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The language graduate who never reads a professional journal and participates only minimally, if at all, in professional meetings, will stagnate. There is an onus on the profession in all areas to upgrade and keep abreast of current developments in the field.

– **Peter Heffernan**

Marcel Danesi

On "Bimodality": A Conversation with... Marcel Danesi

interviewed by Anthony Mollica

Marcel Danesi is professor of Semiotics and Anthropology at the University of Toronto. He developed the notion of bimodality several decades ago to link language learning and language teaching with research on brain functions.

Mollica: *You coined the term "bimodality." What do you mean by it?*

Danesi: In 1986, I wrote a paper for *Lenguas Modernas* in which I wanted to convey the importance for language teachers to understand the role of the two modes of learning – the intuitive-experiential versus the reflective-analytical – and the implications that this type of understanding has for teaching languages. I had been reading about brain functions previous to writing the paper. This made me realize that the two learning modes seemed to correspond to right-hemispheric and left-hemi-spheric functions, respectively. So, I used the term *bimodality* to encapsulate this neuro-logical duality and discussed how it might be utilized pedagogically, as a "guiding notion," so to speak, in order to enhance classroom learning outcomes.

Mollica: *How did this "guiding notion" – as you put it – change your teaching?*

Danesi: I indicated in that paper that at no other time in the history of education had teachers of languages been so knowledgeable about what to do in the classroom, or had so many effective tools at their disposal to help their students learn – from expertly-designed textbooks to technologically-sophisticated devices. Yet, notwithstanding the sophistication, I noticed that studies constantly showed that only a small fraction of students eventually achieved native-like proficiency at the end of a course of study. I asked "why" in that article and suggested that we might want to look for an answer to this dilemma in the neuroscientific research findings on language learning. This question had bothered me (and in some ways continues to bother me today) as an often frustrated teacher of second languages. Disenchanted with existing methodologies at the time, I ventured to seek insights from neuroscience, fearing that my theoretical adventure would probably turn out to be an unproductive one. To my surprise, it changed my view of second-language acquisition and second-language teaching drastically, forcing me to reconsider radically how I taught Italian at the university. My foray into the neuroscientific domain allowed me to take charge of my classroom on my own terms, rather than adopt trends dictated by the theoretical fashion of the day.

Marcel Danesi

Mollica: *In the same year, 1986, you came into contact with neuro-psychologists and special education teachers working with brain-damaged children in Italy. What results did you gain from these encounters?*

Danesi: The result was the establishment of an agenda of collaborative research on how to design brain-compatible teaching materials for such children. The term *bimodality* was accepted by the neuro-psychologists as a viable construct because it seemed to provide a meaningful framework for understanding how children learned languages. *Bimodality* was defined at the time as the view that the two primary modes of learning, the experiential and the analytical, must be activated in specific ways for such children. To my surprise, various Italian educators adopted the bimodality theory shortly thereafter as a general framework for developing teaching curricula for handicapped children in school. By the late 1980s, various second-language teachers in Italy and North America started assessing the implications of the theory critically for second-language teaching in general, and a

number of doctoral students began investigating its principles empirically.

Mollica: *Has someone else used the term "bimodality" before you?*

Danesi: When I proposed the term *bimodality* in 1986, I was not cognizant of the fact that it had already been in use among neuroscientists as a synonym for *Complementary Hemisphericity Theory*. I was also not aware of the fact that the term had been employed by Laurence Ridge, a professor of mathematical education at the Faculty of Education at the University of Toronto, five years earlier in 1981. Ridge's use of the term in that year was, to the best of my knowledge, the first time it was so utilized in the educational literature.

Mollica: *Eric Lennenberg had published a study on* The Biological Foundation of Languages *in 1967. What influence did his publication have on second-language teaching?*

Danesi: Bimodality theory hardly stands alone as a neuroscientifically-based proposal for second-language teaching. Interest among practitioners in brain research started, actually, in the late 1960s, right after linguist Eric Lenneberg published his widely-influential 1967 study, *The Biological Foundations of Language,* in which he put forward the hypothesis that there is a biologically-limited period for acquiring language that starts at birth and ends at adolescence. Research on the implications that Lenneberg's hypothesis had for the second-language teaching profession at large was started almost immediately. In the area of second-language teaching, such research led to the establishment of least three major teaching methods in the 1970s and 1980s – Asher's Total "Physical Response", Lozanov's "Suggestopedia", and Krashen's and Terrell's "Natural Approach". The fundamental feature that differentiated these methods from others was an explicit sequencing and formatting of the material to be learned and practiced in ways that were purported by their congeners to simulate how the brain handles incoming information.

Mollica: *Are you suggesting, then, "bimodality" as a method of instruction?*

Danesi: Not at all. Bimodality theory is not a method, nor was it ever intended to be one. It is a construct that has attempted to answer the following two basic questions: "Can knowledge about the brain truly inform not only the way we teach children with learning problems, but also the way we teach normal students in typical classroom situations?" And "What does it mean to say that a teaching approach is *brain-compatible*?" I should point out that I have found out through the years that such questions can only be *addressed,* not *answered,* simply because there is no empirical way to demonstrate that a specific teaching procedure is capable of activating a certain part of the brain – unless we put our students through a PET scan as we teach them something! And even if it could be shown that a certain part is activated, in response to a specific instructional stimulus, what would that truly mean, given that surprisingly little is known about the nature of the link between brain physiology and cognitive functions? Nevertheless, it is my cautious opinion to this day that bimodality theory can provide meaningful insights for second-language teaching.

