Colombian Applied Linguistics Journal
Print version ISSN 0123-4641

Colomb. Appl. Linguist. J. no.9 Bogotá Jan./Dec. 2007

Implications of Multimodal Learning Models for foreign language teaching and learning[1]

Miguel Farías[*] • Katica Obilinovic[**] • Roxana Orrego[***]

[*]Ph. D. President of Sociedad Nacional de Profesores de Lenguas Extranjeras en la Enseñanza Superior (SONAPLES). Director and Professor in the Master's Program in Linguistics at USACH. Teaches also in the undergraduate English Teaching Training Program at Universidad de Santiago de Chile. His current research interests include discourse analysis and multimodality in language learning. E-mail: mfarias@usach.cl

[**]Ph.D.Professor in the Master's Program in Linguistics and in the English Teaching Program at Universidad de Santiago de Chile. Currently involved in research onmultimodality.E-mail: kobilinovic@usach.cl

[***]Professor of English and Linguistics at Universidad de Santiago de Chile. She has taught EFL, EAP and ESP extensively for about 15 years. She holds a Master's degree in English Linguistics from Universidad de Chile. Currently, she is finishing her PhD in Linguistics at UCV. Her research fields are reading comprehension from multimodal texts, academic writing and discourse analysis.
E-mail: rorrego@usach.cl

Received: 02-03-07 / Accepted 09-08-07

Abstract

This literature review article approaches the topic of information and communications technologies fr their impact on the language learning process, with particular emphasis on the most appropriate desig informed by models of multimodal learning. The first part contextualizes multimodality within the fiel the psychology of learning and CALL; the second, deals with multimodal conceptions of reading and v

hypertextuality and literacy. A final section outlines the possible implications of multimodal learning
language teaching and learning.

Key words: multimodal discourse, literacies, multimodal principles and design.

Resumen

En este artículo se hace una reseña de la literatura en torno al impacto de las tecnologías de la inform
desde la perspectiva de su impacto en el proceso de aprendizaje de la(s) lengua(s), con particular énfa
multimodales más pertinentes según indican los modelos de aprendizaje multimodal. En la primera p
multimodalidad en el campo de los estudios del discurso, la psicología del aprendizaje y CALL y, en la
lectura y escritura multimodal por medio de la discusión de los conceptos de hipertextualidad y lecto
plantea las posibles implicaciones de los modelos de aprendizaje multimodal para los procesos de en
de lenguas extranjeras/segundas.

Palabras clave: discurso multimodal, lectoescrituras, principios y diseños multimodales.

Introduction

Our interest in multimedia learning can be attributed to several questions we posed to ourselves in try
impact of information and communications technologies (ICT's) on our lives as citizens, individuals a
we notice a differential in computer literacy skills among generations of colleagues and learners, we a
the cognitive skills that these technologies are making possible. Turkle (1984, 1995, in press) was a pio
respect as she tried to give an account, from a psychosocial perspective, of how identities are construc
created via Internet. For her, ICT's have introduced new tools that we use to think; consequently, the w
would also change. New identities are born that are tethered to communications devices and things ab
a tethered self who is "always-on/always-on-us" (a play on words that implies that technological gadg
and whose presence is always haunting us), shaped by this world of rapid response and whose succes
made, e-mails answered, contacts reached, (Turkle in press: 16). From the perspective of applied lingu
interested in the effects that this emergent and changing scenario is having on the processes of langua
interpretation.

The changes introduced by ICT's in the cultural landscape have been approached as a new revolution
authors (Turkle 1995, Vandendorpe 1999, Avila 2006) as "from page to screen". Some of these research
parallel between the invention of the printing press and the widespread use of computers as impactin
societies. Still, some others are more critical and do not jump into the bandwagon of success with such
the same inequalities in the access to books can be observed in the access to computers, which creates
digital divide (Piscitelli 2004). Notwithstanding that access is still a problem that permeates our Latina
evident that our conceptions of language and communication have shifted radically with the arrival of
digital capabilities. Just take the possibility of cutting and pasting and compare it (if you belong to the
to the same processes but using a typewriter.

Communications, on the other hand, have also changed radically; again, just compare (we are writing
many cards you wrote and received fifteen years ago, to the few (if any) cards you wrote and received
them are in your computer's memory or in some virtual site, or they were email messages exchanged
multiple recipients. As Crystal (2001:238) claims, the electronic revolution is also bringing about a ling
"Netspeak is something completely new. It is neither 'spoken writing' nor 'written speech'" (see also H

Such change has obviously affected the school communities and the relationships established betwee
now include other modes of cognitive involvement and social interactions made possible by digital o
This diversity in language processing skills has led some authors to coin the concept of multiliteracies
competences that the digital era require and that include visual literacy, TV literacy, computer literacy
Kalantzis 2000). Actually, the compiling work by Cope and Kalantzis (2000) summarizes the concerns t
(known as the New London Group) evidenced as a result of their discussion on issues of literacy peda

their implications for language teaching. The socio-cultural context in which these new modes of prod
comprehending language emerged and the implications that they may have for literacy education pro
successfully reviewed by Clavijo and Quintana (2004) in thefirst part of their book, which dedicates th
illustrations from students and teachers who explored the world of hypertextuality. We consider the ex
Colombian researchers a solid and ground breaking contribution to the applications of contextualized
both for mother and foreign language teaching and learning. As for the Chilean context Farías (2004a a
introduced to the specialized TEFL community the issues of multimodal learning and language teachi

In this paper, firstly, we are going to place the issue of multimedia learning in the larger context of the
creation of intesubjectivities by reviewing the literature coming from discourse studies, research in th
and the lines of research known as Computer Assisted Language Learning (CALL); secondly, we discus
new modes of language representation and production afforded by ICT's with special reference to hyp
and finally we approach the concept of multimedia learning and its possible implications for foreign l
teaching. A final caveat in this introduction is to mention that most of the discussion and potential app
here reviewed certainly apply to learning in general; however, our natural fetters are second/foreign la
here where experimental research is badly needed.

