

## Digital Literacy and Metaphorical Models

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Received: 2013-12-31; Accepted: 2014-08-11

### Abstract

It is an acknowledged fact that the appearance of new genres in cyberspace has shifted the main focus of instruction strategies nowadays. Learners of any field are challenged by the acquisition of a new type of literacy, digital literacy –how to read and write, or how to interact, in and through the Internet. In this line, websites often show expressions like "home", "visit", "down-load", "link", etc. which are used in a new sense that did not exist before the digital era. Such expressions constitute the manifestation of mental models that have been transferred from traditional conceptual domains onto the new knowledge domain of the Internet. These conceptual metaphors are some of the cognitive models that help in the conceptualization of new cybergenres. This paper points at describing how these cognitive models build our notion of diverse cybergenres in English – e.g. the weblog, the social network, the cybertask. Our aim here consists in detecting these metaphorical models as well as describing and classifying their conceptual mappings between domains. With that purpose, some digital materials are analyzed, so as to test the hypothesis that such mappings and models guide the user's representation of the genre, as a coherent structure. The results make evident some implications on the relevance of Digital Literacy in educational contexts.

### Keywords

Digital Literacy; Spontaneous Digital Literacy; Idealized Cognitive Models; Metaphor; Learning Styles



## 1. Introduction

Toms & Campbell (1999: 3) point out that present day digital reality has prompted researchers to explore users' interaction with online genres. On the other hand, Shepherd & Watters (1998: 98) remark the crucial role of genre in the development of the notion of interface in the Internet. Some recent work also suggests that digital navigation patterns may be guided by previous knowledge about spatial models such as *house*, *site*, or *journey* (Navarro 2008; Navarro *et al.* 2008; Navarro & Silvestre 2009). The aim of this paper is to show some evidence that metaphorical models play a role in the comprehension and production of texts, particularly digital texts in the internet. Moreover, our research aims at characterizing the role of metaphorical models in the construction of digital genres as different from other genres as far as content organization and structure are concerned. The fact that metaphorical conceptualization plays a role in the comprehension and production of texts as context-bound and genre-bound communicative events has been often pointed out (Caballero 2003, 2005; Ponterotto 2000, 2005). In relation to online interaction, Kress (2004) develops the notion of trajectory in the use of digital environments. Our intention is to show some ways in which metaphorical models provide a guide for Internet readers to construct meaning throughout their trajectories across hypertexts. Consequently, the concrete purpose of this work is to identify the nature of some metaphorical Idealized Cognitive Models (henceforth ICMs) that give coherence to the design and organization of websites. The notion of ICM was developed by Lakoff (1987) in order to systematize cultural knowledge into shared packages or configurations of knowledge that are used by community members so as to interpret their social experiences coherently. In this line, expressions such as "home" or "visit" are used in new digital contexts –cybergenres– by virtue of a projection or mapping from the social domain onto the digital domain. In this context, we aim at disclosing the connection between metaphorical models and 'Digital Literacy'. Accordingly, the reading of cybergenres turns out to be a cognitive process where users give meaning to digital environments through the implementation of

previously well-entrenched cognitive models. In addition, the study of the productive and processual mechanisms that govern interaction with online genres can be fundamental to the teaching and development of autonomous skills for language learning in hypermedia environments.

## 2. Digital Literacy

The appearance and wide use of computers, as well as the Internet, offers the opportunity to devise changes in our conception of literacy, allowing for a more precise skill notion, i.e. 'Digital Literacy' (Girón-García 2013; Girón-García & Gaspar 2012). Kern (2000: 16-17) highlighted the fact that students practising literacy in a non-native language would learn more about not only vocabulary and grammar, but also about discourse, that is, constructing meaning through structuring their thoughts. In addition, Kress (2004) argued that the concept of 'Literacy' could be understood from both the linguistic and cognitive dimensions. Understanding 'Literacy' from the linguistic dimension has to do with the way people use their language, in particular, the written language. On the other hand, from the cognitive perspective, 'Literacy' is related to an active participation at the cognitive level. Thus, digital reading may be seen as a cognitive process through which users establish relationships between what they perceive on the screen and their previous knowledge configurations in order to associate meaning to a digital environment. Thus, Schmar-Dobler (2003) points out that the appearance of computers with linked information (Internet) provokes changes in literacy. As a result, the screen has become the main channel of communication where the combination of reading and technological skills has created a new form of literacy for the management of the Web and the Internet. Thus, digital literacy demands that users learn how to use technological resources, as well as being able to surf the Web, use e-mail, evaluate information, and the like (Labbo *et al.* 2003; Schmar-Dobler 2003).

