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**The Important Role of Internet Multimedia and Computer-Mediated
Communication in Supporting Learning Styles and Strategies: Implementations
and Implications in the Syrian Context**

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Abstract

This study aims to shed some light on the interaction between Computer-Assisted Language Learning (CALL) represented by Internet multimedia and Computer-Mediated Communication (CMC) on one side, and different learning styles and strategies on the other side.

We will concentrate on the cultural factor to identify the Arab learners' preferred styles, and then we will see how these styles are associated with particular strategies in both the classroom and the online environments. We will identify the importance of designing learning experiences that match students' preferences.

We will see how Internet multimedia and CMC can provide these learners with many activities and materials to practise some strategies associated with their preferred learning styles. The Learning Resources Website will be taken as an example to illustrate how it can accommodate learners' styles and strategies through the existing multimedia and CMC materials and tools. Finally, we will see how this study can reflect well on the Syrian context; some implications for both teachers and learners will be identified with some suggestions for future research.

To my parents, brothers, sisters, and
Zeinab without whose love, support and
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INTRODUCTION

To develop English Language Teaching (ELT) on the Internet, we should study the relationship between ELT and Computer-Assisted Language Learning (CALL) and how language teaching can be applied through CALL. Chapelle has tried to build some principles of L2 teaching and learning that derive from and contribute toward both the classroom and CALL. She identifies six criteria for CALL tasks (Table 1) which refer to the activity that the learner engages in with the computer or with other learners through the use of the computer (Chapelle, 2001: 5).

Table 1

Criterion	Definition
Language learning potential	The degree of opportunity present for beneficial focus on form.
Learner fit	The amount of opportunity for engagement with language under appropriate conditions given learner characteristics.
Meaning focus	The extent to which learners' attention is directed toward the meaning of the language.
Authenticity	The degree of correspondence between the learning activity and target language activities of interest to learners out of the classroom.
Positive impact	The positive effects of the CALL activity on those who participate in it.

Practicality	The adequacy of resources to support the use of the CALL activity.
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Criteria for CALL task appropriateness and their primary origin

Chapelle mentions, among other criteria, the learner fit which is built to a large extent on the research conducted on individual differences. “The learner fit criterion identifies the opportunity for engagement with language under appropriate conditions given learner characteristics” (Chapelle, 2001: 5).

Among other CALL environments, the Internet is such a promising one that offers a lot of options for individuals to learn and teach. According to Windeatt et al, The Internet constitutes a huge resource for information and communication. “Information includes articles, stories, poems, books, video and audio clips, music, images, and other materials which can be adapted for learning and teaching purposes. Communication, on the other hand, is not only restricted to writing, but also includes audio and video communication which paves the way for more practical interaction among learners everywhere on the Net” (2000: 6-7).

In this study, we are going to demonstrate that CALL, represented by Internet multimedia and computer-mediated communication, can accommodate different learning styles. This research focuses on (Syrian) Arab students in an attempt to formulate a set of implications that benefit both learners and teachers by making them well aware of how to implement technology in the best way to advance English learning and teaching.

My Teaching Context

When I come back to Syria, I will be teaching in The Languages Institute, a state-owned institute that teaches more than sixteen foreign languages including English. Most learners in the Institute are university students of different majors. Nearly all students have Arabic as their first language. Most students have started learning English from the

fifth grade. Research on teaching English in Syrian public schools suggests that our English curriculums are outdated, our teachers are insufficiently qualified, and our methods of teaching English are old-fashioned. The Institute has sought to improve teaching English by bringing into practice the most recent theories in language teaching. Teaching English, in the Institute has run in an open, flexible environment with a focus on improving communication skills among students. To achieve this, the Institute is provided with a computer lab with Internet access which offers students more realistic and creative environments for language use on the Internet. Nearly all students are familiar with using computers and browsing the Internet. In general, students are highly motivated to improve their English language which they hope to use not only in their study, but also in various real-life activities, such as reading stories, watching movies, and chatting to friends on the Internet.

In Chapter 1, we will review the history of CALL identifying different approaches in the process of its development. Then we will identify the influence of two main implementations of CALL, Internet multimedia and computer-mediated communication (CMC), on second language learning. Chapter 2 will discuss learning styles. We will start this Chapter by identifying two important factors in shaping learners' learning styles; namely, culture and personality traits. Then we will review seven dimensions of learning styles. At the end of this Chapter, we will shed some light on some implications for second-language teachers regarding matching or mismatching their teaching experiences with students' different learning styles. Chapter 3 will shed some light on the relationship between learning styles and strategies. We will concentrate on the cultural factor to identify the Arab learners' preferred styles, and then we will identify the learning strategies mostly associated with these learners' styles. Finally, in Chapter 4, we will talk about the multimedia materials and CMC implementations that can help (Syrian) Arab Students of different styles cope with different learning tasks through providing them with opportunities to practise their preferred learning strategies in both the classroom and the online environments. Then the Chapter will move to evaluate the Learning Resources Website (<http://literacynet.org/cnnsf/home.html>) in terms of the existing multimedia and CMC materials and tools. At the end of this Chapter, we will

see how this study can reflect well on the Syrian context; some implications for both teachers and learners will be identified with some suggestions for future research.

CHAPTER 1

COMPUTER-ASSISTED LANGUAGE LEARNING (CALL)

“Recent years have shown an explosion of interest in using computers for language teaching and learning. A decade ago, the use of computers in the language classroom was of concern only to a small number of specialists. However, with the advent of multimedia computing and the Internet, the role of computers in language instruction has now become an important issue confronting large numbers of language teachers throughout the world” (Warschauer and Healey, 1998: 57).

According to Kern and Warschauer, outdated teaching methods including audiotape-based language labs are gradually being replaced by language media centers, where language learners can use multimedia CD-ROMs, and DVDs, access foreign language materials on the Internet, and communicate with their teachers, fellow classmates, and native speakers by various ways of online communication (2000: 1). In this Chapter, we are going to overview the history of CALL concentrating on the different approaches that characterise its development. Then we will move to focus on the introduction of Internet multimedia and computer-mediated communication (CMC), and their most common applications and implementations to the field of second language learning.

1.1 Terminology

According to Higgins (1983: 102), four terms are used to refer to the introduction of computers into language learning. American writers prefer Computer-Aided Instruction (CAI) and Computer-Aided Language Instruction (CALI), whereas British writers adopt

Computer-Assisted Learning (CAL) and Computer-Assisted Language Learning (CALL) In this study, we are going to stick to (CALL) as a representative of various implementations of computers in language learning.

1.2 The History of CALL

Warschauer (2000a: 61) argues that language learning has witnessed new horizons of development which run in parallel with three main phases of computer evolution: the main frame computer, the personal computer, and the networked, multimedia computer. Kern and Warschauer identify three perspectives of language teaching that characterise the CALL history so far (Table 1.1). “It is within this shifting context of structural, cognitive, and sociocognitive orientations that we can understand changes in how computers have been used in language teaching” (Kern and Warschauer, 2000).

Table 1.1

	<i>Structural</i>	<i>Cognitive</i>	<i>Sociocognitive</i>
<i>Who are some key scholars?</i>	Leonard Bloomfield, Charles Fries, Robert Lado	Noam Chomsky, Stephen Krashen	Dell Hymes, M.A.K. Halliday
<i>How is language viewed?</i>	As autonomous structural system.	As a mentally constructed system.	As a social and cognitive phenomenon.
<i>How is language understood to develop?</i>	Through transmission from competent users. Internalization of structures and habits through repetition and corrective feedback.	Through the operation of innate cognitive heuristics on language input.	Through social interaction and assimilation of others’ speech.
<i>What should be fostered in students?</i>	Mastery of a prescriptive norm, imitation of modeled discourse, with minimal errors.	Ongoing development of their interlanguage. Ability to realise their individual communicative purposes.	Attention to form (including genre, register, and style variation) in contexts of real language use.

<i>How is instruction oriented?</i>	Toward well-formed language products (spoken or written). Focus on mastery of discrete skills.	Toward cognitive processes involved in the learning and use of language. Focus on development of strategies for communication and learning.	Toward negotiation of meaning through collaborative interaction with others. Creating a discourse community with authentic communicative tasks.
<i>What is the primary unit of analysis?</i>	Isolated sentences.	Sentences as well as connected discourse.	Stretches of connected discourse.
<i>How are language texts (spoken or written) primarily treated?</i>	As displays of vocabulary and grammar structures to be emulated.	Either as input for unconscious processing or as objects of problem-solving and hypothesis testing.	As communicative acts (doing things with words).
<i>Where is meaning located?</i>	In utterances and texts (to be extracted by listener or reader).	In the mind of the learner (through activation of existing knowledge).	In the interaction between interlocutors, writers and readers; constrained by interpretive rules of the relevant discourse community.

Pedagogical Foci in Structural, Cognitive, and Sociocognitive Frameworks

On the basis of the structural, cognitive and sociocognitive perspectives of language teaching, Kern and Warschauer (2000) identify three approaches to CALL.

1.2.1 Structural Approaches to CALL

Kern and Warschauer points out that the earliest CALL programs consisted of grammar and vocabulary tutorials, drill and practice programs, and language testing instruments,

strictly followed the computer-as-tutor model. “These programs were originally developed for mainframe computers in the 1960s and 1970s, and designed to provide immediate positive or negative feedback to learners on the formal accuracy of their responses” (2000: 8). Learning was perceived as a habit of stimulus-response-reinforcement model. The focus was on grammar rather than usage, and rules were emphasised while expressions were overruled. (Kaliski, 1992 and Levy, 1997). Audiolingualism manifested itself in the habit-formation process. “It was strongly influenced by a belief that the fluent use of a language was essentially a set of ‘habits’ which could be developed with a lot of practice” (Yule, 1996: 193).

1.2.2 Cognitive Approaches to CALL

In line with cognitive/constructivist views of learning, the next generation of CALL programs tended to shift agency to the learner. “In this model, learners construct new knowledge through exploration of what Seymour Papert has described as microworlds, which provide opportunities for problem-solving and hypothesis-testing” (Kern and Warschauer, 2000: 9). Warschauer and Healey indicate that this stage started in the late 1970s and early 1980s, at the same time that behaviouristic approaches to language teaching were being rejected at both the theoretical and pedagogical level. In turn, communicative approaches to language learning and teaching manifested themselves in this stage. According to Warschauer and Healey, “Proponents of communicative CALL stressed that computer-based activities should focus more on using forms than on the forms themselves, teach grammar implicitly rather than explicitly, allow and encourage students to generate original utterances rather than just manipulate prefabricated language” (1998: 57-58).