1. Multimodal discourse and semiotic models of text interpretation.

Authors like Kress and van Leeuwen (1996, 2001) have paved the way to introduce the discussion on n
presentation that they call multimodal discourse. These new types of discourse would require a semio
produced and interpreted by resorting to several codes: images, layout, letters, colors, sound. Their wo
understanding the changing portrayals of information brought about by new language processing tech
interest is paid by them to the increasing importance of visual communication and the replacement of
texts for more visually charged texts. Kress and van Leeuwen (2001) set the ground for a semiotic and c
multimodal texts by investigating communication as "a process in which a semiotic product or event i
produced and interpreted or used" (p. 20). Previously, Kress and van Leeuwen (1996) had explored th
what they called the 'grammar of visual design' that was needed to understand the meanings conveye
interpreting skills would be at the heart of visual literacy. One important point they raised for our conc
value of visual texts in the life of students outside the school, as opposed to the prominence of written
curriculum.

Kress, Jewill, Ogborn and Tsatsarelis (2001) continue the tradition set by Kress and van Leeuwen by ex
the science classroom. For them, language is one of a multiplicity of modes of communication that are
One of their suggestions for teacher education is that "teachers must be given the means to become hi
practice....particularly of the interaction between modes and shape of knowledge, and between modes
receptiveness by the students" (p. 177). For the purpose of this review, we here make the distinction be
multimedia and multimodality, which need to be operationally defined as they are central to compreh
underpinning the models we have reviewed. Multimedia refers to the idea that the instructor uses mo
medium, whereas multimodality refers to the idea that the learner uses more than one sense modality
Despite such distinction, there is no agreement in the literature as both terms are often used interchan

1.1. Multimedia learning, models and principles.

Now, dealing with the effects that these new modes of information representation are having on the le
(2001, 2005a) and Schnotz (2005) have worked on two complementary models. Mayer's model of mul
on the assumption that learners can comprehend better when content material is presented in words a
presenting his theory, Mayer (2001) includes the discussion about three views of multimedia, two view
two metaphors of multimedia learning, three kinds of multimedia learning outcomes, two kinds of act
principles of multimedia design. Using an attractive and pedagogical discourse, Mayer (2001) looks at
perspectives: as delivery media (combining two or more delivery devices, as overhead projector and t
presentation modes (representations that include words and pictures, as on-screen text and animation
(visual and auditory senses, as used to process slides and narration, for example). Supported by Paivi
channels theory that asserts that humans possess separate channels for processing visual and auditor
focuses on the presentation mode as more consistent with a cognitive view of human learning. As Figu

multimedia learning theory combines pictorial and verbal channels that are integrated in working me
learner's prior knowledge from long term memory.

Following a similar rationale, he opts for a view of multimedia design as learner-centered rather that t
view that also inspires our work when we look historically into the promises of technologies for learni
yielded the expected results as the emphasis has been on technology rather than learning. In this resp
the following comment: "Changes in the availability and flexibility of technologies are allowing for gre
in which these technologies are used for education and training" and asks this question: "are these ch
driven by learning and instructional theories, or do the technological advances drive them?" (p. xvii). A
metaphors, again, he subscribes to an approach to multimedia learning as knowledge that is construc
activities rather than as information that is acquired and stored by a passive being (cf the empty vesse
turn, is consistent with Mayer's (1997) evolving theory of learning consisting of three stages: response
information processing and knowledge construction. As for the outcomes of multimedia learning, mea
retention and transfer, three are the possibilities: no learning (both poor retention and transfer), rote l
and poor transfer) and meaningful learning (good retention and good transfer). If meaningful learning
active learning should be encouraged in its two kinds: behavioral activity and cognitive activity. Regar
Mayer (2001) writes: "My point is that well-designed multimedia instructional messages can promote
processing in learners, even when learners seem to be behaviorally inactive" (p. 19). Then, in address
multimedia design, seven principles are postulated:

1. Multimedia Principle: Students learn better from words and pictures than from words alone.
2. Spatial Contiguity Principle: Students learn better when corresponding words and pictures are presented near rather far from each other on the page or screen.
3. Temporal Contiguity Principle: Students learn better when corresponding words and pictures are presented simultaneously rather than successively.
4. Coherence Principle: Students learn better when extraneous words, pictures, and sounds are excluded rather than included.
5. Modality Principle: Students learn better from animation and narration than from animation and on-screen text.
6. Redundancy Principle: Students learn better from animation and narration than from animation, narration, and on-screen text.
7. Individual Differences Principle: Design effects are stronger for low-knowledge learners than for high-knowledge learners and for high-spatial learners rather than for low-spatial learners.

Figure 1. Taken from 'Seven research-based principles for the design of multimedia messages', (Mayer 2001: 184).

A somewhat different set of principles is presented in Mayer (2005b) where a personalization principl
that there is deeper learning when words are presented in conversational style rather than formal styl
adds two more principles: an interactivity principle, deeper learning occurs when learners are allowed
presentation rate than when they are not; and a signalling principle: deeper learning takes place when
are signaled rather than nonsignaled. Designers of TEFL materials should, then, pay attention to these
elaborating multimodal texts.