In this line, Girón-García (2013) suggests that the association of the required technology skills together with previously shared generic models gives rise to a new Literacy that not necessarily needs being learnt through instruction, but that new generations may acquire spontaneously. In such context, the term '*New Literacy*' as understood in the literature is conceived as a new way of reading on the Web. Traditionally, we used to read on paper format (books, articles, reviews...) but with the arrival of the Internet, a new way of reading appeared ('Digital texts'). In addition to this broad notion of new literacy, we suggest the more specific notion of '*Spontaneous Digital Literacy*', which implies individuals who surf the net in order to gather information with the condition that these users have not received any previous or specific instruction or training on how to do it. This spontaneous literacy incorporates the management of '*New Technology Skills*', which can be defined as the ability to use and combine Internet resources in order to solve problems, activities, tasks, or simply to satisfy personal needs.

By the present time, the World Wide Web is already used steadily as a huge resource of information. As Web documents can be manipulated like any ordinary computer file, users can cut and paste text, graphics, sound, and video into their own personal documents. Thus, in an era of technological revolution and new technologies the need arises to develop new forms of media literacy, computer literacy, and multimedia literacy. In this new environment, traditional print literacy preserves a fundamental importance in the process of developing new reading and writing abilities in the computer-mediated cyberspace. Since media are a central part of our cultural experience, training in media literacy should begin in early childhood and continue into adulthood, as "*new technologies are constantly creating new media and new genres, technical innovations and conventions are constantly emerging*" (Kellner 1997: 5).

Educators need to pursue the challenge to teach Digital Literacy while using media materials that contribute to advancing multicultural education. Thus and thus, many teachers have discovered that media materials can be valuable in a variety of instructional tasks, helping to make complex matters accessible and engaging. However, media cannot

be a substitute for print material and classroom teaching; rather they should be seen as a supplement to traditional materials. An example of instructional tasks would be the design of language learning ‘Cybertasks’ which help students develop the ability to read online texts and construct their own texts, what Luzón & Ruiz-Madrid (2008) call an autonomising ‘wreading’ competence, i.e.:

*“The ability to understand the pragmatic, discursive and semiotic features of online texts, harness their affordances and interact with them in various ways, find relevant information in different semiotic modes within and across these texts, and relate and meaningfully use such information in order to achieve a specific purpose, complete a task or produce an output” (Luzón & Ruiz-Madrid 2008: 28).*

In this particular respect, students may receive the benefit of instruction in Digital Literacies in order to foster the use of a new kind of abilities related to both the management of ICT’s and the comprehension of digital environments. Accordingly, new types of tasks require that learners are provided with a virtual environment that complements the traditional face-to-face teaching activities and materials (Girón-García & Ruiz-Madrid in press). The design of these virtual environments as a new reality cannot escape, on the one hand, the existence of processual strategic tendencies in students, also called “learning styles”, and on the other hand, the use of cognitive models which are already present in the culture.

As Villanueva (1997) points out, learning styles are characterized according to the more or less frequent use of certain cognitive and pragmatic strategies related to different learning procedures (such as being teacher-dependent, individual, inductive, positive attitude towards ICT’s, among others). It is an extended idea that “learning styles are the biologically and developmentally imposed set of characteristics that make the same teaching method wonderful for some and terrible for others” (Dunn & Griggs, 1988: 3).

