nelson (2012) in this sense claim that "brave re-conceptions of language must be formed that are compatible with the dynamic fluidity, contextual contingency, and fundamental multimodality of meaning making".

Building on Kumaravadivelu’s (2001) post-method approach to English as an International language, Nelson and Kern (2012) thus advocate and propose a "meaning-based, contextually responsive, global, multimodal language pedagogy." Testing ELLON may reveal whether it has the potential of representing such a pedagogy.

The design of ELLON has attempted to represent a re-conception of language learning based on a re-conception of language itself in this sense, but its design can be adapted to other disciplines because it represents a “link between learners and teachers, and ultimately a learning process that adds interactivity to content” (Mengual-Andrés, S., 2013).

In the case of global use of networks like the one described in this study, and uniform formats of knowledge reifications, personalised knowledge-built references, would not only come into being but would be improved and expanded in an ongoing way as the network is used and generates learning objects.

More generally, if educational designs should pervade networks, then one can envision this model as a factory for building and spreading micro-content learning objects. The process of
creating them is the learning process itself, as they are born from emerging needs of knowledge and assistance of individuals, as they engage in online tasks and activities. These learning objects are then validated both by users, teachers and/or other connected experts and expand within the community of users of the networks, year after year increasing in diversity and quantity the value of its repositories, whether within one institution or cross-institutionally, or openly. In this sense they could form part of Open Educational Resources (OER) giving rise to a variety of educational applications such as curricular materials (Roig Vila R., 2005), and lifelong learning (Mulder, 2006). The characteristics of the LLO generated by users over ELLON would also fit in with the characteristics of “multilingual” (MDE question asked and addressed in the language of the learner) and “glocalised” (stemming from local student groups and personally online tasks) Open Educational Resources, generated from users and according to their real needs, as articulated in a 2030 vision paper by Zourou (2013).
APPENDIX: RESUMEN EN ESPAÑOL
1. INTRODUCCIÓN

El idioma inglés se utiliza masivamente de manera abierta y en línea. El dominio de la comunicación en inglés también implica adquirir fluidez en la comunicación en plataformas de comunicación digitales y globales. Los estudiantes deben tratar de superar barreras utilizando el inglés en diferentes contextos del mundo real, así como poder entrar en conversación con cualquier nacionalidad o la cultura en el mundo online.

Este trabajo propone una arquitectura de aprendizaje en línea del inglés como idioma internacional. Esta arquitectura de aprendizaje en red, es diseñable y ejecutable dentro de un Sistema de Gestión del Aprendizaje (LMS) y se dirige al aprendizaje del inglés como idioma internacional para los adolescentes y los adultos, en las actividades del mundo real y en línea para aumentar la fluidez del inglés en línea.

El modelo está diseñado para su uso a partir de un contexto institucional, con funciones y roles determinados asignados al profesor y a los estudiantes. Estos roles están diseñados en el modelo. Las competencias incluidas son la producción oral y escrita online (emails, chats, etc.), así
como la comprensión oral y escrita en contextos en línea (audio, video) que se ajustan al uso real y probable del inglés de los estudiantes.

1.1 Justificación del Estudio

Puesto que el inglés se ha convertido en un idioma global, prácticamente todos los jóvenes y adultos consideran el dominio del inglés como una de las condiciones para la mejora de perspectivas de vida. Tradicionalmente, aprendices de inglés han considerado necesario complementar el aprendizaje formal en el aula de idiomas con algún tipo de programa de inmersión lingüística. Sin embargo, no es realista esperar que millones de aprendices de inglés en el mundo viajen físicamente a regiones de habla inglesa para conseguir experiencias de inmersión y así lograr la fluidez.

La demanda masiva para aprender inglés en todo el mundo y el uso predominante del inglés a través de redes en línea, justifica por sí solo el estudio de alguna forma de inmersión lingüística digital. Se puede argumentar además que el inglés es una de las asignaturas para las que más se justifica un enfoque de aprendizaje en red por la sencilla razón de que las redes en línea se han convertido en su contexto mundial de uso y expresión más grande (a diferencia de interacciones cara a cara en contextos internacionales o países de habla inglesa).

Hasta ahora, según los conocimientos del autor, no existe una metodología de aprendizaje en red en línea construido y adaptado a las características específicas del inglés como lengua internacional que se haya creado, probado, y que haya sido generalmente adoptada.

La investigación sobre arquitecturas de aprendizaje en red (Carvalho & Goodyear, 2014) a mi conocimiento, no se ha interpretado y aplicado hasta el momento para informar el aprendizaje social de idiomas en línea a pesar de que Lin (2012), en su estudio sobre la eficiencia de la
plataforma Web Livemocha, concluyó que si "la educación en línea va a jugar un papel positivo en la enseñanza y el aprendizaje del inglés y otros idiomas, los alumnos necesitarán apoyo, orientación y actividades bien estructuradas para asegurar el tipo de participación y la interacción lingüística que pueden conducir al éxito" (Lin, 2012, p. 191, traducción propia).

1.2. Preguntas de Investigación

La cuestión principal en este estudio es: ¿qué diseño de arquitectura de aprendizaje conduciría a hacer emergir una red de aprendizaje en línea productiva para aprender inglés?

Esta pregunta principal, lleva a las siguientes preguntas secundarias:

• ¿Qué subconjunto de habilidades relacionadas con aprender a utilizar el inglés como lengua internacional en línea deben constituir los objetivos de aprendizaje de la red?

• ¿Qué conclusiones de investigaciones de las teorías sobre la adquisición del lenguaje, por un lado, y de la comunicación en línea y redes de aprendizaje social, por otro, podrían ser utilizadas para explicar e informar el diseño de aprendizaje del modelo?

• Por último, ¿qué modelo y principios de diseño podemos proponer basados en la investigación secundaria para una red de aprendizaje del inglés?

1.3. Metodología

La elaboración del modelo de arquitectura de aprendizaje en este estudio se basa en la investigación secundaria.

Resultados de investigaciones anteriores sobre: (a) la naturaleza del inglés internacional; (b) el aprendizaje en red y la teoría y la práctica del aprendizaje conectivista; (c) los enfoques socio-
culturales para la adquisición de idiomas; (d) el aprendizaje de idiomas asistido por ordenador; (e) la construcción del conocimiento en línea; (f) el aprendizaje por redes sociales, influyen en el diseño de la arquitectura del modelo.

Debido a la gran cantidad de literatura y experimentos sobre el uso de la tecnología, la adquisición de segundas lenguas (en adelante ASL), la enseñanza de idiomas, y el uso de las TIC para el aprendizaje de idiomas, no era realista poder analizar todos los estudios. Por lo tanto, era necesario hacer una selección de la literatura. Los motores de búsqueda Google Scholar, Eric y Proquest fueron utilizados para buscar publicaciones pertinentes.

La selección se hizo de acuerdo al tamaño de los estudios, la fecha de los estudios, la relevancia y la inclusión en las principales revistas. En cuanto a los estudios sobre las TIC y el aprendizaje de lenguas, estudios, libros y artículos que datan del año 2000 en adelante fueron tomadas en cuenta puesto que la Web 2.0, y los hábitos de uso de Internet comenzaron a desarrollarse en este principio de siglo.

En las siguientes secciones, el lector encontrará un resumen de las conclusiones principales de esta tesis sobre 1) una propuesta de paradigma del inglés internacional, b) el marco conceptual del modelo basado en investigación sobre ASL y c) una descripción del modelo, y de su diseño epistémico, social y físico.

Se terminará con una discusión sobre la limitaciones del modelo, su valor potencial, sus distintas aplicaciones e investigación futura.
2. EVOLUCIÓN DEL PARADIGMA DEL APRENDIZAJE DEL INGLÉS

Para resumir nuestro estudio del paradigma evolutivo de “English Language Learning” (Aprendizaje de la Lengua Inglesa) en adelante “ELL”, se concluye que el inglés está extendiéndose rápidamente en una verdadera lengua global, se utiliza cada vez más a través de redes, y requiere la capacidad de adaptación cultural y lingüística a otras culturas. Puesto que el inglés se utiliza principalmente en línea, su canal natural de expresión es más de los medios de comunicación en línea, y la variedad de plataformas que cubren audio (podcasts, herramientas de tele-conferencia), vídeo o texto (correo electrónico, foros en línea, etc.). Podemos preguntarnos si es más urgente aprender a leer y escribir y entender la comunicación oral en línea que en contextos físicos.