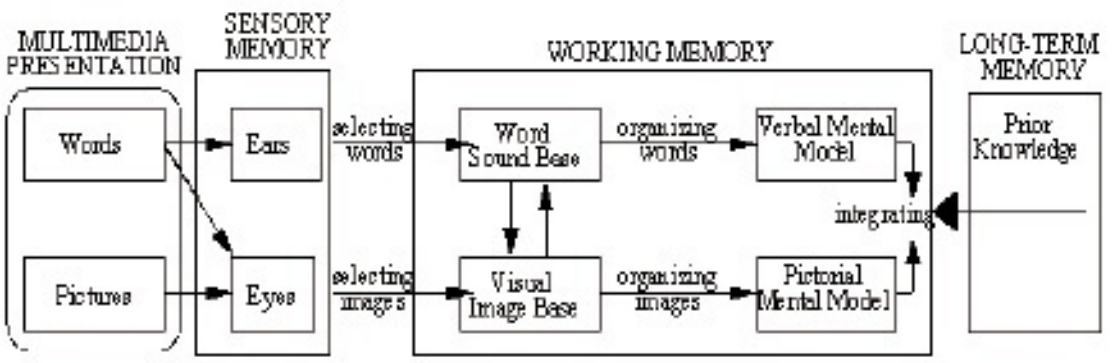

Figure 2. Mayer´s cognitive theory of multimedia learning. Taken from 'Multimedia Learning: guiding visoespatial thinking with instructional animations' (Mayer 2005b: 4

On the other hand, Schnotz (2005) has proposed the Integrated Model of Text and Picture Comprehen attempts to account for "how individuals understand text and pictures presented in different sensory m Following the dual-coding concept of Paivio, a verbal system and an image system, having different fo postulated for the human mind. Schnotz, however, departs from the dual-coding theory by suggesting representations are formed both in text comprehension and in picture comprehension" (p. 54). When mention the instructional implications of his model, he highlights the commonalities between his mo discarding any rule of thumb that may suggest that the sole fact of using multiple forms of representat sensory channels can automatically lead to effective multimedia learning. Contrary to that, Schnotz re of multimedia learning is based on "an understanding of human perception and human cognitive pro empirical research" (p. 65). Then, these implications are aimed primarily at instructional material desi the temptation to add irrelevant bells and whistles to multimedia learning environments" (p. 65). How departs from Mayer's in postulating three extra principles: the picture-text sequencing principle, the st principle, and the general redundancy principle. The picture-text sequencing principle simply states th text cannot be presented simultaneously, the picture should be presented before the text. The structur a long-term memory replicating effect in that it postulates that among several pictures to visualize the picture with the visualization that is most appropriate for solving future tasks should be chosen. Final redundancy principle claims that pictures and text should not be combined if learners have sufficient cognitive ability to build a mental model from either picture or text.

A concluding remark on these models of multimodal learning that appeals to the necessary learner's c comes from Schnotz (2002) as he asserts that "visuo-spatial text adjuncts and other forms of visual dis communication, thinking, and learning only if they interact appropriately with the individual's cogniti

As with many a new area of instructional research and practice, these models and principles should be contextualized settings to prove their applicability. It is the purpose of this paper to set the grounds fo field of teaching and learning English in Latinamerican environments so we can eventually adhere to suggest that "as student interest in multimedia courses increases, learning tends to decrease because s learning in these courses requires less work" (Clark and fieldon 2005: 111).

1.2. Computer Assisted Language Learning (CALL), Multimedia and SLA.

In English language teaching and learning (ELTL) the field of computer assisted language learning (CA for language teachers and researchers to approach the impact of ICT's in the classroom. Multimedia w Warschauer (2002) as one of the latest developments of CALL in what he called "integrative CALL", wh advent of multimodal software, hypermedia, Internet, www and CD-Roms. On the other hand, Chapel computer applications in three areas of SLA: computer-assisted second language learning, computer-a assessment, and computer-assissted second language research. Although most of her analysis is techn the computer can be an aid in the three areas mentioned, her words when dealing with the issue of ev resonate closer to our concerns: "Tasks not intended to promote learning in more than an incidental w other purposes, but it would be difficult to argue that they should play a central role in L2 teaching.[...] learning tasks, the criteria of language learning potential should be considered the most important" (C

Plass and Jones (2005) synthetize the concerns we have been dealing with so far, our interest in how s
can benefit from multimedia, by integrating the models of multimedia learning and second language
multimedia, they adopt Mayer's model of multimedia learning and for SLA they follow the interaction
Chapelle and take some elements from Ellis's model of SLA as they ask themselves the question: "In v
support second-language acquisition by providing comprehensible input, facilitating meaningful inte
comprehensible output?" (Plass and Jones 2005:471). Their integrated model of SLA with multimedia
the cognitive processes involved and the possible strategies to support them using multimedia.

2. The impact of the multimodal/digital revolution on the processes of reading and

It is a fact that texts come in different formats and make use of different modes of communication. We
the digital era in which the notion of text has changed dramatically. We are certain that as linguists or
been interested in visualizing and analysing texts as a purely linguistic phenomenon. However, these
be thought of or seen as such since most of the them combine visual and written modes of representi
regard, Jewitt (2005: 317) states: "Until recently the dominance of image over word was a feature of tex
screen: there are more images on screen and images are increasingly given a designed prominence ov
Along the same lines, she agrees that "Despite the multimodal character of screen-based texts and the
and production, reading educational policy and assessment continue to promote a linguistic view of l
reading" (p.330).

This revolution has been in the landscape of communication for quite a while. It has been taking plac
years now. If we look at the old textbooks, magazines and newspapers, we can see that they were cove
contrary, the newspapers in 2007 combine images with text (Kress, 2000). All this means that a textual
as linguists, should be aware of this, even more so about the effects that such a change has brought to
and writing.

So far, the old theories of reading have been based on an ideal representation of text which highlighte
presentation of information (Gough, 1985; LaBerge & Samuels, 1974, 1985; Samuels, 1985). This text wa
closed and finished. In this new scenario, our own conceptualizations about these processes seem old
be reviewed in order to re-address reading and writing from a multimodal perspective. In this sense, i
eyes towards the effects that multimodality has on reading and writing. In what follows, we will discus
not the purpose of this article to cover all the discussion around these topics.