Although individual tendencies exist, we should avoid thinking that a particular learning style provides a global characterization of each individual learner. Thus, a learner may employ various strategies belonging to different learning styles if s/he has to face different tasks or experiences. More precisely, in our view learning styles are not to be conceived as fixed behavioural schemes that determine individual behaviour. In this sense, styles are characterized as a bundle of learning strategies correlated in a meaningful manner, that is, whose appearance frequency does not mean that different learning traits belong to different learning styles used by the same individual (Girón-García & Gaspar 2012: 144-145). However, Girón-García (2013) suggests that the notion of learning style seems to be too broad because a student may manifest traits in one style or another at different stages of the same task. For this reason, we avoid talking about 'learning style' in absolute terms, but we prefer to do it rather in terms of 'learning style traits', which in combination with other traits may constitute complex learning profiles or 'style-blendings' (Girón-García 2013: 435-436). In other words, this combination of strategies (i.e. style-blending) is what we call *blended learning profile*, which has an influence on how students solve a given task. 'Style-blending' can be defined as a combination, mixture or synthesis of strategies that characterize a particular student's learning profile required at a particular stage along a complex task. The design of cybertasks and other digital environments is expected to meet the needs of diverse learners' profiles, and therefore, their makeups may also incorporate diverse cognitive models. In turn, the presence of different cognitive models in the same digital environment makes it possible for users to switch from one learning profile to another (style-switching). Furthermore, digital tasks might demand the successive activation of different profiles. All in all, the users' management of their own learning traits as well as their knowledge of cultural cognitive models provides better conditions for the acquisition of effective Digital Literacy.

### 3. Cognitive models and digital literacy

Digital users' linguistic background includes both social and individual experience. The reader's interpretive process needs generic conventions as management mechanisms that assign texts a global organization, a content and a context. Consequently, genres raise expectations that underlie textual comprehension processes. In addressing a text, users turn to previously known genre comprehension skills. We hypothesize that metaphorical models help users in genre identification, by contributing cognitively to the delineation of the text macrostructure (Van Dijk & Kintsch 1983) as a knowledge structure.

Thus, website readers resort to their previous knowledge of other genres. Moreover, adaptation to digital media requires supplementary new reading strategies to cope with links, menus, etc. In order to grasp the content, purpose, organization, and function of a digital document, and consequently use it effectively, users should be able to identify the features that make it different to other kinds of documents. As Toms & Campbell (1999: 2) suggest, genre can work as an organizing metaphor that helps users in both the identification process and the subsequent interaction process. In identifying a genre, the user activates a mental model that brings about a set of expectations and inference pathways, which facilitate textual interpretation and use. As far as each user is able to activate these pathways, we may describe processes of Spontaneous Digital Literacy.

This research pursues the characterization of digital environments in the Internet medium, given that new technologies make it possible for new generic structures and organizational patterns to appear. As Villanueva *et al.* (2008) point out, "hypertextual technology offers the possibility of rhizome-based designs for hypermedia texts by providing users/readers with multiple choices through hypertexts. Each user may find their way through hypertexts as long as Spontaneous Digital Literacy is activated. As suggested above, a crucial component of that Spontaneous Digital Literacy is constituted by the user's ability to shift and blend learning-style traits in the process of adaptation to digital environments.

Below, we show how metaphorical models provide a conceptual guide for users to construct meaning throughout their trajectories across hypertexts. Our aim is to identify the nature of some metaphorical models that give coherence to the design and organization of websites, provide an anchor to previous genre knowledge and allow for learning-style shifts and blends.

We understand metaphorical models as mappings of Idealized Cognitive Models (ICMs), onto the digital domain. Lakoff (1987) defined ICMs as knowledge structures, which are *idealized* in the sense that they do not necessarily reflect real objective situations in nature, they are *cognitive* because they are part of cultural knowledge, and they are *models* because they provide coherent configurations that are used to interpret and make sense of social experience. As an example, the week in the Western calendar provides an ICM for our understanding of time cycles. So, *Tuesday* is a category, which acquires its sense within and by virtue of the model (Lakoff 1987: 68-69). In our view, metaphor is conceived as a conceptual mechanism by which an ICM – that is, its structural elements and their operational relations – is projected or mapped onto a more abstract cognitive domain as target. In the process, the source ICM provides a configuration and coherence for the understanding of the target domain (Lakoff 1993). For example, in the metaphor READING A WEBSITE IS VISITING A LOCATION, the ICM that our culture offers for our understanding of visiting locations provides the elements and relations that allow users to configure their knowledge about how to read a website.