El aprendizaje de inglés tiene que ir de la mano con el dominio de los medios digitales, el aprendizaje en línea permite a los futuros usuarios de la lengua utilizar el idioma de manera eficiente, y en última instancia empoderarlos en nuestra sociedad en red mientras se familiarizan con los particulares registros sociolingüísticos, y el nivel de formalidad propia de diversas TIC.
La investigación en la definición de un paradigma de inglés como lengua internacional es dinámica y contínua. Ningún paradigma definitivo se ha establecido ni ha alcanzado la unanimidad. Sin embargo, a partir de los diferentes sub-áreas de investigación correspondientes a diferentes competencias lingüísticas, parece que un paradigma de inglés como lengua global utilizada en línea está construyéndose, ya que se resaltan las especificidades de un lenguaje auténticamente global utilizada en un mundo en red que utiliza soportes digitales y conectados como su sistema de comunicación principal. Más que los propios resultados de las investigaciones, las preguntas que los investigadores están haciendo en cuanto a la materia de inglés como una lengua global sugiere que el idioma inglés como materia se orienta hacia una "ruptura epistemológica" (Kumaravadivelu, 2012).

La creciente dificultad en definir un inglés normalizado se puede ver como una característica permanente de un lenguaje global. Para mayor comodidad, propongo crear un término general para capturar la variabilidad de inglés en todas sus tonalidades, referido durante el resto del estudio como: inglés multidimensional (en adelante “MDE”). Este término permite conceptualizar la contextualidad y el dinamismo del inglés como elementos centrales de la lengua.

El inglés multidimensional, o MDE, se refiere a la forma en que el lenguaje depende de las variables siguientes:

1. Área temática (o "Fines Específicos") y / o el contexto en línea de la red relacionada
2. Destino regional del mensaje (público internacional, interlocutor regional)
3. Medio: esto se refiere al canal de comunicación y en particular al estilo inducido por este canal y diversos grados de formalidad: chat, correo electrónico, podcast, presentación en línea oral, formatos en línea escritos (informes, entradas de blog, contribuciones a foros) etc.
4. Sistema semiótico: dentro de un medio, el inglés puede ser utilizado como parte de una base más amplia de la semiótica, y puede ser enriquecido con otro refuerzo de signos tales como imágenes, emoticonos, iconos, videos, etc.

La figura 1 resume las dimensiones del MDE

Figura 1. Variables definiendo el inglés como área de conocimiento y competencia

Para describir las competencias asociadas a MDE, derivando directamente de mi revisión literaria, utilicé la misma categorización de competencias realizada por el Marco Común Europeo de Referencia de Lenguas. La lista basada en esta categorización está resumida en la tabla abajo.
### Tabla 1

**Competencias de inglés Multi-Dimensional**

<table>
<thead>
<tr>
<th>Competencias MDE</th>
<th>Descripción</th>
</tr>
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<tbody>
<tr>
<td><strong>Categoría</strong></td>
<td></td>
</tr>
<tr>
<td>El conocimiento declarativo</td>
<td></td>
</tr>
<tr>
<td>El conocimiento del mundo</td>
<td>El conocimiento de la propagación de inglés. Pluri-centricidad de inglés y el carácter plurilingüe de la comunicación de hoy</td>
</tr>
<tr>
<td>La conciencia intercultural</td>
<td>Entender la relatividad del propio punto de vista cultural</td>
</tr>
</tbody>
</table>

**Habilidades y conocimientos**

<table>
<thead>
<tr>
<th>Habilidades prácticas</th>
<th>Alfabetización digital; estrategias interpersonales</th>
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</thead>
<tbody>
<tr>
<td>Habilidades interculturales</td>
<td>Conservar la identidad nacional; negociación de entendimiento con hablantes no nativos; igual reconocimiento de todas las variedades de inglés; capacidad de negociar y comunicarse con respeto en todas las culturas y lenguas inglesas</td>
</tr>
</tbody>
</table>

**Competencia existencial (savoir-être)**

| Las actitudes; Motivaciones; Factores de personalidad; Valores | La aceptación de la divergencia lingüística; la práctica con los alumnos no nativos es válida; modelo de hablante bilingüe; capacidad de distanciarse de actitudes convencionales frente a las diferencias culturales (estereotipos) |

**Habilidad de aprender**

| Conciencia y habilidades de fonética general | Video, podcasts; Competencia Multidialectal - competencia pasiva para comprender las nuevas variedades de inglés |
| Habilidades de estudio | Consulta, colaboración y resolución de problemas; practicar la fluidez en el uso de las TIC, y la integración en el mundo en red a nivel mundial; utilizar las tecnologías móviles para ayudar el uso del lenguaje |
| Habilidades heurísticos | El aprendizaje en red, habilidades de negociación |

**Competencias Lingüísticas Comunicativas**

| léxica; gramatical; lingüística; semántica | El inglés como lengua con múltiples normas locales o incluso contextuales de referencia; divergencia y multiplicidad de variedades lingüísticas que se entienden como una parte integral de inglés. Sistemas semióticos que atraviesan la lectura, la escritura, el audio y el habla. |
| Diferencias de registro | Saber cómo y cuándo usar el estilo informal online y estándar inglés. Estilos y registros relacionados con todas las áreas de actividad de Internet, incluyendo el correo |
electrónico, los diversos tipos de chat y de la interacción, la mensajería instantánea y las páginas Web, e incluyendo áreas asociadas de la comunicación mediada por ordenador (CMC), como la mensajería SMS (mensajes de texto)

<table>
<thead>
<tr>
<th>Las expresiones de sabiduría popular; la cortesía; marcadores lingüísticos</th>
<th>Oportunidades para la comunicación basadas en los valores, normas y necesidades culturales de los alumnos. Convenciones de cortesía online. Contexto dependiendo del medio digital. Variantes regionales cada vez más establecidas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competencia discursiva</td>
<td>Conciencia crítica del lenguaje, para que los estudiantes puedan entender mejor la interrelación del lenguaje con el discurso y el poder</td>
</tr>
<tr>
<td>Competencia funcional</td>
<td>Aprender a escribir persuasivamente, interpretar y analizar críticamente la información y llevar a cabo negociaciones complejas y la colaboración en inglés</td>
</tr>
</tbody>
</table>
La elección de conceptualizar la adquisición de una segunda lengua (ASL) como un fenómeno complejo permite el uso de diferentes puntos de vista en la investigación para explicar el aprendizaje de idiomas bajo un mismo modelo: cada enfoque aborda una de las diversas funciones psicológicas o cognitivas, o condiciones contextuales que interactúan produciendo una ruta de la adquisición del lenguaje impredecible en el alumno. Los estudios socio-culturales muestran cómo los compañeros pueden ofrecerse andamiaje. La investigación sobre el aprendizaje de idiomas en línea, nos da un marco teórico para explicar cómo se produce el aprendizaje en línea a través de la interacción entre alumnos.

El análisis de Warschauer de la mediación textual en línea como un retorno a la creación espontánea de conocimiento (en lugar de consulta de los conocimientos previos) proporciona un análisis detallado de cómo se forman las conexiones entre los alumnos sobre un soporte escrito y es compatible con el punto de vista conectivista al respecto: aprendemos participando en esas redes.
Más específicamente, las redes en línea proporcionan formas adicionales de mediación para el individuo; mayores oportunidades de exteriorizar pensamientos; asistir al proceso de creación de conocimiento y la participación en ella; el acceso a una mayor diversidad de puntos de vista a la vez y hacer frente a las necesidades de nuestro conocimiento bajo demanda.