1.2.3 Sociocognitive Approaches to CALL

The emphasis here tends to move from learners’ interaction with computers to interaction with other humans via the computer. “The basis for this new approach to

CALL lies in both theoretical and technological developments. Theoretically, there has been the broader emphasis on meaningful interaction in authentic discourse communities. Technologically, there has been the development of computer networking, which allows the computer to be used as a vehicle for interactive human communication” (Kern and Warschauer, 2000: 11). Warschauer and Healey state that this stage started in the late 1980s and early 1990s. “This stage is characterised by moving away from a cognitive view of communicative teaching to a more social or socio-cognitive view, which placed greater emphasis on language use in authentic social contexts. Task-based, project-based, and content-based approaches all sought to integrate learners in authentic environments, and also to integrate the various skills of language learning and use” (1998: 58). Warschauer calls this stage of CALL development an integrative CALL as “it seeks to integrate various skills (e.g., listening, speaking, reading, and writing) and also integrate technology more fully into the language learning process” (Warschauer and Healey, 1998: 58).

In the IATEFL and ESADE Conference on the 2nd of July, 2000, Warschauer presented a recent summary of CALL development in which he expanded on the three phases (behaviouristic, communicative and integrative) identified in Warschauer and Healey (1998). He substituted the structural CALL for the behaviouristic CALL. In addition, he updated the dates associated with each stage (Table 1.2).

Table 1.2

Stage	1970s – 1980s:	1980s – 1990s:	21 st Century:
	Structural	Communicative	Integrative

	CALL	CALL	CALL
Technology	Mainframe	PCs	Multimedia and Internet
English-teaching paradigm	Grammar-translation and audio lingual	Communicative language teaching	Content-based, ESP/EAP
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)
Principal use of computers	Drill and practice	Communicative exercises	Authentic discourse
Principal objective	Accuracy	And fluency	And Agency

Warschauer's three phases of CALL (Warschauer, 2000b)

1.3 Bax's Vision of the History of CALL

Bax highlights many inconsistencies in Warschauer's analysis. He indicates that Warschauer's division of CALL history into phases is not defensible. Instead he proposes an alternative vision of the history of CALL, one whose terminology is less confusing, and whose categories seem to fit better with the historical progression of CALL software, approach and practice. The terminology he employs is claimed to prevent conceptual confusion with behaviourist or communicative approaches to learning or teaching (2003: 20-21). In his analysis, Bax refers to three approaches that characterise the CALL development in the past, present and future. Namely, Restricted CALL, Open CALL, and Integrative CALL (Table 1.3).

Table 1.3

Content	Type of task	Type of student activity	Type of feedback	Teacher roles	Teacher attitudes	Position in curriculum	Position in lesson	Physical position of computer
Restricted CALL. Language system	Closed drills and quizzes	Text reconstruction. Answering closed questions. Minimal interaction with other students	Correct/incorrect	Monitor	Exaggerated fear and/or awe	Not integrated into syllabus (optional, extra). Technology precedes syllabus and learner needs	Whole CALL lesson	Separate computer lab
Open CALL. System and skills	Simulations, games, CMC	Interacting with the computer. Occasional interaction with other students	Focus on linguistic skills development. Open, flexible	Monitor, facilitative	Exaggerated fear and/or awe	Not integrated into syllabus (optional, extra). Technology precedes syllabus and learner needs	Whole CALL lesson	Separate lab, perhaps devoted to languages
Integrated CALL. Integrated language skills work. Mixed skills and system	CMC. WPe-mail. Any as appropriate to the immediate needs	Frequent interaction with other students. Some interaction with computer through the lesson	Interpreting. Evaluating. Commenting. Simulating thought.	Facilitator. Manager	Normal part of teaching (normalised)	Tool for learning. Normalised and integrated into syllabus. Adapted to learners' needs	Smaller part of every lesson	In every classroom, on every desk, in every bag

Outline of Restricted, Open and Integrated CALL in (Bax, 2003: 20)

1.3.1 Restricted CALL

Bax states that before 1980, the underlying theory of learning and the actual software and activity types in use at the time as well as the teachers' role, and the feedback offered to students were relatively 'restricted' but not all were 'behaviourist' (2003: 20).

1.3.2 Open CALL

Bax points out that from around 1980 there was an awareness of the restrictions of the previous approaches to CALL, and a tendency to develop new approaches in this field. "Attitudes to using computers were more open and humanistic but mostly owing to technological limitations related to hardware and software it was not possible to use computers for realistic communication in a CLT vein until the advent of effective CMC, the web, widely available email and so on" (2003: 22). From around 1995 onwards, it is reasonable to argue for a more genuinely 'communicative' role for CALL at least in terms of technology and software since computers are indeed used for genuine communication (2003: 22). However, Bax states that "this Open aspect of the technology and software is by no means matched by an Open attitude in other key areas of implementation such as teachers' attitudes, administrators' attitudes and timetabling". Furthermore, he argues that "much software being produced today is still of a relatively Restricted type. For this reason, we can say that in general terms we are in an Open phase of CALL, but that each institution and classroom may also exhibit certain Restricted and even Integrated features" (2003: 22).

1.3.3 Integrated CALL

Bax refers to the concept of 'normalization' as the best suggestive of Integrated CALL. In this sense, Normalisation is "the stage when a technology is invisible, hardly even recognized as a technology, and taken for granted in everyday life" (2003: 22).

According to Bax, "CALL will reach this state when computers (probably very different in shape and size from their current manifestations) are used every day by language students and teachers as an integral part of every lesson, like a pen or a book. Teachers and students will use them without fear or inhibition, and equally without an exaggerated respect for what they can do. They will not be the centre of any lesson, but they will play a part in almost all. They will be completely integrated into all other aspects of classroom life, alongside coursebooks, teachers and notepads". (2003: 23).

In my opinion, Bax's analysis of CALL and the division he proposes, offers more promising approach to CALL than Kern and Warschauer's phases as it opens the door for more future application and technological implementation of the current views of language learning via computer. It is more reasonable and creditable to argue of an open system in looking at CALL than the closed system proposed by Kern and Warschauer. Bax's awareness of the limitations of Kern and Warschauer's approach, his accurate diagnosis of the CALL implementations, and his conscientious association of past, current, and future practices with terminology provides a wider perspective on the relationship between language learning theories and computer use. In other words, Kern and Warschauer's tendency to associate language theories with CALL practices, and then to categorize these in clear-cut phases according to these theories is objectionable and does not have any clear-cut proof in CALL history from its beginning till nowadays, and is far from being conformed in the future.

1.4 Internet multimedia and Computer-Mediated Communication (CMC)

1.4.1 Internet Multimedia

According to Kern and Warschauer, “globally linked hypertext and hypermedia as represented in the World Wide Web, represents a revolutionary new medium for organizing, linking, and accessing information. Among its important features are (1) informational representation through multilinear strands linked electronically, (2) integration of graphic, audio, and audiovisual information together with texts, (3) rapid global access, and (4) ease and low cost of international publication” (2000: 12).

Hanson-Smith indicates that multimedia in a CALL environment means that “input from written texts may be enhanced by pictures, graphics, animations, video, and sound as well as hyperlinks to other explanatory texts. Likewise, video and other visuals, as well as a scrolled or highlighted text, may support audio” (1999: 189). Shih and Alessi emphasise the importance of integration among these elements, and consequently define multimedia as “a program or information environment that uses computers to integrate text, graphics, images, video, and audio” (1996: 204). The rapid expansion of the World Wide Web has given multimedia activities a new dimension. Chun and Plass state that “there is a plethora of Web sites for language teaching and learning that incorporate the multimedia capabilities of the Web and present information in the form of visuals and audio in addition to text” (2000: 151). Multimedia benefits on language learning are best indicated by the dual-coding theory which states that “Learning is better when information is ... processed through two channels than when the information is processed through one channel” (Najjar 1996, quoted in Soo 1999: 299). In the same vein, Chun and Plass state that “if information is provided in multiple modes, such as visual as well as audio, comprehension might be facilitated for certain types of learners who would benefit from having multiple forms of input to help decode a piece of information in the foreign language” (2000: 164).

In a study aimed to assess the effects of having definitions available to learners during on-line reading. Chun and Plass (1996) report many vocabulary gains for learners who read text in an instructional German reading program which contained various types of annotations for words – text only, text and audio, and text and picture (Chapelle 2001: 6). In addition, Hinkelman and Pysock (1992) and Soo and Ngeo (1996) emphasise the good effects of multimedia on different perceptual learning styles (auditory, visual, and hands-on) (Hanson-Smith, 1999: 299).

In order to identify the Internet multimedia influence on students' learning styles and strategies, we better overview briefly some input (listening and reading), and output (speaking and writing) implementations of Internet multimedia.

Hanson-Smith states that “computers seem to have many advantages over the audio recorder: (a) listening to voices in a visual context can create stronger memory links than voices alone can, and (b) instant, accurate playback should enable students to hear specific parts of a segment without a tedious search through an audio tape” (1999: 190). Hanson-Smith indicates that the “Internet provides a number of free, authentic listening resources that are particularly appropriate as input for intermediate to advanced learners” (1999: 198-199). Teeler and Gray state that the multimedia content available on the web is stunning. They highlight the variability of Internet listening resources; “there is anything and everything from live concerts and interviews to time-honored radio serials” (2000: 77). Hanson-Smith indicates that many listening resources on the web (Appendix A) are available in real-time and/or asynchronous listening activities. These include “short audio files containing excerpts from the recordings of performance artists, World Wide Web sites for newly released movies feature short video clips from the film and audio clips of the dialogue, sites of radio stations, and television networks” (1999: 199).

As far as multimedia is concerned with developing reading skill, Hanson-Smith indicates that it provides several advantages over written texts (1999: 200).

- 1- Sound capabilities: used to read the text aloud, often while highlighting individual words or sentences.
- 2- Scrolling: employed in paced reading; students can scroll through written texts rather than turn pages which may slow down reading for meaning.
- 3- Hypertext and hypermedia links: these allow instantaneous glossed in the form of pictures, animations, video, and related reading material.

Teeler and Gray point out that the Internet has made reading more realistic. “Text is well formatted, easy to look at and often broken up by relevant pictures and graphics which aid comprehension” (2000: 70). Hanson-Smith indicates that the Internet is a marvellous source of free multimedia reading materials (Appendix A). “It contains a vast array of media-supported reading. Sites on science, history, culture, travel and tourism are widely available and often not only come with audiovisual support but also relate to television programs” (1999: 204).

As regards Internet multimedia output activities, Teeler and Gray state that “it would be almost impossible to keep students from talking as they browse the web, whether deciding what to say in a chat or replying to e-mail” (2000: 74). In turn, Hanson-Smith highlights the significant stimulating role of Internet speaking environment for classroom conversation (1999: 208). She points out that many Websites (Appendix A) “foster educational videos that ask for debating or taking a stand on an issue. Other Websites offer live chat online or interactive use of television or video” (1999: 210).