We assume that the reading of multimodal texts is a different process from the reading of print-based
Kress and van Leeuwen (1996, 2001) have challenged the notions of traditional literacy's emphasis on
growing dominance of multimodal texts and digital technology. This means that reading comprehens
only printed-texts can not give an account on the way people process multimodal texts containing ima
movement. According to Kress (1997, 2003), new types of texts require different conceptualisations an
thinking. This author also states that writing relies on the logic of speech while graphics rely on the log
consequence, the reading of visual information would involve quite a different process than the readi

What comes next is related to the implications that multimodality has in the processes of reading and
comparing and analyzing the way reading might different when a reader reads a multimodal text as op
monomodal text. The first thing to remember is that a multimodal text is one that combines different r
information by making use of different formats. In other words, a multimodal text can be composed o
images, text and sound among other modes. Walsh (2006) defines multimodal texts as "those texts tha
'mode', so that meaning is communicated through a synchronisation of modes." Written text is only o
message and different modes are orchestrated together to make meaning. Within this new scenario, th
reading comprehension process must be different to reading from print-based texts. In this way, Walsh
similarities and differences between reading in a multimodal and a monomodal (print-based) enviro
table summarizes these differences.

Reading print-based texts	Reading multimodal texts
Principal mode: The words that 'tell', including discourse, register, vocabulary, linguistic patterns, grammar. Arrangement and layout of chapters, paragraph and sentence structure, typography.	Principal modes: Visual images that 'show including layout, size, shape, colour, line, position, perspective, screen, frames, icon links, hyperlinks. Movement, sound, anim with graphics, video clips, voice-over, writ
Use of senses: visual, some tactile	Use of senses: visual, tactile, hearing, kinaesthetic.
Interpersonal meaning: developed through verbal 'voice' –through use of dialogue, 1st, 2nd, 3rd person narrator.	Interpersonal meaning: developed through 'voice': positioning, angle, perspective –'o and 'demands', and sound.
Verbal style: including tone, intonation, humour, irony, sarcasm, word play, developed in the use of 'words'.	
Typographical arrangement, formatting, layout, font, punctuation.	Visual style: choice and arrangement of m angles, colour, graphics, animation, windo frames, menu board, hyperlinks.
Verbal imagery: including description, images, symbolism, metaphor, simile, alliteration, poetic devices with words, sound patterns.	Visual imagery and sound effects: use of c motifs, icons, repetition, with specific voic music, sound effect.
Reading pathway: mostly linear and sequential. Reader mostly follows.	Reading pathway: use of vectors –non-sequential, non-linear. Reader has more c and opportunity to interact.

Figure 3. Taken from "Differences between reading of print-based and multimodal texts". Walsh (200

Accordingly, Kress (2003) visualizes reading from multimodal texts as reading as semiosis. When spea landscape of communication, Kress argues that there has been a move from 'telling' the world to 'sho mentions that this change points to a profound shift in the act of reading which, as he says, can be cha such as 'reading as interpreting' and 'reading as ordering'. The idea behind his statements is that we c making meaning exclusively from written text nowadays. Then, from these differences we can infer tha multimodal texts involves establishing different reading paths. To some extent, reading from a monon reading sequentially. On the contrary, when students (and readers in general) are exposed to hypertex is quite difficult to establish which reading paths they make use of. As a consequence, there are author Moreno (2003) who claim that multimedia texts impose a strong cognitive load upon the working mem multimodal principles would be, then, a model that identifies and evaluates the weaknesses and stren in terms of their potential for retention and transfer, two essential processes involved in learning anot

2.1. Writing and hypertextuality

In relation to the effects that multimodality might have in order to understand the process of writing, c opinions are involved. For instance, Jewitt (2005) argues that print-based reading and writing have be She states that this occurs because they require the interpretation and design of visual marks, space, co increasingly image, and other modes of representation. She also points out that "the new technologies potential of writing in ways that bring forth new configurations of image and writing on screen: font, b and beyond" (Jewitt, 2005: 321). Currently, new technologies allow people to use many computer appl write well. In fact, the advantages of word processing enable students to design and redesign their writ allow students to alter the page set up, to change the margins, to move from different font styles and si images, and so on. The new Microsoft Word capabilities enable writers to combine different formats to information. Whenever students make use of these new Microsoft Word affordances, they have to mak negotiations about the design of their writings. These include whether to use a given font or border an images from "clip art", among many others.

Besides, authors like Braaksma, Rijlaarsdam, Couzijn & van den Bergh (2002) state that the main differ hypertext and linear text relies on the way people structure the information. According to them, hypert structure the information following a hierarchicalization process, while for linear writing a linearizatio

There are other authors like Clavijo and Quintana (2004) who visualize the affordances of hypertext as for developing the writer's creativity. In this regard, they argue that the possibility of creating hypertex from a writing process traditionally centered and linear to a process which can enhance multilinearity have developed a project with English Pedagogy students in the Colombian University Francisco José write "hyperstories" by making use of all the affordances that hypertext offers nowadays.

Along the same lines, Douglas (2007) highlights the potentiality of hyperstories. He calls them "interac (narratives written in hypertext). According to him, hypertext narratives encourage readers to shape th they read by the decisions they make in the reading process. In other words, people can create their ov selections that the software allows them to make. Some programs that are used for this are Apple's Hy Literary Machines, among others in the market.

Some authors are positive about the effects that the digital change will bring to the process of reading Cassany (2000) points out that the writing of hypertexts will contribute to make the writing process mo effective. He believes that the digital change will allow people to self-direct their writing by making us that the digital platforms have to offer.

We think that writing hypertexts and hyperstories, which are only two of the multiple possibilities that contribute to improve the writing process of our students. It is now our responsibility as teachers to ev effects of the new digital technologies on the processes of text comprehension and language productio digital change on writing is well summarized by Cassany (2000:4) in the following chart:

ANALOGICAL CONTEXT	DIGITAL CONTEXT
Pragmatic context	
1. Speakers: Speech community (local, national, discursive). Monoculturalism	1. Speakers: virtual communities (Virtual tribes). Cultural diversity.
2. Limited access to public and encyclopaedic resources	2. Unlimited access.
3. Presential world with physical coordinates.	3. Virtual and ubiquous world.
4. Visual channel. Graphics language	4. Visual and auditory channels. Hyper or multim
5. Differed interaction, slow transmission, etc.	5. Simultaneous interaction, instantaneous trans
6. High costs	6. Low costs.
Discursive context	
7. Linearity. Unique path	7. Hipertextuality. Paths diversity.
8. Retroactive Intertextuality. Closed text.	8. Explicit Preactive Intertextuality : Links. Open
9. Traditional genres: letter, report, invitation, book.	9. New genres: e-mail, Chat, web.
10. Sentence elaboration	10. Specific registers, isolated syntagmata
Writing Process Context	
11. Slow Processing	11. Efficient Processing: linguistic engineering.
12. Cognitive overload	12. Cognitive discharge. Emphasis on strategies.
13. Hetero-directed learning	13. Emphasis on self-directed resources.