**Conectivismo y ASL**

Las condiciones de las redes de conocimiento para el aprendizaje conectivo (Siemens, 2006, p.16) se interpretan para el aprendizaje de idiomas por parte de Menezes (2013) quien las relaciona con las condiciones de borde del caos para el aprendizaje de idiomas:

- **Diversidad** (Siemens, 2006, p.16): espectro más amplio posible de contextos de uso del lenguaje y riqueza de exposición (Menezes, 2013)

- **Autonomía** (Siemens, 2006, p.16): los alumnos contribuyen a la interacción por su propia voluntad, en función de su propio conocimiento de la lengua, en lugar de actuar a petición de un profesor o un plan de estudios que buscan magnificar ciertos puntos de vista lingüísticos o temáticos. El perfil del estudiante es parte de las condiciones iniciales del proceso de ASL (Menezes, 2013).

- **Interactividad** (Siemens, 2006, p.16): los conocimientos lingüísticos emergen de las conversaciones en vez de ser generados a partir de las contribuciones individuales. La habilidad práctica surge de la interacción con hablantes competentes (Menezes, 2013)

- **Apertura** (Siemens, 2006, p.16): diferentes perspectivas coexisten en el sistema, a través de diversos materiales y contextos de uso para la práctica de habilidades, así como "fines sociales para el uso del lenguaje, tratando formas distintas del género oral, escrito o digital en contextos formales e informales" (Menezes, 2013, traducción propia).
La Figura 1 ilustra el rol de las conexiones en red para el aprendizaje del idioma, y su relación simbiótica con el proceso neuronal del alumno.

Figura 2. Lenguaje visto como conocimiento dinámico emergiendo de su uso en contexto

Cuanto mayor sea la cantidad de experiencias en las diferentes funciones cognitivas y psicológicas solicitadas, más rápido el proceso de desarrollo se produce porque más esas funciones psicológicas y cognitivas tienen que a la vez de especializarse e interactuar.
Por eso considero que las condiciones de "borde del caos" para hacer frente a la complejidad de los factores necesarios para producir las condiciones óptimas para el aprendizaje, es compatible con la teoría de Vygotsky sobre las condiciones de aprendizaje y desarrollo. Las funciones de la mente reaccionan con los patrones emergentes (creatividad) en ese punto en el que se ve perturbado el orden.

Las dimensiones del aprendizaje exploradas en las teorías socio-culturales, conectivistas y del aprendizaje de ASL explícito e implícito se pueden interpretar como contextos integrados, donde la "apertura", equivale a la relación con el contexto más global, las redes en línea como un lugar del borde del caos en términos de uso de la lengua.

El modelo cognitivo de Ellis del aprendizaje de idiomas (2008) a través de episodios implícitas y explícitas de aprendizaje se reflejan en el modelo. La unidad de conocimiento de idioma se define como construcciones o trozos de lenguaje ("chunks", las unidades procesadas por nuestra memoria), así como los conceptos del lenguaje. Las conexiones se realizan entre los alumnos co-explorando estos formatos y tipos de unidades de conocimiento. El aprendizaje explícito se produce cuando los usuarios detectan y luego formulan preguntas y respuestas sobre las competencias específicas MDE, para después conceptualizar, generalizar o dar ejemplos de las respuestas a estas preguntas. El aprendizaje implícito, que ocurre cuando patrones de idioma emergen en nuestra mente a partir de la exposición a miles de trozos de lenguaje, se produce mientras el participante se encuentra inmerso en la tarea en línea, dentro de un entorno de uso real de la lengua.

Es a través del fortalecimiento y la aceleración del aprendizaje gracias a las interacciones dentro de un grupo (conceptualizado utilizando la teoría sociocultural), y un experto en el punto de la necesidad del grupo en su conjunto, que el alumno puede participar en la red del mundo real.
(vista conectivista del aprendizaje de idiomas), y llevar a cabo un uso real del lenguaje, la exposición y el aprendizaje allí. La red del mundo real, o más bien la participación en el mismo, es el motor y el "contexto social más amplio" que alimenta la diversidad y proporciona situaciones de necesidades comunicativas lingüísticas reales. De este modo se integran episodios de aprendizaje social, iniciados por los propios alumnos, para reforzar su aprendizaje dentro de un medio de borde de caos. Estos episodios adoptan un carácter formal, y constituyen "contenido de la lección" formal mezclado en una exploración más amplia, abierta y libre. Tal como se especifica más adelante, es el carácter obligatorio y formal de la exploración individual del lenguaje, posible gracias a las funciones dentro de los LMS, configurado, supervisado y enriquecido por el profesor, que constituye la principal originalidad del modelo y hace que se realicen flujos entre el aprendizaje formal e informal, tal como abogado por los investigadores Lamy y Mangenot (2013).

Una revisión de las investigaciones sobre el aprendizaje en red y de la teoría del conectivismo me permiten proponer cómo se produce el aprendizaje a través de redes digitales y ecologías Web 2.0 basadas en una externalización creciente de nuestras exploraciones y las conexiones entre ellas de esta forma:

- Internet proporciona un entorno que reproduce al menos en parte las condiciones de borde del caos para el aprendizaje debido a la interactividad, situaciones imprevisibles de la comunicación, la diversidad del contexto y de la apertura de la participación en ASL que se produce.

- Las comunicaciones en línea ofrecen la posibilidad de diseñar diversos esquemas de intercambio entre pares y expertos, y representan un soporte privilegiado para la exposición inter-psicológica.

- Construcciones y trozos de MDE en contexto y conceptos de idioma representan unidades
de conocimiento que llevan a la internalización del lenguaje.

• El aprendizaje se produce cuando la asistencia es contingente y corresponde exactamente al punto de necesidad del alumno.

• El lenguaje se adquiere progresivamente a través del uso del alumno y el ejercicio de la habilidad lingüística en contextos reales.

Veremos en la siguiente sección que el modelo puede entenderse como un reflejo digital del patrón del niño (o adulto), que intenta utilizar el idioma y que va asistido mientras busca formar significado. El alumno es el niño, la tarea en línea y el entorno abierto de Internet es el mundo. De la misma forma que los niños vocalizan preguntas que surgen mientras participan en la actividad en el mundo real, y les responde personalmente un cuidador, los estudiantes pueden hacer preguntas que puedan surgir mientras participan en las tareas en línea. Las respuestas llegarán de los compañeros profesores o expertos, gracias a las interacciones en línea (organizados utilizando un entorno LMS). El medio elegido para la externalización de esas preguntas juega un papel importante en la espontánea expresión, libre de ansiedad, que revelan las Zonas de Desarrollo Próximo (ZPD). El medio del Chat ha demostrado ser adaptado en particular a este uso gracias a sus características (informalidad, inmediatez).

Hay que tomar en cuenta que la conceptualización obtenida es construida en lugar de dada. En otras palabras, el aprendizaje de idiomas no suele estar vinculada a la teoría de aprendizaje de red o conectivismo en la literatura ASL hasta la fecha. De esta manera, esta vinculación constituye una originalidad en este estudio y un riesgo teórico porque el modelo que sale de ella nunca ha sido probado empíricamente en su conjunto, sólo partes de él de forma independiente y no siempre
para el aprendizaje de idiomas, pero para el aprendizaje en general. En este sentido, mi empresa conceptual debe entenderse como un intento de exploración, provisional y evolutivo, debiendo ser probado y mejorado en futuras investigaciones.
En este capítulo, el lector encontrará una descripción general de la arquitectura de aprendizaje en red de ELLON. Después de una descripción general, se describe en más detalle el diseño epistémico, social y de escenografía, acorde con la clasificación de Carvalho & Goodyear (2014). Al final se resumen unos principios de aprendizaje en red de idiomas, derivando de este estudio, y que se deberán testear si se construye un prototipo del modelo.

A continuación se describe la secuencia de tareas en el modelo ELLON.

4.1 Descripción general de ELLON

Abajo se describe el modelo desde el punto de vista egocéntrico del alumno, y del orden cronológico de sus tareas:

1. En ELLON, los usuarios participan en una red del mundo real en el idioma inglés siguiendo objetivos personales, formales o informales independientes. Esta es su tarea principal.
2. Se externalizan preguntas, copiando su contexto en línea, a medida que surgen, a través de una herramienta de chat.

3. Las preguntas se reúnen periódicamente en una lista (por ejemplo, una lista de diez preguntas al día). El alumno elige entonces dos (o más) preguntas de los compañeros para charlar sobre ellas y llegar a una respuesta. Los estudiantes chatean tanto sobre sus propias preguntas como sobre las de sus pares que han elegido. Esto es una sub-tarea y constituye una parte de la "lección", es una parte importante del proceso de aprendizaje.