Internet multimedia also offers a lot of activities for learners to develop their writing skills (Appendix A). Hanson-Smith recommends some Websites with message boards on movie stars, historical figures and fictional characters as a wonderful writing supplement to a reading unit or course. In addition, she points out that some Websites offer a “café” interactive writing experience in which “people from different cultures in

various settings around the world post photos, stories, and cross-cultural issues or responses to others' poems and stories" (1999: 212). Teeler and Gray state that the Internet offers learners other possibilities such as "sending virtual postcards to classmates when away on vacation, or virtual greeting cards for the holidays, or even writing in to explain why they were not in class and get class notes. Students may also join lots of cooperative writing projects happening all the time on the web" (2000: 77).

Hanson-Smith indicates that some Websites (Appendix A) encourage the exchange of multimedia presentation projects designed by popular software packages such as HyperStudio and Microsoft PowerPoint. "Learners can use multimedia presentation projects to interview each other, to write explanatory text, to incorporate a variety of visual media, and to create short recordings of their own voices" (Hanson-Smith, 1999: 214-215).

In short, Internet multimedia environment is so rich in activities and gives learners the opportunity to engage in "different styles of learning and to expand their relatively impoverished classrooms environments with the excitement of contact with exotic environments and the global community" (Hanson-Smith, 1999: 215). Having learners create multimedia responses in a web-based environment in order to carry out a task "may help these learners develop multiple routes for storing and retrieving vocabulary items or grammatical constructions which will result in better retention and improved competence in the areas currently being targeted" (Chun and Plass, 2000: 162-163).

1.4.2 Computer-Mediated Communication (CMC)

According to Kern and Warschauer, "CMC has existed in primitive form since the 1960s, but its use has become widespread only since the late 1980s. CMC allows learners with network access to communicate with other learners or speakers of the target language in either asynchronous (not simultaneous) or synchronous (simultaneous, in real time) modes. Through tools such as e-mail, which allows

participants to compose messages whenever they choose, or Internet Relay Chat or Moos, which allow individuals all around the world to have a simultaneous conversation by typing at their keyboards” (2000: 12). Furthermore, Kern and Warschauer indicate that CMC permits both one-to-one communication, and one-to-many communication (2000: 12). Next, we are going to identify how learners can benefit from the many ways of exchanges that are available in each of the asynchronous and the synchronous communication, and what kind of supportive CALL activities these environments provide

1.4.2.1 Asynchronous Communication

Opp-Beckman points out that asynchronous (time-delayed) exchanges can be “a great way of sharing information and socializing with native speakers or other ESOL students” (1999: 90). Learners can use their e-mail accounts to exchange with each other, or on a large scale, they can subscribe to a discussion list.

According to Gaer, “e-mail will increase self-esteem by empowering both the teacher and the learner; it accommodates different learning styles and empowers learners regardless of social and cultural differences; it encourages students to become involved in authentic projects and to write for real audience of their peers instead of merely composing to the teacher; it promotes critical thinking and allows learners to participate cooperatively in the educational process” (Gaer, 1999: 69-70).

On the other hand, discussion lists can “create an environment similar to the kind of group-work implemented in the traditional classroom. However, computers can make it easier for learners to interact with language and with each other” (Healey, 1999: 136). According to Gaer, “discussion lists connect group of people with similar interests. Messages posted to a list are sent automatically to every member’s email address on that list. These lists are valuable for discussing issues, asking questions, and giving and

receiving information” (1999: 68). “Once students have visited and lurked on a list, they can begin to participate in threaded discussions and debates by reading messages and posting replies to newsgroups, discussion forums, bulletin boards, and Web-based conferencing on virtually any topic” (Opp-Beckman, 1999: 90-91). Gaer indicates that “more than 50,000 e-mail discussion lists are now operating. Each list is related to a certain topic of particular interest to the group of people who have subscribed, such as community college ESL or ESL literacy issues, and many lists are related to language learning” (1999: 68).

1.4.2.2 Synchronous Communication

Many forms of synchronous communication are now available on the Web. Among the most spread are Internet Relay Chat and more specifically MOOs. Vilmi states that “MOOs are popular places in which learners communicate in real time” (1999: 435). Turbee indicates that “MOO, an acronym that actually contains another acronym, refers to a MUD, a multiuser domain or dungeon. MOOs are multiuser domains that are object oriented. MOOs are social environments, many of them akin to local bars, pubs, cafes, or corner coffee shops where people gather to chat, exchange news, and meet new people” (1999: 349). The themes of the MOOs are multitudinous, ranging from wild role-playing games to serious academic topics. Opp-Beckman indicates that MOO/MUD conversations “require Telnet software, which is often built into Web browsers and may be obtained free on-line” (1999: 93). Two reputable ESOL Internet MOOs can be accessed through their Websites: “SchMOOze University (<http://schmooze.hunter.cuny.edu:8888/>) and ESL Chat Room Central (<http://www.eslcafe.com/chat/chatpro.cgi>)” (Opp-Beckman, 1999: 93). “Other forms of synchronous communication include audio exchanges and distance learning” (Opp-Beckman, 1999: 93).

In the same vein of talking about synchronous communications, Ortega (1997: 82) suggests that computer-assisted classroom discussion (CACD) is such a promising area

and has got many potential benefits on second language instruction. She argues that “conducting class discussions on a computer network entails meaningful use of the target language and can promote a task-and interaction-driven approach to L2 learning and teaching” (1997: 82).

“The software application for computer-assisted classroom discussion (CACD) which is most widely used in foreign language classrooms is the Daedalus Integrated Writing Environment (Daedalus Inc., 1989) and its application InterChange” (Ortega, 1997: 82). Ortega states that “during a typical Daedalus/InterChange session in the computer lab, each student sits in front of a computer terminal and is free to type in messages that can be sent by clicking on the ‘send’ button on the screen. Sent messages appear on the upper half of all individual screens, displayed in the order in which they were sent and automatically identified with the name of the sender. All class members can read each other's comments at their own pace by scrolling up and down the sent-messages window, and they can write messages at their own leisure without interfering effects (freezing, etc.) from incoming messages” (1997: 83). Ortega indicates that “metacognitive strategies such as planning and monitoring seem to be greatly fostered in CACD. Students can work at their own pace without the dangers of being interrupted, making interlocutors become bored or impatient, receiving physical or verbal evaluative signs from the audience, or forgetting one's own ideas while waiting for an opportunity to take the floor” (1997: 91). “Monitoring is also possible in computer-assisted discussions because of the freedom to revise and edit a message at will before sending it to all participants, with the methodological advantage that many software applications for synchronous written communication allow the automatic record of all keys typed, including backspaces, deletions, and so forth” (1997: 91).

Chun and Plass suggest that both multimedia materials and networked means should be joined to enhance learning on the Web. They argue that “networked multimedia environments (audioconferencing and video conferencing) provide opportunities for asynchronous and synchronous dialogue in which meaning can be negotiated in modes other than written or printed text. Learners have the opportunity for authentic exchanges

in which to practise conversational strategies that lead to improved sociolinguistic and pragmatic competence” (2000: 161,165).

CHAPTER 2

LEARNING STYLES

People differ from one another in their ways of behaving, thinking, and feelings. Understanding the ways in which learners differ from one another is a fundamental concern to those involved in second language acquisition. In this Chapter, my discussion will be restricted to one of the general factors that affect learning, and more specifically to the field of learning styles. In the beginning, we will focus on two important factors in shaping learners' learning styles; namely, culture and personality traits. Then seven main dimensions of learning styles will be identified and analysed. The discussion will be followed by some implications for second-language teachers regarding matching or mismatching their teaching experiences with students' different learning styles. Some issues related to learning styles will be looked at from a psychological perspective

That people differ from each other is obvious. How and why they differ is less clear and is the subject of the study of Individual differences (IDs). "Although to study individual differences seems to be to study variance, it is also to study central tendency, and how well a person can be described in terms of an overall within-person average" (Revelle).

According to Ellis (1995: 471), "there is a veritable plethora of individual learner variables which researchers have identified as influencing learning outcomes". Ellis classifies these individual learner differences into three interrelated categories:

- Beliefs about language learning
- Affective states
- General factors

These variables will lead learners to adopt different learning strategies which in turn affect learning outcomes that are considered “in terms of overall L2 proficiency, achievement with regard to L2 performance on a particular task, and rate of acquisition” (Ellis 1995: 473).

Among the general factors that contribute to individual differences in second language learning is learning styles which, as Ellis points out, has received, among other general factors, the most attention in SLA research (1995: 484, 499).

2.1 Factors Shaping Learning Styles

According to Bickel and Truscello, “students are affected by distinct cultural styles of communication and learning, family approaches to asking questions and seeking information, and educational/institutional preferences. If we are to help students grow as learners, we will need to understand more thoroughly how these external factors, combined with personality traits, shape individual styles” (1996: 15). Thus when we talk about learning styles, we are to identify two main factors that shape these styles; that is to say, personality traits and culture.

2.1.1 Personality Traits

When we want to analyse someone's personality, we usually talk about what makes that person different or unique from other people. Theories that talk about personality within the frame of individual differences “often spend considerable attention on things like types and traits and tests with which we can categorize or compare people: Some people are neurotic, others are not; some people are more introverted, others more extroverted; and so on” (Boeree, 1997). Personality is defined by some theories as “all the enduring qualities of the individual” while other theories limit their use of the term to “observable traits that are not predominantly cognitive in nature” (Shackleton and Fletcher 1984: 45).

According to Eysenck personality is regarded as referring to “stable internal factors or traits which underlie consistent individual differences in behaviour” (1994: 67). “Most theories argue that such traits as instincts, goals, desires, beliefs, motives, and attitudes are distributed in the population in varying degrees” (Eysenck 1994: 39-40). In contrast, other theories prefer to classify individuals into different types or categories, it is assumed that “membership of a given type is all-or-none” (Eysenck, 1994: 67). However, learning and applying the theories of personality types can be a powerful and rewarding experience if it is used as a tool for discovery, rather than as a method for putting people into boxes or as an excuse for behaviour. Ellis points out that “many language teachers consider that their students’ personalities constitute a main factor in determining their success or failure” (Ellis, 1994: 517).

Psychologically speaking, Eysenck points out that three main approaches to interpreting personality and behaviour have appeared. That is to say, situationism, interactionism, and constructivism. Situationism emphasises the role of the situation rather than personality in determining behaviour. Situationists argue that the environment rather than heredity determines behaviour. Interactionism, in the second place, is based on the idea that the person, the situation, and their interaction are all more important determinants of behaviour and performance than either persons or situations on their own. Constructivism, in the third place, claims that our personality depends not only on what we have inherited, but also on the expected and actual behaviour and attitudes of other people towards us (Eysenck, 1994: 61-68).