Thus, our claim goes that some metaphorical models play a significant rhetorical role in displaying an interactive hyperdiscourse in websites. According to Toms & Campbell (1999: 2):

*System designers use a metaphor at the point of interaction to teach the user how to manipulate the interface. The user 'loads' the metaphor into the working memory [...], and the similarity between the structure of the*

*metaphoric image and the structure of the interface enables the user to exploit prior knowledge to understand the system and work with it.*

In the first place, Toms & Campbell refer to prior knowledge rather vaguely; secondly, these authors consider that the user *loads* the metaphor introduced by the system designer; and finally, they point at similarity between domains as the factor that enables users to exploit prior knowledge. In our view, even though the designer triggers off the use of a particular metaphor, previous knowledge about that metaphor source domain is previously shared by designers and users. Shared knowledge is well structured into conventional models based on social and individual experience. Moreover, rather than similarity between the structure of the interface and prior knowledge schemas, in our view prior knowledge is mapped onto the conceptualization of the interface structure, as a new abstract cognitive domain.

In addition to images, visual layout, page frames, among other multimodal resources, linguistic expressions like *bookmark*, *link*, *site map*, or *visitor* show the existence of subjacent metaphorical models that offer users a scheme for conceptualizing, structuring and giving coherence to website discursive configuration. These linguistic forms constitute clear evidence of the existence of particular models in the designers' and users' conceptual systems. These models guide the users' representations of websites and, in turn, their reading process and their decisions along navigation. We assume, therefore, that users turn to their conceptual background in their decision-making along the reading process.

Our procedure begins at looking for metaphorical expressions, images, frames, information layout, etc. and goes on to identify these formal features with the conceptual models (ICMs) they express. Then, we analyse the configuration of such cognitive models. In a future experimental phase we may test to what extent users' navigation is guided by such models, so as to determine to what extent they contribute to the users' representation of their own navigation, and in turn to their digital literacy.

For instance, if we categorize the expression ‘visit our site’ as a linguistic manifestation of the metaphor “READING A WEBSITE IS VISITING A LOCATION”, then we will probably find more expressions pertaining to the same model, like *come in, exit, go ahead, go back to...* etc. Thus, to what extent is the metaphor “READING A WEBSITE IS VISITING A LOCATION” part of the users’ previous knowledge? Or, to what extent is it ingrained in the users’ conceptualisation of their own reading? Finally, how does it help users to make decisions on their reading or navigating process – consciously or unconsciously?

In the following, we identify metaphorical expressions and the metaphors they express, and we describe their conceptual mappings from source domains onto target domains. The metaphorical models that result may be deemed as facets of the website cybergenre, since they contribute to hypertextual coherence and architecture, they are idiosyncratic of cybergenres, and presumably, may characterize reading strategies and modes.

#### **4. Metaphorical models in websites**

In the present section we characterize source domains that map onto the target domain “website”, a very recent domain in our conceptual system. Secondly, we analyse the mappings. Finally, we investigate the entailments of the models for the users’ understanding of the target domain.

Users are not aware of the systematic mappings between source and target domains. On the contrary, speakers’ knowledge of such mappings is largely unconscious, and it is only for the purpose of analysis that domain maps are brought into awareness. As Kövecses (2010) points out, it is the occurrence of metaphorical linguistic expressions that reveals the existence of the conceptual metaphors, i.e. the forms of language provide evidence of the existence of ways of thinking. In fact, it is rather difficult to speak about the domain of websites without turning to the usual linguistic expressions – site, link, navigate, home, etc. – which are the manifestation of the metaphorical models that constitute our object of study. However, in order to understand the mapping we are compelled to build a sort of

*literal meta-language* that serves to describe the domain as literally as possible. Thus, if we think of our experience of the domain “website” *literally* what we find is the following: A designer elaborates a software program and stores it into a computer server at a real physical location. We – probably sitting on a chair – face a computer screen. We switch on the computer that is linked to the server by means of a telephonic connection. We move the pointer of our electronic device (*mouse*), for it to approach and cover a section on the screen; then, we press a button of our device to activate another screen; a new layout appears where we recognize labels, pictures or photographs, and most probably a written text. We read labels and paragraphs, and see that certain words or expressions are coloured or underlined. We understand that these marked expressions can be used to activate new screens; we decide to place the pointer again on a label or marked expression so as to activate another screen which appears with yet a different layout, written texts, labels and marked expressions. So, apparently we interact physically with the electronic device under our hand that causes the activation of screens, and we also read the linguistic expressions and paragraphs on the screen that a designer has created for us. Actually, we do not know what is going to appear next on the screen as we click on a marked expression. The real makeup of the available material is hidden, and we have no physical access to it.