4. Los estudiantes evalúan las contribuciones y apoyo de sus pares y dan una nota.

5. Los alumnos que hicieron las preguntas de salida, a continuación, proceden a un resumen de los conocimientos producidos a partir de las conversaciones de chat y formulan preguntas y respuestas, después de asignar las etiquetas ("tags") apropiadas, en el editor del futuro objeto de aprendizaje de idiomas (en adelante LLO).

6. Los LLOs provisionales del alumno están expuestos todos a la vez al grupo entero de alumnos, y luego son marcados por el profesor que corrije o enriquece respuestas cuando sea necesario.

7. Los estudiantes luego utilizan las respuestas para seguir sus tareas en línea de forma independiente, donde les surgirán nuevas preguntas y toda la secuencia de preguntas y respuestas comienza de nuevo.

8. El LLO se publica y forma parte de conocimiento de referencia sobre el lenguaje contextual abiertamente consultable tanto por cualquier usuario como para los propios autores estudiantes, como si fuese una memoria externa hasta que se internalice el conocimiento.
9. Los estudiantes reciben notas y medallas (“badges”) de acuerdo con sus contribuciones.

10. Los estudiantes reciben recomendaciones sobre las competencias y tareas para 
practicar en el curso de las sesiones ELLON posteriores. Estas recomendaciones se 
generan a partir de analíticas de aprendizaje interpretadas por el profesor. Estos 
análisis se basan en los datos recuperados de las calificaciones de los usuarios (de los 
compañeros y profesor) y las etiquetas dadas a los LLOs.

La Figura 2 ilustra la secuencia cronológica de una sesión ELLON.
Figura 2. Secuencia de tareas en una sesión de ELLON.

A continuación resalto una selección de funciones y características del modelo en su diseño epistemológico, social y de escenografía. El lector deberá referirse al texto de la tesis para una descripción completa.
4.2. Diseño Epistémico de ELLON

A continuación repasamos el diseño de las etiquetas, en qué manera ELLON se puede realmente llamar una red de aprendizaje, y el funcionamiento de las anaíticas de aprendizaje.

**Definición de las etiquetas**

El primer paso en la conceptualización de los conocimientos de la lengua se produce cuando los alumnos etiquetan la naturaleza de sus preguntas. Tagging/El etiquetado contribuye a "notar" o “notice” (Schmidt, 1990) los trozos o “chunks” de lenguaje (Ellis, 2008).

Las tres primeras etiquetas corresponden a las cuatro dimensiones de MDE: el medio (o soporte, ¿se trata de un correo electrónico? ¿Un chat? ¿Un podcast?), el destino (¿es una situación de formalidad? ¿El interlocutor es de India? ¿De España? ¿De Estados Unidos?), la competencia de inglés online (¿Estoy practicando el inglés online de producción escrita, oral, la comprensión oral o escrita?). La dimensión de semiótica está ilustrada cuando con la captura de pantalla se reproduce el entorno semiótico de la pregunta en el editor. El resto de las etiquetas corresponden a la esfera de competencia de la cuestión, enumeradas en una lista de opciones. Un campo de etiqueta vacío se pone a disposición permitiendo a los usuarios crear sus propias categorizaciones de conocimiento del idioma. Cuando está rellenado, se convierten en nuevas etiquetas que aparecen automáticamente en la lista de etiquetas predefinidas. Esta es otra manera en la que los estudiantes co-configuran ELLON y dan forma a sus propias actividades. En resumen, los alumnos formulan preguntas que surgen y que se dividen en las siguientes categorías, representadas por etiquetas (tags):

- Inter-relaciones globales y conciencia intercultural
• Alfabetización digital y la multimodalidad
• Léxico
• Marcadores discursivos lingüísticos
• Registro
• Trozos de lenguaje
• Convenciones de cortesía
• Otras etiquetas definidas por el usuario

**Analíticas de ELLON**

ELLON acumula los datos de los alumnos por lo que estas mismas estadísticas se pueden interpretar a largo plazo, lo que los hará más significativos: ELLON podrá evaluar si las preguntas han progresado a ser más difíciles (para un grupo de determinado nivel de competencia), y si el alumno mejora sus puntuaciones en apoyo a los compañeros, en sus respuestas, conceptualización, y contribuciones de interés. Los alumnos reciben puntos para preguntas difíciles (es decir, aquellas que ningún compañero eligió en la lista) o "buenas preguntas" (según puntuado por los compañeros). Así que, si por ejemplo, un alumno no hizo preguntas "difíciles" durante el primer trimestre de un año académico, pero hizo 5 preguntas difíciles en el último término, a continuación, se puede deducir una de las siguientes conclusiones:

- la tarea es más difícil.
- los alumnos han desarrollado el hábito de responder a sus propias preguntas sencillas utilizando los recursos fuera del grupo ELLON.
- o bien, que el alumno ha mejorado en la competencia y ha subido de nivel de exploración.
Estas tendencias pueden ser interpretadas por el profesor junto con el alumno para descubrir si el alumno tiene una tendencia a no ampliar el tipo de tareas, el tipo de habilidades, o el tipo de interlocutor en línea. Esta tendencia puede ser deliberada (la práctica de un determinado contexto de uso de inglés para los requisitos de trabajo futuro, por ejemplo). Si es deliberada, el profesor puede discutir la utilidad con el aprendiz de practicar otros contextos en línea de uso de inglés para ampliar la experiencia. Sin embargo, si estas tendencias no son deliberadas, pueden revelar algunas debilidades, como la de no tratar de practicar una dada competencia, a pesar de su utilidad proyectada. Si este es el caso, el profesor puede dirigir al alumno a tareas en línea que llevan el alumno a practicar una variedad equilibrada de habilidades. Las estadísticas sobre el valor del aprendizaje de URL determinada puede ayudar al profesor y alumno a decidir qué tareas en línea puede ser sugerido. Otra debilidad que puede ser revelada a través de las estadísticas podría ser la incapacidad del estudiante a generalizar respuestas a las preguntas. Reconociendo esta debilidad puede establecer ciertas tareas de práctica de la conceptualización. En términos generales, la oferta automática de "pruebas" relacionadas correspondientes a las áreas de debilidad pueden ser ofrecidas o bien, solicitados por parte del profesor. ELLON reúne las calificaciones del estudiante, así como las estadísticas basadas en las preguntas etiquetadas según las competencias, fines específicos, los medios (chat, foros, blogs, etc.), interlocutores (regional, internacional), y registro (informal, formal) correspondientes.

**Análisis de URL y la interpretación de datos.**

ELLON no sólo ha reunido datos sobre las tendencias de exploración del alumno, sino también en el número y tipo de preguntas que una actividad en línea o página Web tiende a provocar en los alumnos. Si la misma página Web se utiliza una y otra vez, y se encuentra que
genera los mismos tipos de preguntas para diferentes alumnos, entonces será posible deducir que esa página Web presenta dificultades características de determinados perfiles de alumnos (según su nivel y su idioma nativo), y tiene un valor de aprendizaje para aquellas áreas particulares de la competencia lingüística MDE. Estas estadísticas básicamente informan sobre el valor potencial de aprendizaje de las páginas Web utilizadas durante ELLON para luego personalizar y configurar una recomendación de tareas para el alumno según sus necesidades proyectadas.