Several possible aspects of personality have been proposed over the years. However, those of extroversion/introversion and risk-taking are the most frequently examined by SLA research. Of course, everyone is extroverted or introverted in some degree, but not in the same degree. Johnston indicates that those who are more extroverted appear more comfortable around groups of people than when they are alone. Extroverts are motivated from ‘without’ and their attention is directed outward. They appear sociable, friendly, self-confident, outgoing, relaxed and confident. On the other hand, those who are more

introverted seem to be more comfortable when alone than when in a crowd. And thus they can be thought of as socially reclusive or retiring. Introverts are motivated from 'within' and they are oriented towards the inner world of ideas, imagery, and reflection. Introverts get their energy from within rather than from the outside world (Johnston, 2003).

Oxford and Anderson look at the extroversion and introversion distinction as another significant dimension of style. They state that "extroverted learners enjoy English conversation, role-plays and other highly interactive activities. Introverted learners, on the other hand, prefer to work alone or else in a pair with someone they know well; they dislike lots of continuous group work in the language classroom" (1995: 208).

According to Skehan, extroversion consists of two components: sociability and impulsivity (1989: 100). However, "the sociability dimension of extroversion seems to be relevant for language learning, rather than impulsivity" (1989: 106).

Two main hypotheses are popular in regard to the relationship between extroversion/introversion and L2. The first one argues that "introverted learners will do better at developing cognitive academic language ability" (Ellis, 1994: 520). Related to this, Skehan points out that "there is a tendency for extroverts to underperform slightly compared to introverts" (Skehan, 1989: 101). Other studies have found that introversion is associated with good study methods. Ellis (1994: 521), however, points out that other studies have given different results which fail to lend much support to the hypothesis that introversion aids the development of academic language. The second hypothesis argues that extroverted learners will do better in acquiring basic interpersonal communication skills. This hypothesis is based on the assumption that "more sociable learners will be more inclined to talk, more inclined to join groups, more likely to participate in class, more likely to volunteer and to engage in practice activities, and more likely to maximize language-use opportunities outside the classroom by using language for communication" (Skehan, 1989: 101). Though there is some social bias toward extroverted learners, reserved persons, however, have no reason to feel that there

is anything wrong with them. Skehan emphasises this by arguing that “extroversion and introversion each have their positive features, and that an extreme way is likely to work against some aspects of target language development” (1989: 104-105).

The results of such studies can help parents, teachers, counsellors, and other professionals to understand academically the distinction between extroverted and introverted learners, how to reach them personally and academically, and how best to help them realise their potential. Learning to recognize this difference can be helpful as it opens a door to more understanding and cooperation.

The second important aspect of personality is risk-taking. Gledhill and Morgan indicate that “the notion of risk as being integral to successful learning is widely accepted amongst classroom practitioners, especially those involved in teaching English to speakers of other languages. However it presents a paradox both in terms of the nature of risk and the conditions under which risks are taken” (2000). According to McClelland, “successful learners will be those who construe the tasks that face them as medium-risk, and achievable. This will lead them to engage in the cumulative learning activities that lead in turn to longer-term success”. Unsuccessful learners, as McClelland argues, “tend to be those who set excessively high or low goals for themselves, with neither of these outcomes likely to lead to sustained learning” (1958, quoted in Skehan 1989: 106), In regard to the relationship between risk-taking and language learning success, Skehan indicates that “risk-taking is generally and pervasively good in terms of the functional and actual use of language. In this respect, adventurous learners are more likely to change and more resistant to fossilization” (1989: 106). A study by Ely (1986, quoted in Skehan, 1989: 108-109) has shown that language proficiency is influenced directly by classroom participation which reflects, among other things, the contributing influences of risk-taking. Ely argues that four dimensions underlie the risk-taking construct (1986, quoted in Skehan, 1989: 108-109):

1. A lack of hesitancy about using a newly encountered linguistic element.
2. A willingness to use linguistic elements perceived to be complex or difficult.
3. A tolerance of possible incorrectness or inexactitude in using the language.
4. An inclination to rehearse a new element silently before attempting to use it aloud.

2.1.2 Culture

According to Steinmetz, Bush and Joseph-Goldfarb, “studying culture does not mean looking only at customs, institutions, and artifacts..., but also studying people’s values, beliefs, and attitudes and how they influence or are influenced by interactions among people. Culture should be studied as a process as well as a product” (1994: 12, quoted in Oxford and Anderson, 1995: 202). Soo indicates that different cultures are dominated by different learning styles (1999: 292). Recent studies have sought to prove that learning styles have a strong cultural component. Oxford, Hollaway and Murillo point out that “although culture is not the single determinant, and although many other influences intervene, culture often does play a significant role in the learning styles... adopted by many participants in the culture” (1992: 441). Worthley indicates that “while diversity within any culture is the norm, research shows that individuals within a culture tend to have a common pattern of learning and perception when members of their culture are compared to members of another culture” (1987, quoted in Oxford and Anderson, 1995: 204).

2.2 Learning Styles

According to Soo the concept of learning style dates back to the 19th century when Johann Pestalozzi, who pioneered the progressive instructional method, believed that education should take learners’ differences into account (1999: 290), Following Reid,

learning style is defined here as “an individual’s natural, habitual, and preferred way(s) of absorbing, processing and retaining new information and skills” (Reid 1987: iix).

According to Keefe, learning style is “a consistent way of functioning that reflects underlying causes of behaviour” (1979, quoted in Ellis 1994: 499). The concept of learning styles is rooted in the classification of psychological types. Ahsani states that “as the result of heredity, upbringing, and current environmental demands, different individuals have a tendency to both perceive and process information differently” (Ahsani, 2001). Ellis points out that “an individual’s learning style is viewed as relatively fixed and, as a consequence, learner training is aimed to help learners explore their learning styles to cope with the different learning tasks, rather than to stimulate them to change them” (1994: 499). However, if you discover how you process information best, you can learn things more efficiently and in less time, and you can expand the strategies you use for learning and studying. (The relationship between learning styles and strategies is discussed more fully in Chapter 3).

A learning styles approach to learning emphasises the fact that individuals perceive and process information in very different ways. One purpose of examining learning style is to get to know those behaviour patterns that characterise individuals’ approaches to learning so that we can see when they are helpful and when they are not. Soo indicates that “these differences in learners’ learning styles affect the learning environment by either supporting or inhibiting their intentional cognition and active engagement” (Soo, 1999: 289).

According to Oxford and Anderson, “learning styles have six interrelated aspects: cognitive, executive, affective, social, physiological, and behavioural”. Cognitive elements include preferred or habitual patterns of mental functioning. The executive aspect deals with the degree to which the person seeks order, organization and closure and manages his or her own learning processes. The affective aspect reflects clusters of attitude, beliefs and values that influence what an individual will pay most attention to in a learning situation. The social aspect concerns the preferred extent of involvement with

other people while learning. The psychological aspect involves at least partly anatomically-based sensory and perceptual tendencies of the person. The behavioural aspect is concerned with the tendency to actively seek situations compatible with one's own learning preferences (Oxford and Anderson, 1995: 203).

Within the primary aspects of style, many styles have been identified. According to Ehrman and Oxford, "individual learners have a composite of at least 20 style dimensions" (1990, quoted in Oxford and Anderson, 1995: 204). Soo indicates that "individual learners can have 6–14 strongly preferred styles at the same time" (1999: 293).

2.2.1 The Most Important Learning Styles for Foreign Language Learning

2.2.1.1 Field Dependence and Field Independence

Ellis points out that the distinction between 'field dependence' (FD) and 'field independence' (FI) has attracted much attention in SLA research (1994: 500). The distinction here is between looking at the whole organization or at discrete parts in regard to perception. According to Skehan, field-dependent individuals are thought to be "person-oriented, interested in other people and sensitive to them". They are also thought to be outgoing and gregarious, while field-independent learners tend to be "more impersonal and detached, less sensitive and more aloof; they are cerebral and object-oriented" (1989: 111). According to Witkin et al, "field independent learners perceive analytically and enjoy subjects involving abstract, impersonal work" (1977, quoted in Oxford and Anderson, 1995: 205). Worthley suggests that field independent learners prefer to compete and gain individual recognition. They are task oriented and prefer learning that emphasises the details of concepts (1987: 33). Chapelle indicates that in the early 1980s, the meaning of field independence and field dependence expanded to

refer to “the degree of ability to cognitively reconstruct a situation or stimulus, with field independence related to analytic/visual reconstruction and field dependence related to interpersonal reconstruction” (1995, quoted in Oxford and Anderson, 1995: 205). Different studies have investigated the relationship between FD/FI and L2 learning. Abraham notes that “field dependent students have been happier in classrooms where rules are not emphasised, while field independent student like classrooms where deductive, rule-oriented learning has been the dominant approach” (1985, quoted in Oxford and Anderson, 1995: 205). However, Skehan indicates that field-independence has demonstrated a weak relationship in regard to language learning success (1989: 114-115). Chapelle also indicates that ‘neither field-independence nor field dependence can guarantee success in L2 learning’ (1995: 167).

2.2.1.2 Global and Analytic Styles

According to Oxford and Anderson, the contrast between global and analytic functioning has arisen directly from early research on field dependence and field independence (1995: 205). The distinction between language students with global learning styles versus students with analytic learning styles is illustrated in Table 2.1 (based on Soo 1999: 294).

Table 2.1

Students with analytic learning styles	Students with global learning styles
Begin with details to gradually build an understanding of the overall concept	Begin with the overall concept and fit in the details gradually
Prefer analytic strategies such as contrasting and finding cause-effect relationships	Learn through actual communication
Process information sequentially	Process information simultaneously
Learn to achieve accuracy through drills	Look for patterns; prefer holistic strategies such as guessing, predicting, and searching for main ideas
Prefer working alone or with a few others of like mind	Prefer working in groups whose members have diverse viewpoints
Are intrinsically motivated by self-set goals	An extrinsically motivated by goals set by others
Can structure their own learning	Require others to structure their learning
Prefer learning without guidance or modeling and are not as affected by criticism or praise as global types	Require guidance, modeling, and praise from the teacher
Prefer multiple-choice and cloze tests	Prefer open-ended tests

The analytic versus global learning styles

Willing (1987), talks about the analytical and authority-orientated learning styles which refer consecutively to the analytic and global learning styles. Willing has classified learning styles into four categories (1987, quoted in Ellis 1994: 507):

- 1-** Concrete learning style characterised by direct means of processing information; people-orientated; spontaneous; imaginative; emotional; dislikes routinized learning; prefers kinaesthetic modality.
- 2-** Analytical learning style characterised by focusing on specific problems. It proceeds by means of hypothetical-deductive reasoning. In addition, it is object-orientated and independent and prefers logical, didactic presentation.