Thus, if we were to interact with the Internet only in terms of the conceptualisation and representation of what we are actually physically doing, it would be rather difficult for us to make decisions on what we want to activate and, consequently, read or visualise. Interaction with our computer would turn out to be rather weird and would most probably go awry. That is why human beings resort to metaphorical models –conceptual metaphors – that provide a coherent structure for previously unknown realities, domains that have not been experienced previously or do not allow for physical direct experience (abstract domains). The unknown, new or abstract domain is called Target Domain, whereas the previously known, and well-understood one, is called Source Domain because it is the conceptual source for understanding the Target Domain (Kövecses 2010; Lakoff 1993).

In fact, we fairly interact with websites, make decisions as we activate screens, and use Internet materials and resources. Some cognitive domains that we draw from our previous experience help us in understanding our interaction with the computer. Navarro & Silvestre (2009) illustrate five source domains that map onto the abstract domain that we usually know as 'website'. These domains are: house, site, journey, book, and net.

- *The house model*

The model is conceived as a *house* that is *visited* by people mainly because it *hosts* some social activities, events or objects. Thus, when we *enter* the house we may be required to give a *password*, if access is limited, or *sign in* a reception book so that our visit gets *logged*. There may be someone, the *house master*, who *welcomes visitors* and *invites* them to *come in*. Once in the house we *go around* and may *go back* and forth visiting different *rooms*. Within the rooms we may *browse* among the objects or materials, or even we may be allowed to use diverse devices or appliances, for instance a *toolbox* or a *message board* where we can *post* messages for other people. There may be a *visitors' book*, where *visitors* are invited to write down their comments. Further elements may be added as long as the general logic of the model is maintained, for example special rooms devoted to particular purposes, like a *chat room*.

- *The site model*

In this model, a *site master* *welcomes* and *invites visitors* to *go around*, and they may be requested to *sign in* a *reception book* so that their *visit* gets *logged*, or they may *move back* and *forth* a *path*. Visitors *arrive at* a *site* that may be a rather large area, and therefore they might need a *sitemap*, and possibly some *directions*, to *find their way* in the site, for instance a notice including *you-are-here* indications. Some sites may have a *shop*, and an *info desk* where visitors get answers to frequently asked questions.

- *The journey model*

The journey model is active through the concept ‘home’, which recalls the *location* where a journey begins and ends. The *home* is also the place that indicates the point of *departure* to any *destination*. Once *en route* the traveller (*surfer*) uses instruments containing choice *menus* for *navigation*, i.e. finding the way to a destination. Destinations are not limited or predetermined by the master or by maps, rather users may freely find their own way and choose their own course. *Links* make it possible for travellers to reach further *locations*.

- *The book model*

The book model is reminiscent of the traditional representation and conceptualisation of the reading process as associated to paper formats. Thus, the website consists of *pages* that users may *browse* through. One can go from one page to the *next page* and *back to previous pages*. There is an *index* or a *contents* table, and we can *bookmark* an interesting page.

- *The net model*

The net model is activated by the expression *link*, as it is used to refer to activation labels and marked expressions that *lead* to new screens. Nets are extended works where all nodes are linked to each other, so that the unity of the whole is guaranteed.