**Conocimiento expansiva y Co-configuración**

Para que una "red" sea escenario de aprendizaje, tiene que conducir a "efectos de red". Estos efectos, según Zourou y Lamy (2013, p.4) se refieren a "el valor de la información (o datos) que aumenta con el número de usuarios que se apropián de ella" (traducción propia). Los usuarios son, por tanto, fundamentales para crear el valor de la red, por lo que el escenario de aprendizaje tiene que estar abierto. Según Musser et al., 2006 (p.30), la clave no es sólo la participación de los usuarios, si no la participación que conduce a la reutilización. Lamy y Zourou (2013, p.4) argumentan que la provisión de herramientas para los estudiantes para que puedan crear contenido y re-mezclarlo es necesario para caracterizar las redes sociales. Lamy y Mangenot (2013, p. 211) también destacan la dificultad en la construcción de redes de aprendizaje eficaces, con características de redes sociales, que combinan las condiciones aparentemente contradictorias de control y apertura, en la que los procesos formales e informales se enlanzan en continuo (p.212). ¿ELLON reúne estos criterios: la reutilización de contenidos, participación horizontal y valor creciente con el uso?
La horizontalidad de la participación

La apertura de ELLON se refleja en la libertad para los alumnos de interactuar con cualquier contenido o persona a través de Internet, el uso de herramientas de su elección en línea, y a continuación, la importación de los contenidos digitales como contenido de aprendizaje en la pregunta y editor de LLO. El campo de recurso en línea es otra manera de permitir el flujo de información libre desde la Internet abierta al sistema LMS y LLO reutilizable. Al mismo tiempo, cada alumno hace una pregunta, y esa pregunta se convierte en un objeto de conocimiento reutilizable. La horizontalidad de la participación se refleja en esta igualdad de generación de contenidos de aprendizaje: una pregunta por alumno, lo que lleva a los sub-tareas relacionadas que conducen a objetos de aprendizaje, que remontan al entorno de aprendizaje inicial. Los profesores intervienen al punto de necesidad individual de cada estudiante para completar el LLO, y no en la delimitación de los contenidos de aprendizaje o de la actividad en Internet.

La participación conduce a la reutilización.

Los LLOs pueden ser utilizados por otras personas que entran en sesiones de ELLON, cuestiones lingüísticas hechas por segunda vez ya se pueden contestar consultando el LLO en el punto de necesidad. Los LLOs también pueden ser objeto de una exploración más porque se pueden re-editar. Por ejemplo, si un participante ELLON consulta a un LLO existente y no entiende o no está de acuerdo con su contenido, se puede aplicar una nueva pregunta utilizando el contenido de la respuesta dentro de ese LLO como base para una nueva pregunta.

De esta manera conversaciones de aprendizaje se pueden reutilizar y extender por los usuarios posteriores.
La creciente valor de la red.

La creación de conocimiento sobre MDE se produce de forma incremental por los participantes ELLON, ya que pueden aprovechar LLOs previamente generados por ELLON, lo que les conduce a exteriorizar preguntas diferentes a las que ya se respondieron en sesiones ELLON anteriores. Esto significa que cada nueva sesión, necesariamente, generará nuevo conocimiento de lenguaje y competencias MDE añadiendo al repositorio existente. Por lo tanto el repositorio debería aumentar en la diversidad, cantidad y profundidad (cuando el contenido de un mismo LLO existente es objeto de un nuevo LLO) en cada nueva sesión ELLON.

4.3. Diseño Social de ELLON

La segunda capa en una arquitectura de red de aprendizaje propuesto por Carvalho y Goodyear (2014) es el diseño social. Pinto (2013) define esta capa según cómo las actividades de los participantes forman y reorganizan el entorno, la definición de las relaciones interpersonales y la división del trabajo, el papel de co-creación y co-configuración. Las características del diseño social de ELLON se dividen en las siguientes categorías: la preparación de los alumnos para que adopten comportamientos de aprendizaje de la red; un diseño para reforzar la existencia de comunidad; funciones para ayudar a los estudiantes a cumplir con sus distintas funciones y roles de profesor. La Tabla 2 recoge sugerencias sobre la forma de preparar a los estudiantes para utilizar la red.
### Comportamientos de aprendizaje en red que deben adoptar los usuarios Ellon

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<thead>
<tr>
<th><strong>Comportamientos de Aprendizaje en Red</strong></th>
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<tbody>
<tr>
<td><strong>Autonomía y entrenamiento</strong></td>
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<tr>
<td>Prueba previa de ELLON</td>
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<tr>
<td>Desaprender los comportamientos de clase</td>
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<tr>
<td><strong>Conciencia del valor de aprendizaje del entorno online en sí mismo</strong></td>
</tr>
<tr>
<td>Entendimiento de las ventajas del aprendizaje situado en contexto</td>
</tr>
<tr>
<td>Entender el entorno &quot;en línea&quot; como un entorno &quot;real&quot;</td>
</tr>
<tr>
<td>El desarrollo de una mentalidad de doble atención: tarea principal de exploración / tareas del grupo</td>
</tr>
<tr>
<td><strong>Expotar recursos y herramientas en Internet</strong></td>
</tr>
<tr>
<td>Aprender acerca de su existencia</td>
</tr>
<tr>
<td>Mantenerse al día con las últimas herramientas de asistencia lingüística</td>
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<tr>
<td>Descargar y utilizar herramientas de idiomas en línea</td>
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<tr>
<td>La comprensión de sus límites</td>
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<tr>
<td><strong>EXTERNALIZAR PROCESOS PROPIOS DE EXPLORACIÓN</strong></td>
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<tr>
<td>Comprender la necesidad de expresar sus preguntas</td>
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<tr>
<td>Comprender la necesidad de externalizar el conocimiento y respuestas</td>
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<tr>
<td>Desarrollar el hábito de apertura en la extrapolación y la profundización de los conceptos</td>
</tr>
<tr>
<td><strong>Cultivar los vínculos débiles y fuertes online</strong></td>
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<tr>
<td>Desarrollar un sentido que los compañeros pueden ser &quot;conocedores legítimos&quot;</td>
</tr>
<tr>
<td>Aprender a dar apoyo a los compañeros</td>
</tr>
<tr>
<td>Buscar la diversidad de opiniones en línea</td>
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</tbody>
</table>

Tabla 2.
Reutilización del conocimiento

Comprender la importancia de la claridad y el formato para la reutilización
Comprender el valor del formato de micro-contenidos
Entender el uso de etiquetas y su importancia

Para concluir, el aprendizaje en red en línea en nuestro modelo sería reforzado si se acompañara de unas formas de pensar específicas. Esta mentalidad específica se puede resumir como la constatación de que cada alumno es un profesor potencial en micro-episodios de aprendizaje a través de la participación guiada y que cada pregunta y respuesta hechas individualmente cuando se ensamblan se convierten en una lección para el grupo en su conjunto, pero también que ese conocimiento puede vivir en la red de Internet después. Por lo tanto, la realización de la importancia de hacer preguntas de manera clara y proporcionar respuestas precisas y bien expresadas deben conducir a los alumnos a hacer sentir su responsabilidad hacia las redes y sus contenidos. Este sentido de la responsabilidad también puede ser formativa para los estudiantes en general y ayudarlos a comprender el poder potencial de sus propias conexiones y contribuciones a través de redes.

Además de estas directrices iniciales, un sistema de medallas y evaluaciones midiendo la capacidad de dar apoyo, hacer preguntas buenas, difíciles, dar buenas respuestas, saber explorar MDE, aportar originalidad y saber evaluar, está diseñado para reforzar estos comportamientos propios de aprendizaje en red.

Los estudiantes tienen los siguientes roles en ELLON:

1. exteriorizar sus preguntas
2. "enseñanza" entre pares durante micro-episodios: prestar atención a preguntas, evaluarlas, responder y proporcionar apoyo afectivo a los compañeros

3. internalización (durante la reformulación de la pregunta, la respuesta, la conceptualización y la reutilización en el contexto)

4. reutilización independiente del conocimiento co-construido.

Roles de los Profesores

Los profesores también deben motivar a los estudiantes y proporcionar el andamiaje necesario para que los estudiantes puedan participar plenamente en las comunidades en línea. Se ha encontrado que el estímulo de los docentes afecta a la frecuencia con la que los estudiantes utilizan la tecnología (Wiebe y Kabata, 2010).

Se ha argumentado que, en el caso particular del inglés como lengua global, debido a la falta de conexión entre los aspectos teóricos y multiplicidad de requisitos prácticos (cognición docente, percepción del alumno, necesidades sociales, contextos culturales, las exigencias políticas, los imperativos económicos y los cuadros institucionales) de la pedagogía de la lengua, los profesionales generan "su propia" pedagogía local basada en la consideración de su propia investigación local para construir enfoques válidos y practicables propios (Kumaravadivelu, 2002, p. 29). Esta condición se considera "post-método" ya que no hay un método que dicte "cómo enseñar inglés", pero que hay tantos métodos como hay profesores en contextos específicos de aprendizaje. Mientras que una gran parte de la pedagogía reside en el diseño de ELLON, el rol docente complementa el diseño de la red, contribuyendo a adaptar contenidos a los alumnos en las diferentes etapas, adaptando tareas a perfiles de alumnos, y en el caso de utilizar ELLON desde
dentro de un curso en el aula, en base al conocimiento que el profesor tiene de los propios alumnos y sus necesidades.