- 3- Communicative learning style which is fairly independent; highly adaptable and flexible; responsive to facts that do not fit. It prefers social learning and a communicative approach.
- 4- Authority-orientated learning style which relies on other people, and needs teacher's directions and explanations. It is intolerant of facts that do not fit. In addition, it prefers a sequential progression and a structured learning environment.

We note that the communicative learning style, in Willing's classification, contains features from both the analytic and global learning styles. In other words, a student with a communicative learning style has two preferred, major learning styles at the same time (See Reid's study below).

2.2.1.3 Feeling and Thinking Styles

Oxford and Anderson indicate the similarity between the feeling versus thinking dimension and the global versus analytic. "A feeling-oriented student is broadly sensitive to social and emotional factors. His or her decision-making is likely to be globally influenced by the feeling of others, the emotional climate, and personal and interpersonal values. A thinking-focused student, on the other hand, is not readily concerned with social and emotional subtleties. His or her decision making is based on logic and analysis" (1995: 206).

2.2.1.4 Impulsivity and Reflection

This dimension of learning styles is related to both speed and accuracy of output. Oxford and Anderson state that impulsive students are "fast and inaccurate. They are more global as they show quick and uncritical acceptance of initially accepted hypotheses". In

turn, reflective students tend to be “slow and accurate. They are more analytic as they prefer systematic, analytic investigation of hypotheses and are usually accurate in their performance in all skills” (1995: 206).

2.2.1.5 Intuitive-Random and Concrete-Sequential Styles

This dimension of learning styles is originated by Gregorc (1979) and then developed by Myers and McCaulley (1985) and Brigg (1980) and later adopted and modified by Willing (1987). The contrast here, as Oxford and Anderson point out, is between “an intuitive-random learner who tries to build a mental model of the second-language information, and prefers to use, in an abstract, nonlinear, random-access mode, guessing, predicting and other compensation strategies in the absence of full knowledge”, and on the other side is a concrete-sequential learner who “prefers language learning through materials and techniques that involve combinations of sound, movement, sight and touch and that can be applied in a concrete, sequential, linear manner” (1995: 207).

A closer look at Willing’s contribution to this dimension will reveal Willing’s tendency to mix aspects of the intuitive-random style (imaginative and unroutinized) with aspects of the concrete-sequential style (direct means of processing) forming a new dimension of learning style he calls “concrete learning style”.

2.2.1.6 Closure-Oriented V. Open Styles

Oxford and Anderson (1995: 207) indicate that this dimension of learning styles is first highlighted by Briggs (1980), Lawrence (1984), and Myers and McCaulley (1985). It is also called ‘judging’ and ‘perceiving’. The main variable here is ambiguity tolerance. Closure-oriented or judging learners dislike ambiguity, uncertainty or fuzziness. “To avoid ambiguity, students with closure-oriented learning styles tend to jump to hasty conclusions about grammar rules or reading themes”. Open or perceiving-style students

have a high tolerance for ambiguity. “They do not worry about comprehending everything, and do not feel the need to come to rapid conclusions about the topic” (Oxford and Anderson, 1995: 207).

2.2.1.7 Visual V. Auditory V. Hands-On Styles

Research with United States school children (Reinert, 1976; Dunn, 1983, 1984) shows that learners have four basic perceptual learning channels or modalities (Reid, 1987: 89):

- 1- Visual learning: reading, studying charts.
- 2- Auditory learning: listening to lectures and audiotapes.
- 3- Kinaesthetic learning: experiential learning, that is, total physical involvement with a learning situation.
- 4- Tactile learning: “hands-on” learning, such as building models or doing laboratory experiments.

Soo (1999: 295) states that as many as seven perceptual elements have been proposed. However, he points out that “learners may prefer to learn by listening, seeing, or using a hands-on or whole-body-movement approach”. By using three main channels, Soo implies that both kinaesthetic and tactile styles end in one confluence. Oxford and Anderson (1995) also refer to the kinaesthetic and tactile styles as hands-on sensory preference. They, however, consider that visual, auditory and hands-on styles are part of the psychological aspect rather than the perceptual aspect suggested by (Reinert, 1976; Dunn, 1983, 1984; Reid, 1987; Soo 1999). Oxford and Anderson point out that “visually oriented students like to read and obtain a great deal of visual simulation. For them, lectures, conversations, and oral directions without any visual backup are very confusing and can be anxiety-producing. Auditory students, on the other hand, are comfortable with oral directions and interactions unsupported by visual means. Hands-on students like lots of movements, and enjoy working with tangible objects, collages and other media. For them, sitting at a desk for very long is uncomfortable. They need frequent

breaks and physical action in games and dramatic activities”. (1995: 209). Soo (1999: 296) summarises the main characteristics of each style of the perceptual or psychological aspect (Table 2.2):

Table 2.2

Auditory types	Visual types	Hand-on types
Prefer learning by listening and speaking	Prefer learning from written texts and graphics	Prefer learning by doing hands-on experimentation
Are strong in discussions and verbal responses	Are strong in reading and writing	Are strong in laboratory and project work
Tend to ask questions and vocalize what they read	Tend to highlight important passages, rereading notes and outlining	Tend to take notes but rarely read them; understand and remember by doing something physical

The perceptual/psychological dimension of learning style (Soo, 1999: 296)

According to Ellis, further distinctions between learning styles have been investigated. Bruner, Goodnow, and Austin (1957) distinguish ‘focusers’ and ‘scanners’. “The former tackles a problem by concentrating on one feature at a time, in a step by step process, while the latter deals with several features at the same time and allow their ideas to crystallize slowly”. Pask and Scott (1972) distinguish ‘serialists’ and ‘holists’, “according to whether learners operate with simple hypotheses (consisting of a single proposition) or complex hypotheses (involving multiple propositions)” (Ellis, 1994: 500).

2.2.2 The Best Learning Style

Ellis (1994: 508) argues that it is impossible to say which learning style works best. However, “traditional schooling tends to favor some learning styles, such as abstract, perceiving or analytical learning style, communicative learning style, and reflective

processing” (Ahsani, 2001). Whatever argument proves right; it is still good to know what your learning style is so that you can respond most effectively to the material being presented. Even when the material is not presented in the way you prefer, you can use your knowledge of learning styles to adjust and be flexible, no matter who your instructor is or what the topic might be.

2.2.3 Matching or Mismatching

Information about style can serve as a guide in designing learning experiences that match or mismatch students' styles. According to a study by Claxton and Murrell, “matching is particularly appropriate in working with poorly prepared students and with new college students since, as some studies show, providing instruction consistent with that style contribute to more effective learning. However, some mismatching may be appropriate so that students' experiences help them to learn in new ways and to bring into play ways of thinking and aspects of the self not previously developed” (Claxton and Murrell). In this respect, Ahsani indicates “it is essential that teachers design their instruction methods to match with different learning styles, using various combinations of experience, reflection, conceptualization, and experimentation. Instructors can introduce a wide variety of experiential elements into the classroom, such as sound, music, visuals, movement, experience, and even talking” (Ahsani, 2001). To accommodate students' different styles, a teacher is better be a facilitator in a student-centered model in which he designs activities, social interactions, or problem-solving situations that allow students to practise the processes of different learning styles for applying course content. According to McKinney, “in order to help individual students maximize their learning given diverse demographics, backgrounds, needs, and learning styles, the teacher is recommended to give students options and choices in planning the course, in assignments, in ways to demonstrate their learning, and in how they are evaluated, as well as allowing students to pursue their own questions and interests whenever possible” (McKinney, 1999). In a study by Dunn, Griggs, Olson and Beasley,

failing students did significantly better when they were taught with strategies that complemented their learning-style preferences (Soo 1999: 289).

Cohen, 1969 and Oxford, Ehrman and Lavine, 1991 have reported that conflicts occur when a student has a learning style that differs from the instructional style of the teacher, especially when the teacher does not understand the cultural and personal reasons for this difference (Oxford and Anderson, 1995: 201).

Generally speaking, we can say that teachers have to ensure that their teaching behaviour vary so that all learners with different learning styles are included in the lesson. How much individuals learn has more to do with whether the educational experience is directed toward their particular style of learning than with their intelligibility. Soo supports this argument by stating that “student benefit most from a teacher’s understanding of learning styles when as many domains as possible are integrated into the instruction” (1999: 297). Learners, in turn, should work on extending themselves beyond their ‘stylistic comfort zone’ to use learning strategies that might not initially feel right (Oxford and Ehrman, 1993: 198).

CHAPTER 3

LEARNING STYLES AND LEARNING STRATEGIES

In this Chapter, we will shed some light on learning strategies focusing on the relationship between these strategies and learning styles. We will concentrate on the cultural factor to identify the Arab learners' preferred styles, and then we will identify the learning strategies mostly associated with these learners' styles.

3.1 Learning Styles and Learning Strategies

According to Ellis, there is a mutual relationship between individual differences (ID) variables. He indicates that strategies learners employ will be influenced by the other ID variables and may also have an effect on them (1995: 474).

The most apparent variable that distinguishes between styles and strategies is consciousness. According to Ehrman and Oxford, learning style indicates “preferred or habitual patterns of mental functioning and dealing with new information”, while learning strategies are “the conscious steps or behaviours used by language learners to enhance the acquisition, storage, retention, recall, and use of new information” (1990: 311-312). “Research on strategy use shows that successful learners use a variety of strategies to become more self-directed and improve their performance. However, strategy choice and use is strongly affected by the learning style of the learner” (1990: 312). The descriptors that Willing (1987) provides of his four learning styles show how different learning strategies are linked to each of the styles (See Willing above).

Ehrman and Oxford identify two domains of learning strategies (1990: 312). (Appendix B offers a more complete description of Oxford's Strategy Classification System).

3.1.1 Learning Strategies Domains

3.1.1.1 Direct Strategies

Direct strategies are those behaviours involving direct use of the language and include:

- a- Memory strategies for entering information into memory and retrieving it.
- b- Cognitive strategies for manipulating the language for reception and production of meaning.
- c- Compensation strategies for overcoming limitations in existing knowledge.

3.1.1.2 Indirect Strategies

Indirect strategies support language learning. They do not directly involve using the language and include:

- a- Metacognitive strategies for organizing and evaluating learning.
- b- Affective strategies for managing emotions and attitudes.
- c- Social strategies for learning with others.