SITE	HOUSE	JOURNEY	BOOK	NET
Site	House	Home	Main page	Net
Sign in	Sign in	Navigation		
Logging	Logging	Navigate		
“You are here” panel	Directory	Links	Contents	Links
Invitation	Enter	Start now	Browse	
Map	Board	Navigation menu	Index	External links
Follow us	Come in	Search	Find	
Visit	Visit	Go to	Bookmark	Connect
Welcome	Welcome	Explore	Image of a book	
Back to ....	Back to...	Back to...		
Area	Room	Location	Page	
Visitors’ book	Visitor’s book			
Visitors	Visitors		Readers	
	Password			
	Toolbox			
	Housemaster			

Table 1. Source domains and their linguistic expression

(adapted from Navarro & Silvestre 2009)

## 5. Websites and metaphorical expressions

In this section, we show a series of examples of how source domain expressions may appear in actual websites. For the purpose of illustration we have selected a few websites and we have traced the occurrence of linguistic expressions that hint to the identification of metaphorical models. Our analytical procedure is of an inductive character. We have looked into websites from different parts of the world.

The linguistic expressions of source domain concepts mostly occur as labels on a menu. Nevertheless, it is interesting to look at them in other contexts because contexts make it apparent that the thinking process is grounded on the source domain rather than the target domain.

For the purpose of the present work, we have considered the following websites for analysis:

- [1] <http://www.harrods.com/>
- [2] [www.webquest.org](http://www.webquest.org)
- [3] <http://rubistar.4teachers.org/>
- [4] [www.facebook.com](http://www.facebook.com)
- [5] <http://houseoffairytales.org/>
- [6] [www.wikipedia.com](http://www.wikipedia.com)
- [7] [https://en.wikisource.org/wiki/Main\\_Page](https://en.wikisource.org/wiki/Main_Page)
- [8] <http://www.bmwusa.com/>

- *The site model*

As for the site model, the most usual expressions are the words *site* (which occurs explicitly) and the expression *site map* or, alternatively, *sitemap*. Another idiosyncratic element is an indication of the already covered route in the form of a poster including the sentence *you are here* [1] <sup>1</sup>. The metaphor is fully deployed in [1], where the master welcomes visitors, and his text unfolds its coherence according to the metaphorical model:

(1) Welcome!

Your opinion is important to us.

After your visit, would you take a moment to answer a few simple questions about your experience?

In this extract, several structural elements from the site model reinforce its presence in the discourse. Visitors are welcome, invited to enjoy and to recommend the experience to

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<sup>1</sup> Numbers in square brackets refer to the list of websites above.

other potential visitors. Other expressions that reinforce the model are “Visiting”, “Store guide”, “Follow us!”

Concerning the site model, expressions such as *welcome*, *you’ve arrived at*, or *you’ll find something here* are the most commonly employed. In this fashion, website [2] welcomes visitors, and the text coheres as follows:

(2) Welcome

You’ve arrived at the most complete and current source...

...you’ll find something here to meet your needs.

In this extract, several structural elements of the site model reinforce its presence in the argumentative discourse. Accordingly, visitors arrive at a place where they will find something that would satisfy their needs.

Words or expressions such as *welcome*, *visit*, *login*, *sign up*, and *link* are found in website [3].

(3) Welcome to Rubistar!

Visit RubiStar's Inspiration Page...

Registration and use of this tool is free, so click the

Register link in the login area...

In extract (3) we find several expressions of elements belonging to the site model, the website invitation, the conception of a place, and the possibility to register. There is an area for registration and someone who meets and welcomes visitors.

The following examples also show expressions from website [4], which also represents the site model. Thus, expressions such as “Sign up”, “Log in”, “Password” provide connotations of registration (*sign up*, *log in*), and access to a place.

- *The house model*

Many Internet locations are straightforwardly denominated “house”, a fact that immediately triggers the house cognitive model in the users’ minds, as in [5]. In that location the first screen shows the following text that makes the house model evident by means of linguistic form:

(5) We will be moving to a brand new home, our new exciting website

Thus, actions like moving into a new home are linguistically expressed to communicate a change of website. The linguistic expression activates the cultural ICM in the user's mind.

- *The book model*

The Wikipedia [6] and analogous sites incorporate the book model, since they use expressions like “contents” in the menu where all the possible links can be clicked upon at the *main page*. Accordingly the initial screen is not called “home”, but “main page”.