Los roles principales de los profesores en ELLON se resumen de la siguiente manera:

1. Preparar a los alumnos a utilizar ELLON.
2. Configuración de ELLON para el contexto específico del alumno: constitución del grupo; pre-incluir LLOs; definir la distribución temporal de preguntas
3. Apoyar y alentar a los usuarios
4. Completar el contenido de grupos generados: evitar la proliferación de errores; asistir en la comunicación multimodal; respetar la condición de la necesidad de asistencia (en inglés, nos referimos a una asistencia calificada de “contingent”).
5. Evaluar tareas
6. Personalizar: interpretación de análisis de aprendizaje; sugerir tareas principales; y ejercicios basados en los LLO.
7. Contribuir a la validez de los LLO

4.4. Diseño de la Escenografía de ELLON

La primera capa de red es el espacio material y sus herramientas, utilizado por los alumnos. Carvalho y Goodyear (2014) llaman a esta capa “Setting” es decir “Escenografía”. ELLON está configurado y ejecutado desde un LMS, con acceso para los miembros del grupo que se inscriben en sesiones ELLON. La escenografía en nuestro marco consta de cuatro niveles físicos integrados. En primer lugar debe existir un plug-in en el navegador del alumno, permitiendo a los alumnos entrar en exploraciones en MDE, directamente en un chat a partir de una página Web. A raíz de esta colaboración, los alumnos luego resumen las preguntas y respuestas en un editor dedicado. El
contenido en el editor, luego se convertirá en un objeto de aprendizaje de idiomas publicado en una base de datos. ELLON luego utiliza los datos registrados del alumno para generar analíticas de aprendizaje.

La mayoría de las funciones necesarias ya existen en Moodle. Sin embargo, una análisis de los servicios de Moodle revela que unas funciones más necesitan estar creadas para poder construir el modelo en Moodle, descritas a continuación:

- Plug-in para abrir ELLON desde una selección de contexto en línea
- Copia automática del contenido Web y mantener el vínculo original en el futuro LLO
- Opción de chat Anónimo
- Botón "Presentar al grupo"
- Pantalla que agrupa las preguntas del grupo
- Enlace de chat para usuarios
- Ventana de visualización de múltiples chats
- Campos de evaluación del chat
- Visualización de la charla en la ventana del editor
- Vista previa de LLO
- Publicar anónimamente
- Mostrar todos los LLOs en una pantalla con un botón de "contribuir"
- Vista de las contribuciones finales
- Opción para modificar los LLOs (entradas de base de datos) después de su publicación.
De forma general, esas funciones adicionales en Moodle ampliarían el modelo pedagógico constructivista inherente de Moodle a características que permiten diseñar modelos de aprendizaje en red.

### 4.5. Hacia Principios de Aprendizaje en Red de Idiomas

Las redes en línea se conceptualizan como una segunda vida del idioma inglés, un contexto paralelo todavía vivo de MDE, apto para servir como medio para el aprendizaje naturalista entrelazado con los procesos de aprendizaje explícitos y formales basados en funciones sin precedentes que las TIC proporcionan:

- geometrías adaptables de disimetría de competencias entre alumnos,
- opción de anonimato adaptable a las contribuciones del alumno para exteriorizaciones más libres,
- reificación de exploraciones del alumno para su reutilización,
- el uso de artefactos y foros de referencia de idiomas existentes en el punto de necesidad,
- el uso de los perfiles personales y relaciones para mejorar la motivación,
- la colecta de datos de análisis de aprendizaje social para proporcionar una base cuantificada de orientaciones y recomendaciones del plan de estudios.

Mientras que algunas de las funciones anteriores son utilizables desde el contexto del aula, a través de redes, a partir de un LMS como Moodle, que une el aula a las redes en línea basadas en Internet, pueden llegar a ser perfectamente integrados en los procesos de aprendizaje.

Siempre habrá una necesidad de la práctica, porque el lenguaje es una habilidad. De allí, una conexión a una plataforma permite introducir la instrucción explícita, necesaria para complementar...
episodios de aprendizaje implícito (Ellis, 2008). Sólo desde una vida conectada digitalmente, enlazada a una arquitectura en línea, puede el sistema de aprendizaje ser integrado de esta manera.

ELLON se basa en principios que se derivan de los resultados o consecuencias lógicas de una revisión de la literatura científica y las funciones tecnológicas actuales. Después de desarrollar un prototipo de ELLON basado en un LMS como Moodle y probarlo, será posible validar, invalidar o contribuir a los principios de aprendizaje en red de MDE que propongo a continuación:

- el uso del inglés a través de redes es una experiencia completa del idioma inglés.

  Aprendemos el lenguaje por la exposición y la producción de trozos de lenguaje en su contexto.

- Preguntas de alumnos revelan sus ZDP
- La asistencia al aprendiz debe ser necesaria, o "en el punto de necesidad"
- La comunicación en línea permite la configuración de un grupo de aprendizaje más pequeña dentro de una red de la vida real más grande para el aprendizaje

- La exteriorización de la exploración como segunda lengua puede ser guiada y motivada.
- La interacción entre pares puede ser secuenciada hacia la construcción de conocimiento
- Diferentes opciones de comunicación en línea soportan diferentes tipos de interacción, y se pueden definir de acuerdo a la fase de exploración lingüística.
- Hacer nuestra propia exploración explícita realza nuestra conciencia de ella y en sí mismo es un proceso de aprendizaje
- Prestar atención a las cuestiones lingüísticas y respuestas de los demás enriquece nuestro propio aprendizaje
- La exploración individual del lenguaje puede ser reificada, principalmente gracias a un formato de micro-contenido en línea
• La exploración individual puede convertirse en tareas para los compañeros y representar un contenido formal de curso

• El conjunto de conocimientos lingüístico de una red es superior al de cada uno de sus participantes.

• La suma de los conocimientos del grupo puede ser distribuido a cada uno de sus participantes

• El aprendizaje individual puede afectar a la manera en la que la red aprende

• Es posible fomentar en paralelo el aprendizaje de idiomas implícito y explícito a través de un diseño específico de aprendizaje en línea

• Existe el conocimiento generado por la red como una entidad separada y tiene una vida propia
5. CONCLUSIONES Y CONTINUACIÓN DE INVESTIGACIÓN

Con las especificaciones del modelo ELLON he demostrado que es posible diseñar una arquitectura en red de aprendizaje de idiomas que: 1) aprovecha las funciones distintas que la tecnología actual puede contribuir al aprendizaje de idiomas, 2) hace frente a los desafíos reconocidos de enseñanza de inglés como lengua internacional, 3) refleje los resultados de investigaciones recientes en ASL y la enseñanza de segundas lenguas y 4) sea tecnológicamente factible (y en gran parte ejecutable en Moodle).

Mi estudio también contribuye a un paradigma actualizado del inglés como lengua internacional en línea y propone una conceptualización del aprendizaje de idiomas en red basado en la investigación en ASL.

A continuación describo las limitaciones del modelo, su valor potencial e pistas de investigación futura a realizar.

5.1. Limitaciones de ELLON para el Aprendizaje del inglés

Sólo poniendo el modelo a prueba se revelarán sus limitaciones exactas. Sin embargo, se puede ya deducir limitaciones inherentes al modelo de ELLON.
Un revés de este modelo es que sólo se dirige hacia los estudiantes con un nivel de competencia suficiente de inglés para poder participar activamente en una tarea en línea. Un principiante no puede hacer frente a contenidos en inglés en línea sin ser constantemente interrumpido por dudas emergentes. Una solución a este contratiempo sería ajustar la tarea en línea para principiantes u ofrecer una selección para elegir. Pero en este caso es poco probable que fueran tareas del "mundo real". El resto de las tareas ELLON podrían seguir aplicándose al alumno.