3.2 Style, Strategy and Arabic-Speaking Students

Ehrman and Oxford (1990) suggest a strong relationship between learning styles and learning strategies. In other words, students with specific learning styles tend to use a definite set of strategies that is typically linked to each of their styles. In a study on 20 Turkish-learning students in a school of language studies that offers full-time intensive training to government employees and adult members of their families in roughly forty languages in the United States, Ehrman and Oxford have identified a correlation between some learning styles and strategies. They indicate that the reported results of styles and other characteristics of the school students may be generalisable to many upper-level undergraduate or graduate school populations (1990: 314-315). Table 3.1 shows the reported relationship between some learning styles and the corresponding

strategies. The results here come from the interview data (Based on Ehrman and Oxford's typical strategy use, 1990: 317).

Though this study is run on Turkish-learning students, we can take the reported correspondence between these styles and strategies as evidence on the existence of this relationship. More research on Arabic-speaking students learning English will be cited to strengthen this relationship which serves to justify our suggested correlation between Arab students' styles and particular strategies.

Table 3.1

		Learning Strategies					
		Memory	Cognitive	Compensation	Metacognitive	Affective	Social
Learning Styles	Extroverts	0	#	0	0	0	++
	Sensory types (visual, auditory, and hands-on)	++	+	-/#	+	#	0
	Judgers (closure- oriented)	0	0	--	++	#	+

Typical Strategy Use (Ehrman and Oxford, 1990: 317)

++: described as positive, comfortable, or liked by almost all of the people of this psychological type

+: described as positive, comfortable, or liked by most of the people of this psychological type

--: described as negative, uncomfortable, or disliked by almost all of the people of this psychological type

0: not reported at all by the people of this psychological type, or reported for only one or two strategies in this entire strategy set

#: described as an atypical strategy used consciously to improve learning

-/#: described as negative, uncomfortable, or disliked strategy used consciously to improve learning

Dunn and Griggs report the summary of eight learning style studies of cultural and racial groups in the United States, and state that “teachers can increase student learning through teaching to students’ culturally-influenced learning styles” (1990, quoted in Oxford and Anderson, 1995: 204).

Given that Syria is an Arabic-speaking country, and no actual data is available about the Syrian students’ learning styles in particular, we are going to take into account Reid’s (1987), Ehrman and Oxford’s (1990), and Oxford and Anderson’s (1995) findings of Arabic students’ preferred learning styles and their relatedness to particular strategies.

On a self-reporting questionnaire survey consisting of randomly arranged sets of five statements on six learning style preferences: visual, auditory, kinesthetic, tactile, group learning, and individual learning, and including respondents representing 98 countries, 29 major fields of study, and 52 language backgrounds, Reid (1987) found that Arabic students had four major perceptual learning style preferences. In other words, they were able to learn equally well via many sensory channels (visual, auditory, tactile, and kinesthetic). Arabic students, in the Reid (1987) study, gave individual and group work a minor preference mean (Table 3.2):

Table 3.2

Learning Style						
Language	Visual	Auditory	Kinesthetic	Tactile	Group	Individual
Arabic	13.75	14.06	15.09	14.53	11.51	12.84

Learning Style Preference Means According to Language Background in Reid (1987)

Note: Preference means 13.50 and above = major learning style preference

Preference means of 11.50 - 13.49 = minor learning style preference

Preference means of 11.49 or less = negative learning style preference

Oxford and Anderson state that Arabic-speaking countries encourage a concrete-sequential learning style “which produces widespread use of strategies such as memorization, planning, analysis, sequenced repetition, detailed outlines and lists, structured review, and a search for perfection” (1995: 207). They indicate that “Arabic-speaking students are particularly prone to verbatim memorization of long passages, which are often copied to enhance students’ writings. Concrete-sequential students are likely to follow the teacher’s guidelines to the letter, to be focused on the present, to demand full information, and to avoid compensation strategies that demand creativity in the absence of complete knowledge” (1995: 207). In addition, Oxford, Hollaway and Murillo indicate that Arabic-speaking learners show a tendency to use a closure-oriented or judging learning style; “they often see things in black/white, right/wrong terms and sometimes refuse to compromise; to these students, written texts take on an ‘always correct’ aura, and the teacher who accepts more than one answer as right seems weak or ignorant” (1992, quoted in Oxford and Anderson, 1995: 208). Harshbarger et al (1986) and Willing (1988) report that Arabic-speaking students are “typically very gregarious, overtly verbal and interested in a whole-class, extroverted mode of instruction” (quoted in Oxford and Anderson, 1995: 208). Being extroverted, these students tend to be socially close to their teachers and classmates. They want their teacher to be an authority figure but expect personal kindness from the teacher at the same time (Oxford and Anderson, 1995: 208).

Ehrman and Oxford (1990: 318) indicate that the only clearly preferred set of strategies used by extroverts is social strategies, with occasional use of cognitive strategies. Extroverted students reported many more indirect strategies (especially social and to some degree metacognitive) than direct strategies. They reported using the metacognitive strategy of organizing their learning, and seeking practice opportunities outside class. Ehrman and Oxford suggest many classroom implications: “extroverts need variety and social stimulation both in and out of class. Curriculum designers and lesson planners are to provide variety and interactive participation to keep extroverted students engaged” (1990: 318).

Sensing students, in the second place, reported trying a wide and heterogeneous range of strategies. They showed “the strongest appreciation of memory strategies that include imagery, physical response strategies, mechanical tricks (color-coding, flash cards), structured reviewing, and just plain rote memorization” (1990: 318). Sensing students also reported certain cognitive strategies (recombining vocabulary to create new sentences; formally practising with sounds on tape; and reasoning deductively and analyzing expressions). They also showed a high use of metacognitive strategies. Among other classroom implications, Ehrman and Oxford state that “sensing students responded well to a no-nonsense course with unambiguous, discrete goals addressed in sequential order. They like syllabuses with curricular milestones. In addition, realia, kinesthetic input, and other multisensory experiential learning greatly help sensing learners” (1990: 319).

Judging students, in the third place, showed “a need for control and closure exemplified by their use of metacognitive strategies such as organizing and planning which has resulted in systematic, paced study reminiscent of sensing students” (Ehrman and Oxford, 1990: 321). Ehrman and Oxford state that “goals, objectives and tasks should be clearly delineated and sequenced for judging students” (1990: 322). “For sensing judgers, the curriculum leads up to tasks that require risk-taking, and disambiguation through a process of systematic skill-building and strategy development exercises” (1990: 322).

According to Bickel and Truscillo, students who used computers with Internet access in ESOL labs need to employ a variety of strategies to accomplish diverse tasks (1996: 19). They developed a set of tasks that is related with each of the metacognitive, cognitive, and social/affective learning strategies (Appendix C). These tasks will be taken into account when we discuss Multimedia and CMC influences on Syrian students’ styles and strategies in Chapter Four.

Having talked about the relationship between the learning styles of the Arabic students and the most used strategies reported by these students, it is useful to summarise our

proposed relationship. The summary of Arabic learners' reported styles and strategies presented in table 3.3 is restricted to those liked by (almost all) or (most of) the Arabic learners (in Ehrman and Oxford study, 1990). It also takes into account the findings reported by Oxford, Hollaway and Murillo, 1992 and Oxford and Anderson, 1995 on closure-oriented or judging, and concrete-sequential Arabic learners consecutively.

Table 3.3

		Learning Strategies			
		Memory	Cognitive	Metacognitive	Social
Learning Styles	Extroverts				++
	Sensory types (visual, auditory, and hands-on)	++	++	++	
	Judgers (closure-oriented)			++	++
	Concrete-sequential	++	++	++	

Arabic learners' preferred learning styles and their corresponding strategies.

++ = strongly associated and used strategies

CHAPTER 4

IMPLICATIONS

In this Chapter, we are going to identify the influence of Internet multimedia and CMC on the (Syrian) Arab learners' different learning styles and strategies. We will shed some light on the multimedia materials and CMC tools that can help Syrian students of different styles cope with different learning tasks through providing them with opportunities to practise their preferred learning strategies in both the classroom and the online environments. Then we will move to evaluate the Learning Resources Website (<http://literacynet.org/cnnsf/home.html>) in terms of the existing multimedia and CMC materials and tools. Finally, we will see how this study can reflect well on the Syrian context; some implications for both teachers and learners will be identified with some suggestions for future research.

4.1 Internet Multimedia and CMC Influences on Syrian Arabic-Speaking Language Learners' Learning Styles and Strategies

As we have seen in Chapter 1, multimedia in the Internet environment has a variety of activities and can be employed as a comprehensive environment to teach several language skills. The activities it offers cover a large variety of language learners' learning styles and strategies. On the other hand, CMC, through asynchronous and synchronous communication forms, can provide learners with many interesting ways of learning and exchanging information. Syrian students, as we have argued in Chapter 3, have four main learning styles with many strategies linked theoretically to each of these styles. In this section, we will identify how these styles and strategies are best catered for in the multimedia and CMC environments.

In the first place, we can argue that the most reported features of Internet multimedia address directly the modalities of Syrian learners of sensory and concrete-sequential learning styles. In addition, the activities which Internet multimedia offers can create an

optimal environment for these learners to practise many strategies associated with their learning styles. Sensory learners represented by visual, auditory and hands-on as well as concrete-sequential learners will enjoy multimedia learning to a large extent. They will find a lot of activities presented in their preferred styles. Text, pictures and videos will satisfy visual learners and will support their interest in reading and writing. The various forms of oral presentation on the web will create an encouraging atmosphere for auditory learners as they enjoy listening and speaking. The variety of activities presented with the integration of multiple forms of presenting the information along with a lot of learning through games opportunities on the web will keep hands-on learners attentive. The clear, linear presentation facilitated by a harmonious combination of audio-visual effects will pave the ground for learners of concrete-sequential preferred learning style to make the most of their learning.

Both sensory and concrete-sequential learners can put into work a lot of their preferred learning strategies in the Internet multimedia environment. Memory strategies are most supported through the availability of mental linking options. It would be possible to apply and represent sounds and images in memory; to group these together and to effectively associate them with different materials and activities. As regards cognitive strategies, learners will enjoy applying rules deductively in the multimedia environment. Such a versatile atmosphere supported by multimedia materials on the web will enhance learners' pursuit for practising, recognizing and using formulas and patterns with sounds and writing systems, and following recorded models in speaking activities. They will be capable of transferring what they know theoretically to a new environment outside class and applying it in a creative way on different activities. Hands-on learners will also be motivated to reasoning and applying their information through playing online adventure games and working out cross puzzles. The various ways of presenting information in the Internet multimedia will support their search for discovery and prediction. In addition, the growing Websites of multimedia materials will help these learners implement their imaginative abilities and develop their cognitive abilities in general. The integration of multiple ways of presenting information in the Internet multimedia environment will

reduce to a large extent the chance of any ambiguity or misunderstanding for judging students.