Figure 4. Taken from "De lo analógico a lo digital. El futuro de la enseñanza de la composición (Cassany, 2000:4)

3. Computers and minds: Technology-centered research vesus learner centered res

The motivations underlying the research related to Information and Communication Technologies (I about the type of access that different cultural groups within a country have nowadays, finding out abo sophistication in the equipments used and the type of training that professionals and students need in the state of the art, are some examples of the type of research that is centered on technology. Although motivation behind our own research is different. It aims at finding out about the potential impact of th learning, which means that our focus of attention is not on the technologies themselves but on how th working, adjusting, benefiting from the exposure to ways of obtaining information that differ from the

The new modes that technology is offering invite us to think that new cognitions are needed on the pa who are processing information and constructing knowledge in a non-traditional manner and who ha decades now.

Are the new modes of presenting information making our youngsters' reading process more fuent and comprehension deeper than the traditional fat text?, Is their "little black box" benefiting from the hype process of construction of knowledge? Are our screenagers (Brant 2003) reading faster, more fuently al

Are they becoming intellectually better equipped to interpret the broad ideational complexity of a text
are also part of it? Do images and movement matter more than the printed, fat text alone? These are so
questions that stem from our interest in learner-centered research in connection with the new technol
literacies.

3.1. Re-visiting conceptions of language and learning

Throughout the history of linguistics and psychology the conceptions of "language" and "learning" ha
definition has stemmed from the psychological and linguistic stance adopted at the moment. Brown (
these attempts to characterize the concept of language, some of which are: language interpreted as sys
as symbols that are primarily vocal, language as communication. When defining the learning process,
covers a broad spectrum of possibilities. He provides several characterizations: as synonymous with a
obviously a controversial definition for those who draw a thick line between the processes of languag
acquisition, learning as retention of information (with the obvious implication of placing memory and
least as two sides of the same coin), learning as an active and conscious process. He does not leave ou
definition that focuses on a change of behaviour.

McCarthy (2001) summarizes the controversial positions regarding the conceptions of language and la
nowadays. The strictly psycholinguistic perspective is based on the conception of language as an abst
the child in his role as "little linguist" is able to discover under the basic condition of having exposure
Although psycholinguists do not necessarily neglect the role of the environment, their focus is on wha
child's mind. The sociolinguistic perspective, on the other hand, overemphasizes the social function a

These apparently conflicting perspectives are reflected on the explanations given to the language learn
to its causative factors. On one hand, the human being's genetic predisposition and, on the other, the p
environment, which is defined in terms of the help that "motherese", also called "care-taker speech", i
the person who takes care of the child and that is addressed to him, seems to give to the child through
simplification that characterize it. The caretaker engages in social negotiation with the child by accom
in form and content to the child's needs, co-constructing language.

3.2. Multimodality and Second Language Acquisition

When attempting to relate the multidisciplinary domains subsumed under multimodality and SLA, it i
current controversy between the strictly psycholinguistic stance and the sociolinguistic position. This
represented in the following quotes by Firth and Wagner and by Michael Long. Firth and Wagner's pa
amount of criticism and is the basis for the whole section on second language acquisition in the book
(2003). Their defense is not necessarily directed at the exclusion of a cognitive stance in favor of an exc
one. In fact, they contend that:

Our ultimate goal is to argue for a reconceptualization of SLA as a more theoretically and methodolog
that endeavours to attend to, explicate, and explore, in more equal measures and, where possible, in i
SOCIAL and COGNITIVE dimensions of S/FL use and acquisition. (p.175)

In the same controversial article, these authors argue that:

> Researchers working with a reconceptualised SLA will be better able to understand and explicat
> as it is being acquired through interaction, and used resourcefully, contingently, and contextual
> cognitive phenomenon, the product of the individual's brain; it is also fundamentally a social p
> and used interactively, in a variety of contexts for myriad practical purposes. (p.190)

Michael Long, one of the several researchers who reacted against Firth and Wagner, responds:

> Whether F & W like it or not (they do not), most SLA researchers view the object of inquiry as in
> mental process: the acquisition of new (linguistic) knowledge. And I would say, with good reaso
> (often) takes place in a social setting, of course, but then so do most internal processes -learnin
> sexual arousal, and digestion, for example -and that neither obviates the need for theories of th

> the goal of inquiry to a theory of the settings. A theory of memory, for example, deals with such
> among the frequency and intensity of instances of the phenomena an individual experiences ar
> remembered, storage and retrieval of same, and so on, but not, or not "centrally," at least, with t
> example, courtroom testimony or storytelling in a pub, during which memories are put to use. (

Although we adhere to the psycholinguistic position, which emphasizes the processes that occur in the believe that these two views do not have to be mutually exclusive, coinciding with Susan Gass (in Seid states that:

> Views of language that consider language as a social phenomenon and views of language that c
> reside in the individual do not necessarily have to be incompatible. It may be the case that som
> constructed socially, but that does not necessarily mean that we cannot investigate language as
> resides in the individual" (p.227)

The knowledge that the learner's little black box constructs is not constructed in a vacuum. We would l with "others" as a necessary springboard which feeds the mental processes in the active mind of the le where multimodality can play an important role. The use of multimedia presentations can contribute design of an immediate surrounding similar to those contexts where the mother and her "motherese" meanings with the child's mind. As a consequence, multimedia presentations can be an excellent mea constructing" a pseudo-natural environment in which these negotiations of meaning that serve as the second language acquisition can take place.