Otra limitación del modelo es el hecho de que los alumnos no siempre pueden detectar oportunidades de aprendizaje, o donde necesitan ayuda, sin embargo, en ELLON, el contenido de la lección se genera en su totalidad por sus preguntas. Parcialmente compensando esta limitación es la exposición del alumno a las preguntas hechas por otros estudiantes en relación a sus propias tareas en línea. La exposición a una mayor variedad de uso de MDE y preguntas relacionadas podría compensar en parte esta limitación.

En tercer lugar, ELLON no aborda el uso del lenguaje en contextos físicos si no en uso del inglés en línea. Puede ser que la práctica oral en línea (videos, webcasts, tele-conferencia) consiga mejorar el dominio de aprendizaje en contextos físicos, y puede ser un punto de partida para construir habilidades para un uso presencial del inglés.

En cuarto lugar, existen limitaciones tecnológicas con respecto a la calidad y velocidad del audio y video online lo que dificulta el aprendizaje online del inglés. Para terminar, un revés de este modelo es que se altera la concentración de los alumnos en su tarea en línea, y puede conllevar retrasos frustrantes de los compañeros para obtener una respuesta. Sin embargo, esto es necesario ya que investigaciones han demostrado que la mera participación no mejora la competencia lingüística (Lin, 2012). Además, los usuarios son conscientes, o deberían ser
conscientes, de que su participación en ELLON es un proceso mismo de aprendizaje del lenguaje formal, no meramente una herramienta para resolver las barreras del idioma.

5.2. Valor Potencial de ELLON de Aprendizaje del Inglés

ELLON aborda los problemas específicos de la enseñanza del inglés como idioma en línea e internacional así como la dificultad de definir el currículo de aprendizaje personalizado, ya que se basa en las necesidades individuales de aprendizaje del alumno en MDE. Se podría considerar que ELLON tiene integradas en su diseño algunas de los macroestrategias que los profesores deberían desarrollar de acuerdo a Kumaravadivelu (2002). El uso de ELLON lleva a la creación continua de las referencias mundiales del lenguaje (MDE) en inglés. Estas referencias MDE se corresponden directamente al conocimiento necesitado por los usuarios de MDE: los productos de las conversaciones mismas de aprendizaje son reificados y consultables, no sólo el conocimiento producido. Las etiquetas permiten categorizar los LLOs según el perfil de los futuros alumnos. Las preguntas están tipificadas para su uso futuro por los alumnos posteriores con perfiles similares y etiquetas de búsqueda por contenido (en vez de autor o fecha como en el caso de foros, preguntas frecuentes y wikis).

ELLON es un modelo derivado de resultados en investigación en ASL. La unidad de conocimiento se define de acuerdo con la conceptualización de Ellis de "trozos" del lenguaje como la unidad cognitiva y de memorización, y en conceptos de entendimiento emergente, en lugar de conocimiento metalingüístico predefinido que "simplifica" y desvía el conocimiento verdadero del lenguaje (Negueruela y Lantolf, 2006). El modelo conduce a un aprendizaje tanto implícito (a través de la realización de tareas) como explícito (mediante la creación de conceptos en el editor de LLO). El formato de microcontenidos que se forman en los LLOs son consistentes con una
vista conectivista del aprendizaje. ELLON integra resultados de investigación en la rama SCT en su diseño de las tareas de colaboración entre pares. Características que se incluyen para optimizar esas colaboraciones, ampliando progresivamente secuencias de colaboración del alumno de forma independiente en la red, a colaboración uno a uno (parejas de chat), de uno a muchos, de muchos a uno (la presentación de un LLO a un grupo), y de muchos a un experto (el profesor). El modelo también diseña el momento de intervención de expertos (el profesor) al punto de "necesidad de grupo", es decir cuando el grupo no puede prestarse asistencia mutua suficiente.

La escenografía del modelo puede aplicarse al aprendizaje con dispositivos móviles, puede adaptarse a CLIL, a intercambios con alumnos extranjeros, y también puede llevar a la creación de módulos de idioma para acompañar a alumnos de cursos online en inglés. El lector encontrará más especificaciones sobre estas adaptaciones en el texto principal.

5.3. ELLON y su Compatibilidad con Epistemologías de la Era Digital.

Debido a que el contenido de las tareas depende de cómo los alumnos reaccionan con el uso de inglés en línea, la validez del modelo no caducaría con mejoras en las herramientas de traducción de idiomas, de asistencia o de interpretación, ni con los cambios en el propio idioma inglés, ni a la evolución de las necesidades de aprendizaje del idioma inglés.

El modelo es una aplicación de "red social de aprendizaje" aplicada al aprendizaje de idiomas ya que se llenan las condiciones, al menos en su diseño, de la reutilización del alumno de contenidos generados, la apertura y la horizontalidad de uso, y la expansión de la red (Zourou y Lamy, 2013).

Un objetivo a largo plazo que se persigue a través de la reiteración de uso de ELLON, sería que los pasos de exploración formalizados en el modelo sean interiorizados por el alumno, que
está adquiriendo hábitos de exploración y de enfrentamiento de puntos de vista. La arquitectura enseña cómo crear el conocimiento uno mismo a través de conexiones, es decir, cómo utilizar las redes para aumentar la propia capacidad de aprendizaje y construcción del conocimiento. Esto está en conformidad con la conceptualización del aprendizaje basado en las alfabetizaciones del siglo 21, y la inversión del modelo de transmisión de conocimiento. El aprendizaje es la reproducción a nivel micro del proceso de construcción del conocimiento en la sociedad: la definición de una pregunta, la conexión, confrontar puntos de vista, la selección de la mejor respuesta, concluyendo, publicando y reutilización de los nuevos conocimientos en su contexto.

La red aprende

También en el largo plazo, la red puede dar lugar a la creación de conocimiento y aprendizaje localizada en la exploración de cualquier contenido en línea. A través del plug-in vinculado a la base de datos dinámica de los LLOs generados, cualquier contenido en línea que fue objeto de tratamiento ELLON estará cargado con las huellas de las conexiones realizadas anteriormente, para la profundización y ampliación de los contenidos de esa página web. El valor de estas conexiones es que reflejan itinerarios de aprendizaje humanos, las mismas preguntas son las que otros estudiantes son propensos a hacer, por lo que son nodos de conexión de conocimientos, a los que usuarios posteriores en el mismo contexto pueden conectarse y modificar.

La intervención del profesor en ELLON añade fiabilidad y/o enriquecimiento a la información publicada. Contenidos Web por lo tanto se cargan con "conversación" o conexiones educativamente válidas, accesible de manera informal y formal. Esto puede representar una clave para el uso de recursos de internet, incorporando los estándares educativos institucionalmente definidos pero disponibles dentro de la informalidad y la libertad de aprendizaje autodirigido.
Un modelo que se puede aplicar a otras áreas de aprendizaje

En la medida en que esta arquitectura de red proporciona una arquitectura física en línea para guiar conversaciones significativas en el punto de necesidad, y en base a los intereses del alumno, se podría estudiar su aplicabilidad a otras materias de aprendizaje en línea, no sólo centrados en el aprendizaje de idiomas.

El modelo ELLON se podría considerar como un marco para la exploración individual, estructurada en una secuencia de tareas y sub-tareas que simulan las fases cognitivas de exploración que un estudiante debe hacer el esfuerzo de seguir, no importa qué asignatura o temática está siendo abordada: el proceso de hacer una pregunta, discutir una posible respuesta durante un intercambio de chat dialéctico o dialógico, haciendo un esfuerzo consciente para adquirir ese nuevo conocimiento mediante su uso, se desglosa en: pregunta, aclarar propia pregunta, buscar la respuesta de forma independiente en línea, interacción con sus compañeros, buscar la legitimidad de la respuesta mediante la sumisión de la pregunta y su exploración al grupo y luego al profesor, publicar la respuesta validada, para su propia reutilización o para la de otros estudiantes (y puede ser reeditada y modificada en el futuro). Son las funciones potenciales o “affordances” únicas del entorno digital y abierto, que permite que esta externalización del pensamiento individual y la colaboración conduzca a la reutilización de los procesos de aprendizaje del conocimiento.
5.4 Continuación de la Investigación

La arquitectura ELLON presentada en este estudio necesita ser desarrollada y probada. Esto permitiría por un lado poner a prueba la conceptualización del aprendizaje aportada en este estudio, y por otro medir el valor del modelo en contribuir al aprendizaje de MDE.