In the second place, extroverted and judging Syrian learners can find the computer-mediated communication challenging and motivating. They can communicate asynchronously and synchronously with other students everywhere on the Web. They can put into work their social strategies of interacting with other people. They will be able to post questions using e-mail or listservs or Schmooze and receive an online feedback. “They will be able to share recommendations for useful resources and tools found on and off the Internet” (Shetzer and Warschauer, 2000: 179). They will be able to work with other classmates through a local network or online mates through the Web to solve problems, help build confidence, and take pressure of individual performance. As they communicate with others, they will develop cultural understanding, and become more aware of others’ thoughts and feelings.

In addition, Warschauer (2001: 209) highlights the benefits of computer-mediated communication in supporting patterns of participation. He indicates that studies of second language classroom discourse have shown that student participation increases dramatically in computer-mediated communication; students participate more equally in computer-mediated communication, and it is precisely those students who participate least in face-to-face conversation will increase their participation most when changing to a computer medium. In addition, quiet or shy students are encouraged by computer-mediated communication for greater participation and creating alternatives to the traditional discourse pattern which dominates most classrooms. They can, for example, skim a wide variety of questions that other people post on discussion boards on the Internet and read the responses given to the questions, and then set out to compose their own responses. Warschauer also indicates that students have shown, on many studies, “extensive incorporation of new syntactical patterns or lexical chunks during computer-mediated interaction”. He argues that “the on-line medium facilitates such incorporation by allowing greater opportunity to study incoming messages and carefully to plan responses” (2001: 209).

4.2 Description and Rationale of the Learning Resources Site

The Learning Resources Site (<http://literacynet.org/cnnsf/home.html>) is Web-delivered instruction using current and past CNN San Francisco bureau news stories that was developed by the Western/Pacific, Literacyworks, and CNN's San Francisco bureau. The evaluation, however, will be focusing on identifying the multimedia features and CMC facilities in the Website. Some recommendations for enhancing these features and facilities will be suggested for creating an optimal learning environment for students of different learning styles and strategies. After a general description of the Website, the evaluation is set out by considering two broad areas: approach and design.

4.2.1 General Description

According to the editors of The Learning Resources Site, “the material in this Website is intended for adult literacy and educational purposes. The Website is built on many stories. Each story includes the full text of a story and interactive activities to test comprehension”. The learner can choose to read the text, listen to the text, and view a short video clip of the story. “The story is presented in three modules: Story, Abridged Story, and Story Outline. Each module is designed for ease of use so the learner can use it independently. The instructor can also incorporate any story into class activities and lesson plans” (The Learning Resources Site). The Learning Resources Site provides a brief description for each of the three modules (Table 4.1).

Table 4.1

Modules	Description
Story	Intended for adults with moderate reading and speaking comprehension skills including advanced ESL or non-native English speakers.
Abridged Story	A modification of the original story text by simplifying complex ideas and sentences, exchanging advanced words with less difficult ones, and changing difficult concepts into precise terms. Intended for adults with low reading comprehension sub-skills including beginning ESL or non-native English speakers.
Story Outline	Outline summary of basic edited story elements.

Description of the three main modules used in the Website (Learning Resources Site)

The Learning Resources site editors also offer some information about the different comprehension activities and multimedia features that are available in the Website:

Comprehension Activities






The following six modules are designed to interactively test learner comprehension of the story (The Learning Resources Site):

1. Vocabulary
2. Word Selection
3. Multiple Choice
4. Sequencing
5. Conclusions
6. Your Turn!

Multimedia Features

The multimedia features that the Websites provides in addition to text are listed in (Table 4.2).

Table 4.2

	Full streaming video of the broadcast
	Full streaming audio of the broadcast
	Text of the story read by Greg Lefevre, CNN SF Bureau Chief & Correspondent
	AVI video clips
	Quicktime video clips

Multimedia features in the Website (Learning Resources Site)

CMC Facilities

1. Internal e-mail
2. Discussion board

4.2.2 Approach

The Learning Resources Site presents the stories in a functional and adaptable way that suits adults with moderate and low reading comprehension sub-skills through the presence of both the (story) and the modified (abridged story).

This site moves from the Restricted approach to CALL to a more Open CALL (see Bax, page 12), which places greater emphasis on language use in authentic social contexts. The Website seeks to integrate the various skills of language learning and technology more fully into the language learning process. The learner has got a variety of real-life stories to choose from (figure 1). He is thus engaged in a genuine negotiation of meaning. Although the Website is mainly concerned with developing reading sub-skills, we find that it may also cater to listening, writing and is flexible enough to be adapted to develop speaking sub-skills. The meaning is contextualized in a coherent discourse represented by the stories.

Figure 4.1

Categories

- [Adventure](#)
- [Business & Economy](#)
- [Crime](#)
- [Culture & Society](#)
- [Disasters](#)
- [Education](#)

- Environment
- Health
- Politics
- Religion
- Science & Technology
- Other

List of real-life stories available on the Website (Learning Resources Site)

The modules are designed for ease of use so the learner can use them independently. Learners can work under their own direction outside the conventional language-teaching classroom. The materials allow the learner to repeat tasks at any time and to start at any activity or module they want which adds to the discovery in the learning process. According to Holec, “the learner should discover, with or without the help of other learners or teachers, the knowledge and the techniques which he needs as he tries to find the answers to the problems with which he is faced”. (1980, quoted in Benson 2001: 10).

Although the themes used in the Website are of international interest, we find that the main focus of the site is geared toward adults learning English in the United States. These themes are formulated in a way that would help these learners familiarise themselves independently with the American accent, and culture. Therefore, we, English Syrian teachers, should be careful in dealing with such Websites by choosing the materials that suit our learners and motivate them to cope with diverse tasks and activities.

4.2.3 Design

The Website claims to cater for adults of beginning ESL or non-native English speakers with moderate and low reading abilities. In order to achieve this aim, the original story has another modified abridged version with simplified ideas and sentences and less difficult words.

The Website design accommodates different learning styles very practically and efficiently by presenting its stories through three main channels: text, audio and video followed by six modules or activities designed to interactively test learner comprehension of the story. The video is presented in three formats: full streaming, AVI video clips, and Quicktime video clips. The audio is presented in full streaming format of the story which is read by Greg Lefevre, CNN SF Bureau Chief & Correspondent. The stories are presented through multimedia by integrating text, graphics, images, and video.

What is more interesting in the story section are the useful links at the bottom of the page of each story which allow learners to consult other Websites to get more information about the topic they have read. The integration of an electronic dictionary while reading the main text of the story is extremely helpful for learners both for the ease of use and for the quality of information. However, it needs some improvement to accept words with inflectional morphemes, and phrasal verbs.

In general, the Website is designed in way that gives learners a high degree of control and freedom. Learners have full control over choosing the activity type, the material for a given activity, exiting an activity, or moving around within it. The content is organized in large chunks of content portrayed in context. The Website primarily presents the comprehension activities (Vocabulary, Word Selection, Multiple Choice, Sequencing, and Conclusion) in the form of multiple-choice items. However, the distractors used in these items need some modification to look more reasonable to the learner. There are clear instructions at the beginning of each activity stating that for each item, you can

click on one of the boxes. If your answer is correct, the square beside the box gets an “;-)” in it. If your answer is incorrect, the square beside the box gets an “X” in it. By integrating the score neatly at the top of the activity page as a measure of success for a given item (more points for correct responses, and point deduction for incorrect responses), the learner will feel motivated to carry on the activity and will add an element of suspense and competitiveness when more than one learner want to compare their results.

It is allowed for learners to repeat exercises and correct their mistakes till they know the correct answer. The feedback is nonjudgmental (The learners themselves decide if the projected results are satisfactory and if they need to learn more). However, there are no hints to lead learners to the correct answers nor is there an explanation telling learners why a correct answer is correct, or why an incorrect answer is incorrect. The learners can move from one part of the Website to another with ease. They can also initiate and stop all activities in whatever order they find suitable for their progress. The navigation options are appropriately available when needed.

As regards the “Your turn” activity, learners can read other people’s questions and answers. They can also post their own queries and responses. The open-ended construction of this activity would appeal to learners of different learning styles. Introducing the discussion board as a part of the asynchronous communication into the Website can create many of the conditions for optimal learning environments. Moreover, learners are asked to provide their names and e-mail addresses when posting a new message into the discussion board which follows the story. By doing this, they will be also able to receive private responses for their comments.

Finally, we can contend that the Website is not accessibility compliant and does not meet the standards that allow people with disabilities to access information online.

Accessibility for persons with disabilities entails providing for a version that can be processed by a screen reader such as JAWS.

4.3 Conclusion

Research shows that learners have different learning styles and strategies. In this paper, we have identified the most effective learning styles, the factors that influence these styles, the learning strategies typically related to these styles and those culturally related to Arab students. Two main environments have been suggested as crucial to accommodate students' preferences. Internet multimedia and computer-mediated communication (CMC) have been reviewed thoroughly. We have been able to see how we can make the best of them in our search for ways to deal with differences in learners' learning preferences in general and Arab (Syrian) language learners in particular.

The Languages Institute (see Introduction) is most recommended to take into account the findings proposed by this study. We, as teachers, need to consider the importance of matching our teaching with the different learning styles and strategies of our learners.

Our research suggests that most of Arab learners are of sensory, extroverted, judging or concrete-sequential learning styles. We have defined the most related learning strategies associated with these styles, then we have suggested that CALL represented by Internet multimedia and CMC, with their large variety of materials and implementations, are among the best learning environments which can accommodate these students' learning styles and can provide the students with an optimal atmosphere for practising their preferred learning strategies.

According to Castillo, "the government of Syria has recently built and opened the country's first electronic university, continuing a gradual move from a Soviet-style closed society to a more open, Western-oriented model. The new, state-owned institution, known as the Syrian Virtual University, has begun accepting students and plans to be operational for the fall semester with an enrollment of 600. The university will be entirely online. Administrators say it will eventually design its own content and grant degrees, which they hope will give it a pan-Arab appeal that will draw students from throughout the region. Initially, however, the university will act as a clearinghouse for courses from 20 American and European universities it has signed agreements with. Syrian students will use the facilities and advising network here, but will obtain degrees from the foreign institutions" (Castillo, 2002). The infrastructure of the virtual university is based on the Internet. This would also suggest a promising application of our findings in helping Arab students in general and Syrian students in particular develop their learning abilities by giving more attention to the field of multimedia and communication means.

4.4 Restrictions and Future Research

The research would have been more reliable and my argument could have been more reasonable if I had conducted a survey of the Languages Institute students in Syria. It is highly recommended for any future research in this field to conduct such a survey which would offer us more accurate results of Syrian Students' preferred learning styles.