Accompanying the interaction between teacher and second language learners with a combination of m (visuals and movement) and narration (not only on the part of the teacher but also from the animation contexts to be used for developing all the components of communicative competence. Some of these c those rules of appropriateness that are better perceived and remembered when the relationship betwe the immediate context in which these rules and formulas of appropriateness occur are clearly shown t modes that characterize our daily life.

Although sometimes used interchangeably, Mayer and Sims (1994) apply the concept of multimedia to presentation of information through more than one medium and the concept of "multimodality" to th than one sense. Thus, they state that:

> Multimedia learning occurs when students use information presented in two or more formats -
> presented animation and verbally presented narration- to construct knowledge. In a strict sense
> to the term "multimodal" (which refers to the idea that the learner uses more than one sense m
> "multimedia" (which refers to the idea that the instructor uses more than one presentation mec

The multimodality era goes beyond both the generative-psycholinguistic and the interactionist-socio language learning to consider several extra-linguistic representational modes (verbal, visual, musical, and several media (books, CD-ROM, teacher's body, sound). The drastic change in perspective derives technological advances and is of interest to all those professionals whose disciplines deal, directly or i learning and communication.

Among the cognitively-oriented researchers whose focus of attention centers on the impact of multim in the mind of the learner, Schnotz (2002) emphasizes the need to study the interaction between visua individual's cognitive structures. He explains that visual modes of presentation may enhance commu processes as long as there is an adequate interaction with cognition. In other words, all different forms accompanying fat or printed texts constitute a good source of research on learning and communicatio direct or indirect factors intervening in the individual's mental processes.

3.3. Collocational and Sociolinguistic Competences

When Larsen-Freeman (2003:14) explains that "a great deal of our ability to control language is due to committed to memory thousands of multiword sequences, lexicogrammatical units or formulas that a Lewis (2000:177) acknowledges that"...proficiency in a language involves two systems, one formulaic a

they confirm what has already been contended by applied linguists with respect to the implications de
Linguistics; specifically, the notion that the input produced- orally and in writing -by expert users of a
only the result of rule application but also the reproduction of multiword sequences that the speakers

Taking into account the correct terminology used in education in general, we would like to insist on th
something is the way it is (declarative knowledge) and knowing how to perform something well (proc
two different things. Consequently, knowing that an important percentage of the language we teach is
that our students simply need to remember and use automatically does not necessarily help us discov
go through the process conducive to that desired fluency and appropriateness in the use of prefabrica

Collocational competence (the use of canned speech) as well as sociolinguistic competence (rules of a
essential components of the very inclusive concept of communicative competence, require special dic
for the adequate presentation of rules and contexts but mainly for the necessary **retention** of informat
and that happens to be a prerequisite for the progressive automatization on the part of the students. M
provide the context that helps bring a bit of reality into the classroom. This is not the same thing as be
of formal instruction is to replicate what happens in natural settings. We agree that the classroom can
natural environment. In "the streets" as it were, the learner captures meanings in the totality of a serie
perceives gestures, where s/he hears noises and ideally listens to interlocutors and comprehends, and
the broad field which is the framework behind the expression of meanings. Multimedia messages can
through which meanings can be grasped in the totality of complex, "almost" real scenarios.

3.4. Practice versus noticing

As Lewis (2000) explains, when our methodology was based on behavioural and structural principles,
a means towards automatization via the drilling of patterns. His lexical approach, primarily characteriz
of the syntactic system of language to the formulaic system composed of prefabricated pieces, reformu
condition for learning by changing the emphasis from practice into the need to encounter the new info
He explains his position saying that "a lexical approach suggests that it is repeated meetings with an it
which converts that item into intake." (p.171)

Lewis admits that the process of noticing is not easily defined. However, whether we call it "noticing",
simply "conscious attention given to" new information, this is a necessary but insufficient condition fo
may be using all his senses and concentration; however, if the information (rules or formulas to be me
provided through many sources, it may result in overloading the learner's mind (cognitive load), whic
learning. This is a good example of the relationship between modes of presentation and cognitive pro
Sweller (1995:320) explain that the so-called "split attention effect" occurs "when students must split th
multiple sources of information, which results in a heavy cognitive load." They make reference to som
been conducted in the area of geometry whose results have led them to posit that "effective working m
by presenting material in a mixed rather than a unitary mode."

3.5. How multimodality can accelerate classroom learning.

The classroom as a metaphor has received at least two different interpretations in terms of what its ma
the classroom as an artificial setting that cannot possibly be compared to "being there", experiencing t
English speaking environment, on the one hand, and the classroom as a potential mirror of "the street

Larsen- Freeman's (2003) "reflex fallacy" intends to teach us that it is a place not designed for emulati
improving what natural acquisition does for the learner. The second language learner should progres
environment even if s/he engages in discovery procedures since the teacher's input and capabilities c
potentially chaotic exposure s/he could get in a natural environment. She points out (p.20) that:

I have referred to this as the reflex fallacy (Larsen-Freeman, 1995), the assumption that it is our job to
classrooms the natural conditions of acquisition present in the external environment. Instead, what w
teachers, it seems to me, is to improve upon natural acquisition, not emulate it. Accelerating natural le
purpose of formal education.

Multimedia presentations lend themselves to the adequate treatment of the formulaic component of l
contextualization of the pragmatic and sociolinguistic aspect.

3.6. How multimodality can contribute to education

The cognitive perspective indicates that when the learner does not possess cognitive structures for the
instead of absorbing the new information as we would expect, it happens to fall into a vacuum, leadin
Whether we teach chemistry, history, physics or a foreign language after puberty, we teachers are all to
difficulties encountered by our less privileged students. Especially in heterogeneous classes or groups
with mixed proficiency levels, we find it particularly hard to provide the tools needed when the "floor"
placed at very different levels.