Por un lado, un análisis de las sesiones ELLON podría ser una unidad de análisis hacia la construcción de la teoría del aprendizaje de idiomas en red, en la tradición sociocultural y / o para validar o no el marco conceptual propuesto para el propósito de este estudio.

En otras palabras, ¿cómo podemos probar:

• que la participación en red y sus tareas equivalen a un borde de caos para el aprendizaje de idiomas?

• que los compañeros activan su ZDP de aprendizaje de idiomas que conducen al uso independiente del lenguaje?

• que el formato de microcontenido es una unidad cognitivamente compatible de conocimientos y aumenta el número de conexiones realizadas como sugerido por Siemens (2006)?

• que los tres componentes (el medio de la Web abierta, las interacciones entre pares y las unidades de conocimiento en microcontenidos) forman un conjunto para conducir hacia la adquisición de MDE?

Es necesario comprobar si el cambio de cualquiera de estos componentes podría debilitar la eficacia del modelo para el aprendizaje de idiomas en su conjunto. En otras palabras, tenemos que medir:
• el efecto en el aprendizaje de la elección individual de la tarea en línea, (en vez de contenido predeterminado, importado en el LMS);

• el efecto del formato de la unidad de conocimiento en microcontenido (en lugar de no establecer cualquier formato de conocimientos, por ejemplo, permitiendo largos párrafos de idioma o preguntas de vocabulario individuales);

• el efecto de permitir expresarse la complementariedad del conocimiento del grupo a través de preguntas del grupo y la pantalla LLO (en lugar de asignar diadas aleatoriamente);

• el efecto de la formalidad y la secuencia de tareas para conducir hacia una conversación entre pares productiva en profundidad y diversidad de conocimiento (en lugar de sólo proporcionar una plataforma libre cómo un foro).

El modelo además necesita ser probado en su eficacia en cumplir con su propósito, es decir, usando ELLON reiteradamente, los usuarios desarrollan sus competencias MDE? En ¿qué medida? Una propuesta de constructos y de metodología para llevar a cabo el test del modelo en este sentido está proporcionado en la tesis.

Para concluir, el estudio saca a la luz algunas preguntas de investigación de mayor índole. En primer lugar, con respecto a las tareas principales de los alumnos online en inglés, se podría investigar y definir, al nivel local o más bien “glocal”, una lista de tareas que se consideran básicos para que los alumnos ejerzan el idioma inglés como lengua global en línea de acuerdo a los diferentes contextos socioeconómicos y geográficos de los aprendices. El currículo del inglés como segunda lengua debe quizás incluir la comprensión del papel de las redes en línea globales y dónde y cómo se utiliza el inglés a través de ellos.
En segundo lugar, podría ser relevante investigar más sobre cómo generar el conocimiento de un grupo para que sea reutilizable. ELLON plantea una cuestión más amplia de cómo identificar y dar formato a un nuevo conocimiento creado por grupos para que pueda ser identificado y reutilizado, no sólo por el grupo aprendiendo juntos en ese momento, si no después de que el grupo se haya desintegrado. El conocimiento a menudo se pierde en los foros y otras redes de aprendizaje, ya que o bien no se ha objetivado en micro-contenidos (publicado en un formato de fácil lectura e intercambio), o es difícil de encontrar (falta de etiqueta, de referencia, base de datos común y la vinculación con el sitio de utilización). ELLON propone una arquitectura de red para hacer frente a este problema, pero se podría llevar a cabo una investigación más profunda sobre esta cuestión, y sobre cómo fomentar ecologías conectivistas puristas. Esto conduce a la siguiente pregunta.
En ELLON, el conocimiento producido está etiquetado por los propios alumnos, es decir a través de la inteligencia humana. Argumenté que el etiquetado es una forma de aprender, ya que refuerza la toma de conciencia de las características de MDE. Sin embargo, iniciativas públicas y privadas en programas educativos utilizan la inteligencia artificial para reconocer las contribuciones de los usuarios y etiquetarlas. Puede ser importante descubrir si, cuándo y para qué, el marcado humano es más o menos eficiente que el “tagging” por inteligencia artificial en la producción de analíticas de aprendizaje significativas.

Como palabras de clausura, si una ruptura epistemológica como sugiere Kuramavadivelu (2012), Siemens (2006) y Downes (2006) está teniendo lugar, la enseñanza del idioma inglés abraza un movimiento doble: en cuanto a la definición misma de la lengua, y en cuanto a la posibilidad de predefinir un plan de estudios para el inglés, en lugar de dejar emerger el currículo. En el corazón de cada una de estas rupturas epistemológicas se encuentra la matriz de las redes, tanto como causa para la transformación del área de conocimiento, como solución de aprendizaje de objetivos dinámicos. Si vamos hacia una era post-método, puede ser en el sentido de un enfoque de "tierra hacia arriba". Kern y Nelson (2012) reivindicran que "valientes re-concepciones del lenguaje deben constituirse que sean compatibles con la fluidez dinámica, contingencias contextuales, y la multimodalidad fundamental de la creación de sentido" (traducción propia).

Sobre la base del enfoque (2001) post-método de Kumaravadivelu, Nelson y Kern (2012) por lo tanto proponen que se tiene que buscar "una nueva pedagogía para un idioma mundial multimodal, basada en el significado, y contextualmente sensible." Poner el modelo de ELLON a prueba podría revelar si tiene el potencial de representar tal pedagogía.

En este sentido, el diseño de ELLON ha tratado de representar una nueva concepción del aprendizaje de idiomas basado en una nueva concepción del lenguaje mismo, pero su diseño puede
ser adaptado a otras disciplinas, ya que representa un "vínculo entre alumnos y profesores, y en última instancia un proceso de aprendizaje que añade interactividad a contenido "(Mengual-Andrés, S., 2013, traducción propia).

En el caso del uso global de redes como el que se describe en este estudio, y los formatos uniformes de reificaciones del conocimiento, las referencias personalizadas del conocimiento no sólo vendrá a ser construidas, pero serían mejoradas y ampliadas de manera continua a medida que se utiliza la red y se generan objetos de aprendizaje.

En términos más generales, si los diseños educativos deben impregnar las redes, entonces se puede imaginar este modelo como una fábrica para la construcción y difusión de objetos de aprendizaje en micro-contenido. El propio proceso de creación de objetos de aprendizaje, corresponde al proceso de aprendizaje mismo, ya que nacen de las necesidades emergentes de conocimiento y asistencia de las personas, que se dedican a las tareas y actividades en línea. Estos objetos de aprendizaje son luego validadas tanto por los usuarios, profesores y / u otros expertos conectados y se expanden dentro de la comunidad de usuarios de las redes, año tras año, a medida que aumentan la diversidad y cantidad de los LLOs, ya sea dentro de, o entre, instituciones o abiertamente. En este sentido, podrían formar parte de REA que dan lugar a una variedad de aplicaciones educativas, tales como materiales curriculares (Roig Vila R., 2005), y el aprendizaje permanente (Mulder, 2006). Las características de los LLOs generados por los usuarios de ELLON también encajarían en las características de REA "multilingües" (en los idiomas de los aprendices) y "glocalizados" (derivado de grupos de estudiantes locales y tareas personalmente elegidas en línea), generados por los usuarios y de acuerdo a sus necesidades reales, tal como se proyectan en un artículo de visión 2030 de Zourou (2013).
REFERENCES


Learner Discourse during Communicative Tasks. *Hispania*, 77, (2), 262-274.


Chinnery, G. M. (2014) CALL Me… Maybe: A Framework for Integrating the Internet into ELT.


Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, 20(03), 271-289.


Laranjeira, M. V. (2010). Teoría y práctica del aprendizaje colaborativo asistido por ordenador. Madrid, Síntesis


Mackness, J., Mak, S., & Williams, R. (2010). The ideals and reality of participating in a MOOC.


Myles, F. (2004). From data to theory: The over-representation of linguistic knowledge in SLA. Transactions of the Philological Society, 102, 139-168.


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Matters.