Other expressions that are reminiscent of the book model are link labels such as “contact page” or “create a book”. The dynamics of the interaction calls for a cognitive model where the reader browses through the pages of a book and can even put together a bunch of pages to compile a book.

In [7] we find further expressions like “Index” or “Subject index”, and diverse links that use the expression “page”, such as “help page”, “special page”, “page information”, which activates the book model in several occasions.

- *The journey model*

The journey model is activated by expressions like “start now”, “explore” or “search” as it is the case in [8].

- *The net model*

The net model is activated by expressions like “links”, “net”, “external links” and “connect” as in the case of [3].

## 6. Conclusions

In the light of the data expounded in previous sections, we may suggest that digital literacy is probably very much influenced by previous cultural knowledge (cognitive models). We have shown how some source domains allow for metaphorical cognitive models used in internet genres. These ICMs provide coherence to genres in the internet

because they are previously ingrained in both users' and designers' minds. That entrenchment constitutes, therefore, a crucial factor that fosters spontaneous digital literacy. To what extent do users connect or map previous experiential models to the digital environment? In that respect, users will be able to use digital environments more fluently and dynamically to the extent that they are able to perform those mappings. As a consequence, the identification and description of metaphorical mappings in cybergenres may help elucidate the connection between spontaneous digital literacy and culture. Our data make evident that the metaphors described in this paper are used in the English-speaking world. Since we have not searched websites in other languages we may not affirm that the same models are activated to the same extent in users who are not native in the English speaking culture. It will be therefore a goal in further research to check whether the same models are also active in other languages and cultures.

## **7. Final considerations regarding digital literacy, education and learning**

As suggested above, new genres in cyberspace have changed the main focus of instruction strategies. Thus, learners are challenged by the acquisition of new digital literacies (read and write in the context of cybergenres) through the Internet. Nevertheless, not only students are challenged by new literacy acquisition. Teachers also need to face a new kind of instruction procedures that integrate the employment of ICTs in the teaching-learning arena (Girón-García & Gaspar 2012).

Along this line, the management of ICTs alone is not the only factor that students need to be proficient in. Furthermore, students' face the challenge of becoming aware and managing their own learning styles because these can determine to what extent they will be able to manage the new technologies with adequate proficiency.

We are aware of the fact that learning styles and all the concepts derived from them are not the sole factors to determine the level of success in students' management of digital literacy. However, we believe that they constitute an important variable. Finally, we view the possibility to further explore to what extent the concepts 'style-blending' and 'style-

switching' are promoted by metaphorical competence, i.e the ability of becoming aware of ICMs.

## 8. References

- Caballero, R. (2003). Metaphor and Genre: The Presence and Role of Metaphor in the Building Review. *Applied Linguistics*. 24/2, 145-167. DOI: 10.1093/applin/24.2.145
- Caballero, R. (2005). The Rhetoric of Metaphor in Genre Settings: The Case of Building Reviews. In Maalej, Zouhair (ed) *Metaphor, Cognition and Culture: Selected Papers from the Fourth International Conference on Researching and Applying Metaphor (RAAM IV)*. Manouba-Tunis, Tunisia: Faculty of Letters, Arts and Humanities, 37- 59.
- Dunn, R., and S. Griggs. (1988). *Learning styles: Quiet revolution in American secondary schools*. Reston, Va.: National Association of Secondary School Principals.
- Girón-García, C. (2013). *Learning Styles and Reading Modes in the Development of Language Learning Autonomy through "Cybertasks"*, Ph.D. Universitat Jaume I. Retrieved from <http://hdl.handle.net/10803/125440>
- Girón-García, C. and Ruiz-Madrid, M. N. (2014). Design and development of a WebQuest for the course 'English Applied Linguistics: An Introduction' (EA0914). Evaluation of its educational role in the classroom.
- Girón-García, C. and Gaspar-Verdú, M. V. (2012). Foreign language learning in ICT contexts: A study of learning styles and reading modes in English, French and German. *EDULEARN12 Proceedings*, 143-148.
- Kern, R. (2000). *Literacy and Language Teaching*, Oxford University Press, 2000.
- Kress, G. (2004). *Literacy in the New Media Age*. London: Routledge.
- Kellner, D. (1997). "Intellectuals, the New Public Spheres, and Technopolitics," *New Political Science* 41-42 (Fall): 169-188.