More research is needed to deepen our understanding of students' learning styles and strategies. We need to investigate whether the learning strategies students use on the Internet are different from the strategies they use in class. It is essential to help language teachers become aware of their students' learning styles and strategies. They need to know how to cater to their students' styles and how to develop their use of strategies.

From the perspective of studying processes involved in learning with multimedia materials or CMC tools on the World Wide Web as related to supporting different learning styles and strategies of second language learners, the following questions should be taken into account:

- Are learners developing their strategies as they treat with multimedia activities or employing CMC?
- How is that development affecting their learning styles?
- Will the new technology reshape our view of learning styles?
- Are these styles really fixed in the light of our understanding of new horizons in language teaching and learning?
- Do learners of different learning styles and strategies differ also in benefiting from combined presentation of multimodal materials?
- Does presenting information in multiple modes create a cognitive overload for some learners?

According to Soo, “The key to teaching all learners as effectively as possible lies in identifying the needs and preferences of each learner and not only fulfilling learners’ needs and preferences but helping them develop new ways to learn. Practically, this is impossible without a medium of delivery whose versatility matches the variety of learning styles. The computer seems versatile enough to be such a medium—if it is driven by well-designed software and properly utilized by well-trained teachers. The trend is only beginning, and for those teachers who dare take up the challenge, a brave new world awaits” (1999: 301).

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Appendix A

Useful Multimedia World Wide Web Pages

<i>Useful multimedia World Wide Web pages for listening</i>
http://www.mtv.com
http://www.cnn.com

<http://www.us.imdb.com>

<http://www.voa.gov>

<http://www.lang.uiuc.edu/r~li5/book>

<http://grove.ufl.edu/~ktrickel/teslmini/activity.html>

Useful multimedia World Wide Web pages for reading

<http://www.gutenberg.net>

<http://www.pbs.org/wgbh/nova>

<http://www.discovery.com>

<http://www.usatoday.com/classlin/clfront>

<http://www.cnnsf.com/education/education.html>

<http://www.deil.lang.uiuc.edu>

<http://www.crayon.net>

<http://www.thecase.com/solveit>

Useful multimedia World Wide Web pages for speaking

<http://www.nationalgeographic.com>

<http://www.pbs.org/teachersource>

<http://www.aetv.com/class/teach>

<http://www.exploration.edu/memory/earlymemory/index.html>

Useful multimedia World Wide Web pages for writing

<http://www.otan.dni.us/webfarm/emailproject/email.htm>

<http://www.hut.fi/~rvilmi/project>

<http://www.biography.com/read>

<http://www.thomson.com/heinle/museum/welcome.html>

Multimedia presentation project web pages

<http://www.orillas.upr.clu.edu>

<http://www.hut.fi/~rvilmi/project>

<http://www.kyoto~su.ac.jp/information/restaurant>

<http://www.otan.dni.us/webfarm/emailproject/email.htm>

Appendix B

Oxford's Strategy Classification System

Direct Strategies: Memory, Cognitive, and Compensation Strategies		
I. Memory strategies	A. Creating mental linkage	1. Grouping 2. Associating/elaborating 3. Placing new words into a context
	B. Applying images and sounds	1. Using imagery 2. Semantic mapping 3. Using keywords 4. Representing sounds in memory
	C. Reviewing well	1. Structural reviewing
	D. Employing action	1. Using physical response or sensation 2. Using mechanical techniques
II. Cognitive strategies	A. Practising	1. Repeating 2. Formally practising with sounds and writing systems 3. Recognizing and using formulas and patterns 4. Recombining 5. Practising naturalistically
	B. Receiving and sending messages	1. Getting the idea quickly 2. Using resources for receiving

		and sending messages
	C. Analyzing and reasoning	<ol style="list-style-type: none"> 1. Reasoning deductively 2. Analyzing expressions 3. Analyzing contrastively (across languages) 4. Translating 5. Transferring
	D. Creating structure for input and output	<ol style="list-style-type: none"> 1. Taking notes 2. Summarizing 3. Highlighting
III. Compensation strategies	A. Guessing intelligently	<ol style="list-style-type: none"> 1. Using linguistic clues 2. Using other clues
	B. Overcoming limitations in speaking and writing	<ol style="list-style-type: none"> 1. Switching to the mother tongue 2. Getting help 3. Using mime or gesture 4. Avoiding communication partially or totally 5. Selecting the topic 6. Adjusting or Approximating the message 7. Coining words 8. Using a circumlocution or synonym

Indirect Strategies: Metacognitive, affective, and Social Strategies		
I. Metacognitive strategies	A. Centering your learning	<ol style="list-style-type: none"> 1. Overviewing and linking with already known material 2. Paying attention 3. Delaying speech production to focus on listening
	B. Arranging and planning your learning	<ol style="list-style-type: none"> 1. Finding out about language learning 2. Organizing 3. Setting goals and objectives 4. Identifying the purpose of a

		language task (purposeful listening/reading/speaking/writing) 5. Planning for a language task 6. Seeking practice opportunities
	C. Evaluating your learning	1. Self-monitoring 2. Self-evaluating
II. Affective strategies	A. Lowering your anxiety	1. Using progressive relaxation, deep breathing, or meditation 2. Using music 3. Using laughter
	B. Encouraging yourself	1. Making positive statements 2. Taking risks wisely 3. Rewarding yourself
	C. Taking your emotional temperature	1. Listening to your body 2. Using a checklist 3. Writing a language learning diary 4. Discussing your feelings with someone else
III. Social strategies	A. Asking questions	1. Asking for clarification or verification 2. Asking for correction
	B. Cooperating with others	1. Cooperating with others 2. Cooperating with proficient users of the new language
	C. Empathizing with others	1. Developing cultural understanding 2. Becoming aware of others' thoughts and feelings

(Ehrman and Oxford, 1990: 313-314)

Appendix C

Learning Strategies Using Computers

Learning Strategies Using Computers	
Metacognitive Strategies	
Self-monitoring: Check own understanding while working	<ol style="list-style-type: none">1. Asks questions: Do I understand this? Should I do the practice again? Should I move on to another activity?2. Writes in learning log (what is easy? What is difficult? Why?)3. Records then listens to own voice and records again4. Checks student record on software
Self-evaluation: Judge how well material has been learned	<ol style="list-style-type: none">1. Analyses language in dialogues (printed versions of chat exchanges)2. Checks student record3. Writes in learning log (How well did I do?)4. Plans next activities5. Evaluates usefulness of software
Directed Attention: Decide in advance to focus on particular tasks and ignore distractions	<ol style="list-style-type: none">1. Follows a preplanned sequence of lessons on software2. Completes plan for activities or sites to visit on the web (keeping notes of interesting sites for the future)3. Avoids distractions (games or surfing) until plan is completed
Selective Attention: Decide in advance to focus on specific information	<ol style="list-style-type: none">1. Looks for particular grammar structures or vocabulary in authentic writing of Internet links or

	<p>in listserv discussions</p> <p>2. Creates bookmarks for the web</p>
Self-management: Arrange opportunities for new language learning	<p>1. Works with teacher to choose different kinds of activities or software</p> <p>2. Works with new partners</p> <p>3. Tries new activities</p>
Metacognitive Planning: Develop personal objectives and select appropriate strategies	<p>1. Plans learning activities and chooses software based on own goal</p> <p>2. Uses a wide variety of assessment/self-assessment instruments to set objectives and select strategies</p> <p>3. Keeps checklist to evaluate effectiveness of strategy use</p>
Cognitive Strategies	
Deductive: Apply rules	<p>1. Applies grammar rules or structures learned on computers to classroom conversation</p> <p>2. Plays online adventure games and scavenger hunts using rules learned in class</p> <p>3. Follows recorded models in speaking activities</p>
Resourcing: Use reference materials	<p>1. Uses help features</p> <p>2. Uses online dictionaries or grammar references</p> <p>3. Uses listservs to ask questions</p> <p>4. Finds online tutorials</p> <p>5. Uses search engines to discover Internet databases</p> <p>6. Discovers FTP sites for authentic writing at all levels</p> <p>7. Sends e-mail to experts</p>
Note-Taking: Write down key words and ideas	<p>1- Writes in notebook important examples, rules, and words from the computers</p> <p>2- Keeps tables</p> <p>3- Draws illustrations, graphs</p>
Inferencing: Make guesses based on previous knowledge	<p>1. uses listening and reading comprehension exercises</p> <p>2. Interacts with ongoing discussions on listservs</p> <p>3. Guesses based on recognition of cognates and affixes</p>

	4. Makes educated guesses of unfamiliar words on Chat lines
Visualization: Picture meanings	<ol style="list-style-type: none"> 1. Imagines settings and descriptions of Schmooze classrooms and participants 2. Draws and writes about these descriptions 3. Gets a mental image of story lines when reading or listening
Prediction: Predict information based on understanding	<ol style="list-style-type: none"> 1. Guesses how software might work 2. Predicts software test formats and content 3. Predicts what information will be interesting to other listserv participants 4. Chooses Internet links predicting what information will be available at the next site
Grouping: Put words and concepts in meaningful groups	<ol style="list-style-type: none"> 1. Uses categorized vocabulary lessons on software 2. Tracks new words used in listserv discussions 3. Adds browser bookmarks for later discovery of new sites but stays on current task
Contextualization: Imagine using material in real life	<ol style="list-style-type: none"> 1. Writes and records dialogues 2. Uses e-mail listservs and schmooze to practise authentic communication
Transfer: Recognize similar words	<ol style="list-style-type: none"> 1. Uses cognates for e-mail 2. Starts with cognates in vocabulary exercises
Social/Affective Strategies	
Cooperative: Work with classmates to solve problems, help build confidence, and take pressure of individual performance	<ol style="list-style-type: none"> 1. Listen to each other's recordings 2. Read each other's writing/e-mail messages 3. Communicate about writing/grammar, etc. using e-mail 4. Paired work on exercises (e.g., crossword puzzles) 5. Joint Internet projects 6. E-mail pen pals 7. Chat groups
Self-talk: Reduce anxiety by reminding self of progress, of resources available, of own goals	<ol style="list-style-type: none"> 1. Keep learning logs to chronicle progress 2. Writes goals and checks regularly 3. Tracks success in one's software scores
Clarification Questions: Ask for explanation and examples	<ol style="list-style-type: none"> 1. Uses online references and help 2. Works with partner and keeps list of examples of

	phrases, idioms, and grammar 3. Asks questions on listservs or Schmooze 4. Keeps dialogue journal with other students and teacher (paper or electronic) 5. Sends e-mail to experts
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(Bickel and Truscello, 1996: 18-19)

Note: Lefthand column adopted from O'Malley and Chamot (1990); Chamot et al. (1993)