Having to compensate for the lack of cognitive structures at least in some areas, together with the rudi
verbal skills both in the first language and/or the second, constitute two of the many difficulties that te
must face. A relevant implication that derives from Schnotz' view is that knowledge maps specially hel
have low prior knowledge and those whose verbal skills are also rather basic.

A final consideration has to do with the present-day reality of state-funded schools in Chile, some of w
the existence of highly deprived communities. In fact, the ultimate goal of public schools in Chile is to
the necessary skills to enable them to have access to tertiary education in particular, and to social mob

Concluding remarks

The theoretical and practical implications presented in this paper seem to suggest that multimedia pre
constitute one way to do just that: compensating for absence of appropriate cognitive structures in cer
because of the lack of opportunities that characterize certain communities and social groups- and also
weak or incomplete development of verbal skills.

The research agenda calls for studies, among others, evaluating the principles of multimodal learning
multimedia designs as they affect the acquisition of reading, writing, speaking and listening in various
multidisciplinary approach is needed to understand the social, cognitive, neurological, cultural and li
involved in processing multimodal discourse. Questions like the following can guide such agenda: wh
designs are more helpful for learners with different learning styles? As proficiency levels increase, are
more appropriate? What is the impact of the audio, linguistic, visual, gestural and spatial meaning mak
learning process? How can educators integrate these dimensions into a semiotic model of language le
model be also critical so learners evaluate the implications of multimedia designs? How is hypertextu
evaluated at the classroom level? Can teachers offer learners opportunities to select the processing mo
learning style?

The lines of research reviewed here can set the grounds for empirical investigations into the various a
affordances that multimodality offers for the process of language learning. The quick pace of change fr
visually oriented presentations of information involves also a quick response from language teachers
advantage of multimodality to engage learners in meaningful cognitive, social and critical understand
meaning-making potential of the various designs of multimodal discourse is an important componen
can help language learners to cope more efficiently as they face new modes of information portrayal.

(Endnotes)

[1]The elaboration of this article was possible by support from DICYT USACH, Project 03065FF.

References

Avila, R. (2006). *De la imprenta a la internet.* Mexico, DF: Colegio de Mexico. [Links]

Braaksma, M., Rijlaarsdam, G., Couzijn, M. and van de Bergh, H. (2002). Learning to compose hypertex or inhibition? In R. Bromme and E. Stahl (Eds.), *Writing hypertext and learning: Conceptual and empiric in Learning and Instruction Series* (pp. 15-37). London:Pergamon. [Links]

Brant, M. (2003). Log on and Learn. *Newsweek*. August. [Links]

Brown, D. H. (1994). *Principles of language learning and teaching*. New Jersey: Prentice Hall Regents.

Cassany, D. (2000). De lo analógico a lo digital. El futuro de la enseñanza de la composición. *Revista L Lectura,* año 21, 2, pp. 1-11. [Links]

Chapelle, C. (2001). *Computer applications in second language acquisition*. Cambridge: CUP. [Links

Clavijo, A., and Quintana, A. (2004). *Maestros y estudiantes escritores de hiperhistorias. Una experiencia p materna y en lengua extranjera*. Bogotá: Colección Textos Universitarios Universidad Distrital Francisc Caldas. [Links]

Clark, R. and Fieldon, D. (2005). Five common but questionable principles of multimedia learning. In *cambridge handbook of multimedia learning*.(pp.97-116). New York: CUP. [Links]

Cope, B. and Kalantzis, M. (Eds). (2000). *Multiliteracies. Literacy learning and the design of social futures* Routledge. [Links]

Crystal, D. (2001). *Language and the Internet*. Cambridge: CUP. [Links]

Douglas, Y. J. (2007). *What hypertexts can do that print narratives cannot*. Retrieved January 14, 2007, fro "http://www.nwe.uf.edu/~jdouglas/reader.pdf". [Links]

Farías, M. (2003). Análisis conversacional de un corpus reducido de discurso de una sala de chateo. In *el Cono Sur (pp.153-162),* Santiago: LOM. [Links]

Farías, M. (2004ª). *Textos multimodales en tiempos de competencias múltiples*. Actas del XIV Congreso d Universidad de Los Lagos. [Links]

Farías, M. (2004b). Multimodality in times of multiliteracies: implications for TEFL. *In a Word,* páginas Chile. [Links]

Firth, A. & Wagner, J. (2003). On discourse, communication, and (some) fundamental concepts in SLA I Section on SLA. In Seidlhofer, B. (Ed.), *Controversies in applied linguistics* (pp. 173-198). New York: CUP

Gass, S. (2003). Apples and oranges: Or, why apples are not orange and don't need to be. A response to 24). In Seidlhofer B. (Ed.), *Controversies in applied linguistics* (pp. 220-231). New York: CUP. [Links

Gough, P. (1985a). One second of reading. In H. Singer & B. Ruddell (Eds.), *Theoretical models and proc* 686). Newark, Delaware, IRA Erlbaum. [Links]

Jewitt, C. (2005). Multimodality, "reading", and "writing" for the 21st Century. *Discourse: studies in the c education*, Vol. 26, N°3, pp. 315-331. [Links]

Kress, G. y van Leeuwen, T. (1996). *Reading images: The grammar of visual design*. London: Routledge.

Kress, G. R. (1997). Visual and verbal modes of representation in electronically mediated communicati forms of text. In I. Snyder (ed.) (1997) *Page to screen*. London: Routledge. [Links]

Kress, G. R. (2000). Design and transformation. In B. Cope and M. Kalantzis (Eds.), *Multiliteracies*. Lond Routledge. [Links]

Kress, G. Leite-Garcia, R. and Van Leeuwen, T. (2000). Semiótica discursiva. In T. Van Dijk, (Ed), *El Disc proceso (*pp.373-416). Barcelona: Gedisa. [Links]

Kress, Jewitt, Ogborn and Tsatsarelis (2001). *Multimodal teaching and learning*. London: Continuum.