- Kövecses, Z. (2010). *Metaphor. A Practical Introduction*, Oxford: Oxford University Press.
- Labbo *et al.* (2003). Teacher wisdom stories: Cautions and recommendations for using computer-related technology for literacy instruction [Electronic version]. *Reading Teacher*, 57 (3), 300-304.
- Lakoff, G. (1987). *Women, Fire and Dangerous Things. What Categories Reveal about the Mind*. The University of Chicago Press. DOI: 10.7208/chicago/9780226471013.001.0001
- Lakoff, G. (1993). The Contemporary Theory of Metaphor. In A. Ortony (ed.) *Metaphor and Thought*. Cambridge University Press. DOI: 10.1017/CBO9781139173865.013
- Luzón, M.J. and Ruiz-Madrid, N. (2008). Learning to learn in a digital context: Language learning webtasks for an autonomising “wreading” competence. Corell.
- Luzón, M. J., Ruiz-Madrid, M. N. and Villanueva, M. L. (2009). Students’ Perceptions of Language Learning Webtasks to Develop Electronic Literacy. In *Helping people to learn foreign languages: teach-niques and teach-nologies*. Universidad Católica San Antonio de Murcia. 156-173.
- Navarro, I. (2008) Metaphorical ICMs in cybergenre representation, vol 7, *Studia Universitatis Petru Maior. Series Philologia*, Targu Mures.167-177.
- Navarro, I. and A. J. Silvestre. (2009). The Role of ICMs in Cybergenre Representation and Reading Modes. In M. Navarro Coy (ed.) *Practical Approaches to Foreign Language Teaching and Learning*. Linguistic Insights 78. Berlin/NY: Peter Lang. 269-292.
- Navarro, I., M. L. Villanueva, C. Girón-García and A. J. Silvestre (2008). Cybergenres and Autonomous Language Learning: Pragmatic Strategies and Cognitive Models in the Production and Processing of Digital Genres, *INTED2008 Proceedings*, International Association for Technology, Education and Development, IATED Publications.777-786.

- Ponterotto, D. (2000). The Cohesive Role of Cognitive Metaphor in Discourse and Conversation. In Barcelona, Antonio (ed) *Metaphor and Metonymy at the Crossroads: A Cognitive Perspective*. Berlin-New York: Mouton de Gruyter, 283- 298.
- Ponterotto, D. (2005). Text, Context and Cognitive Metaphor. In Baicchi, Annalisa *et al.* (eds) *Modelling Thought and Constructing Meaning. Cognitive Models in Interactions*. Milano: Franco Angeli, 156- 169.
- Schmar-Dobler, E. (2003). Reading on the Internet: The link between literacy and technology. *Journal of adolescent and adult literacy*, 47(1), 80-85.
- Shepherd, M. A., Watters, C. R. and Kennedy, A. (2004). Cybergenre: Automatic Identification of Home Pages on the Web. *J. Web Eng.*, 3(3-4), 236-251.
- Shepherd, M. A. and Watters, C. (1998). The Evolution of Cybergenres. *Proceedings of the 31<sup>st</sup> Hawaii International Conference on System Sciences*. Maui, Hawaii: IEEE, 2, 97-109.
- Toms, E. G. and Campbell, G. (1999). Genre as Interface Metaphor: Exploiting Form and Function in Digital Environments. *Proceedings of the 32<sup>nd</sup> Hawaii International Conference on System Sciences*. Maui, Hawaii IEEE Press, 2, 9pp.
- Villanueva, M.L. and Navarro, I. (1997). Los estilos de aprendizaje de lenguas. Castellón: Publicacions de la Universitat Jaume I, Col.lecció Summa, Sèrie Filològia 6.
- Villanueva, M. L. *et. al.* (2008). Understanding Cybergenres as Semiotic Artefacts: Meaning and Cognition beyond Standardized Genres. *Computers and Composition on line*. Amsterdam: Elsevier Publishing.
- Van Dijk, T.A. and Kintsch, W. (1983) *Strategies of Discourse Comprehension*. New York. Academic Press.