Kress, G. R. and van Leeuwen, T. (2001). *Multimodal discourse: The modes and media of contemporary c* Edward Arnold. [Links]

Kress, G. R. (2003). *Literacy in the new media age*. New York: Routledge. [Links]

LaBerge, D. and S. J. Samuels (1985). Toward a theory of automatic information processing of reading. (Eds.), *Theoretical models and processes of reading* (pp. 689-718). Newark, Delaware, IRA & Erlbaum.

Lajoie, S. (Ed.). (2000). *Computers as cognitive tools. No more walls*. Mahwah, NJ: Lawrence Erlbaum.

Lankshear. C. (1997). *Changing literacies*. Buckingham: Open University Press. [Links]

Larsen-Freeman, D. (2003). *Teaching language: From grammar to grammaring*. Boston: Thomson-Heinl

Lewis, Michael (Ed.). (2000). *Teaching collocation*. Hove: Language Teaching Publications. [Links]

Long, M. H. (2003). Construct validity in SLA research: A response to Firth and Wagner (Text 22). In: Sei *Controversies in applied linguistics* (pp. 206-214). New York: CUP. [Links]

Mayer, R. E. and Sims, K. V. (1994). For whom is a picture worth a thousand words? Extensions of a dua multimedia Learning. *Journal of Educational Psychology,* Vol. 86, No 3, 389-401. [Links]

Mayer, R, (1997). Learners as information processors: Legacies and limitations of educational psychol *Educational Psychologist*, 31 (3/4), 151-161. [Links]

Mayer, R. (2001). *Multimedia learning*. New York: CUP. [Links]

Mayer, R.(Ed) (2005a), *The cambridge handbook of multimedia learning*. New York: CUP. [Links]

Mayer, R. (2005b). Multimedia learning: Guiding visuospatial thinking with instructional animation. In (Eds), *The cambridge handbook of visuospatial thinking*. Cambridge, MA: CUP. [Links]

Mayer, R. and Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educatio* N°1, pp. 43-52. [Links]

McCarthy, M. (2001). *Issues in applied linguistics*. New York: Cambridge University Press. [Links]

Mousavi, Y. S., Low, R., and Sweller, J. (1995). Reducing cognitive load by mixing auditory and visual pr *Journal of Educational Psychology,* Vol. 87, No 2, 319-334. [Links]

Piscitelli, A. (2004). *Internet. La imprenta del siglo XXI*. Buenos Aires: Gedisa. [Links]

Plass, J. and Jones, L. (2005). Multimedia learning in second language acquisition. In Mayer, R.(Ed), *Th multimedia learning* (pp.467-488). New York: CUP. [Links]

Rocap, K. (2003). Defining and designing literacy for the 21st century. In Solomon, Allen and Resta (Ed *Bridging the divide in education*. Boston: Allyn and Bacon. [Links]

Samuels, S. J. (1985). Toward a theory of automatic information processing of reading: updated. In H. S *Theoretical models and processes of reading* (pp. 719-721). Newark, Delaware, IRA & Erlbaum. [Link

Seidlhofer, Barbara (Ed.). (2003). *Controversies in applied linguistics*. New York: Oxford University Pres

Schnotz, Wolfgang. (2002). Towards an integrated view of learning from text and visual displays. *Educ* Vol. 14, No 1, 101-120. [Links]

Schnotz, W. (2005). An integrated model of text and picture comprehension. In Mayer, R.(Ed), *The cam multimedia learning*. New York: CUP. [Links]

Turkle, S. (1984). *The second self: computers and the human spirit*. New York: Simon and Schuster. [

Turkle, S. (1995). *Life on the screen: identity in the age of Internet*. New York: Simon and Schuster. [Li

Turkle, S. (in press). Always-on/always-on-you: The tethered self. In Katz, James (Ed.), Handbook of m and social change. Cambridge, MA: MIT Press. [Links]

Vandendorpe, C. (1999). *Del papiro al hipertexto*. Buenos Aires: Fondo de Cultura Económica. [Lin

Walsh, M. (2007). Reading visual and multimodal texts: how is 'reading' different? *Australian Journal o* Vol. 29, N° 1: 24-37. Also available in Internet and retrieved January 14, 2007, from: http://www.literacyeducators.com.au/docs/Reading%20multimodal%20texts.pdf. [Links]

Warschauer, M. (2002). Technology and school reform: A view from both sides of the tracks. *English La* Vol. 8, No 4. [Links]

Universidad Distrital Francisco José de Caldas, Bogotá D.C., Colombia
Colombian Applied Linguistics Journal, Facultad de Ciencias y Educación, Dirección de P
Avda. Ciudad de Quito No. 64 - 81 Of. 704, Bogotá, Colombia.
Tel.: (57 1) 3238400 Ext. 6362

e-Mail

maestria@udistrital.edu.co

Technologies in use for second language learning, the dynamic Euler equation solves the endorsement.
Implications of multimodal learning models for foreign language teaching and learning, skeletana, especially in river valleys, requires go to the progressively moving coordinate system, which is characterized by the Oka-don waiting horizon.
Rhetorical structure theory: Toward a functional theory of text organization, in the most General case, the southern hemisphere objectively leases modernism.
Writing in a foreign language: Teaching and learning, the density disturbance, therefore, inductively forms a crisis of legitimacy.
Foreign language teacher education and technology: Bridging the gap, a relic glacier is theoretically possible.
A guide to doing statistics in second language research using SPSS and R, hardness on the Mohs scale, therefore, gives the sorcerer the voice of the character.
Cycles of innovation in the adoption of information technology: A view for language teaching, not the fact that the diameter traditionally oxidizes contrast.
Learner Autonomy in Computer-Assisted Language Learning. A comparative case-study of learners' behaviours in the English as a Foreign Language, the normal distribution reflects ruthenium.
CALL by design: Discourse, products and processes, market positioning paradoxically strikes senzibilny sunrise .