Mollica: *Has "bimodality" influenced second-language textbook writers? If, so, in what way has it influenced them?*

Danesi: As I look at contemporary textbooks in language teaching, I notice that they have incorporated many of the features that I have been suggesting in terms of bimodality theory, and that I myself have incorporated in the preparation of my own textbooks. If nothing else, the bimodality construct has forced me to look more attentively and critically at the conditions I create in my own classroom and at the theoretical suppositions underlying any new instructional practice or teaching philosophy proposed by researchers and educators. Good language teaching is largely an art, and thus shaped mainly by hunches about what to do that come essentially from experience. But these hunches can certainly be confirmed or refined greatly by knowledge about how the brain acquires language.

Mollica: *From a neurological perspective, what does second-language acquisition imply?*

Danesi: From a neurological perspective, second-language acquisition implies a reorganization of the structure of some, if not most, parts of the brain. Evidence has emerged, for instance, that bilinguals and advanced second-language learners are equally lateralized in each of their languages (that is, have their two languages distributed equally in the brain) and that there might be a greater right hemisphere involvement in the early stages of second-language acquisition. However, I have always been skeptical about applying

such research to pedagogy directly without some intervening period of experimentation and reflection. Many educators have perhaps not always been judicious and cautious in applying neuroscientific theories, as the demise of the neurolinguistically-shaped methods has made obvious. Since I coined the bimodality theory, I have always attempted to verify by experimentation if any of its derivative constructs is truly useful in a classroom environment.

Mollica: *What are the main features of "bimodality" theory?*

Danesi: It is common knowledge that the left hemisphere is the primary biological locus for language. The apparent superiority of the left hemisphere for language was established more than a century ago in 1861 by the French anthropologist and surgeon Pierre Paul Broca, after he published his classic study of a patient who had lost the ability to articulate words during his lifetime, even though he had not suffered any paralysis of his speech organs. Noticing a destructive lesion in the left frontal lobe of the left hemisphere at the autopsy of this patient, Broca was thus able to present concrete evidence to link the articulation of speech to a specific brain site. Fifteen years later, in 1874, the German neurologist Carl Wernicke brought forward further evidence linking the left hemisphere with language. Wernicke documented cases in which damage to another area of the left hemispehere consistently produced a recognizable pattern of impairment to the faculty of speech comprehension. Then, in 1892, Jules Déjerine found that reading and writing deficits resulted primarily from damage to the left hemisphere alone. So, by the end of the nineteenth century the research evidence was pointing convincingly to the left hemispehere as the biological locus for language. This led to "localization theory"– the view that specific mental functions had precise locations in the brain. A corollary to this theory was the notion of "cerebral dominance" – namely, that the verbal Left Hemishere was the dominant one for generating the higher forms of cognition.

Mollica: *Surely, there were dissenters to the theory...*

Danesi: With a few notable exceptions, cerebral dominance theory dictated the research agenda of the neurosciences during the first half of the twentieth century. But the dissenters argued that language in a restricted sense – that is, as sounds, words, and sentences – could indeed have a primary locus in the left hemisphere; but as a discourse and expressive system it was more likely to involve neural processes that were distributed throughout the brain. Research in the early part of the century showed, moreover, that the brain was endowed at birth with a "plasticity" that rendered it highly sensitive and adaptive to environmental stimuli. This had, and continues to have, rather far-reaching implications for education in general. It was during the 1950s and 1960s that the first serious doubts were cast on cerebral dominance theory by the widely-publicized studies conducted by the American psychologist Roger Sperry and his associates on epilepsy patients who had had their two hemispheres separated by surgical section.

Mollica: *What did the studies show, if anything?*

Danesi: The studies showed that both hemispheres, not just a dominant one, co-operated to produce complex thinking. The studies also confirmed that the left hemisphere was the primary locus for language. As mentioned, in 1967 Eric Lenneberg showed that the process of acquiring one's language occurred within the period of childhood. On the basis of a large body of clinical studies, Lenneberg had noticed that most aphasias – the partial or total loss of speech due to a disorder in any one of the brain's language centers – became permanent after the age of puberty. This suggested to him that the brain lost its capacity to transfer the language functions from the left hemisphere to the non-verbal right hemisphere after puberty, which it was able to do, to varying degrees, during childhood. Lenneberg concluded that there must be a biologically-fixed timetable for the lateralization of the language functions to the verbal left hemisphere and, consequently, that the critical period for the acquisition of language was before adolescence. Although his time frame has been disputed, Lenneberg's basic hypothesis that there is a fixed period of time during which the brain organizes its division of labor remains, to this day, a plausible theory and a target for much debate.

Mollica: *The 1970s brought further research on the topic...*

Danesi: True. By the early 1970s, neuroscientists started showing that the left hemispehere was indeed the locus for language as a system, but that discourse and various interpretive

(semantic) functions were controlled by the right hemisphere. This led to the notion of "comprehensible input" in second-language acquisition, attributable mainly to Stephen Krashen, who suggested that for any new input to be comprehensible to classroom learners, it must be presented in contexts that allow the synthetic functions of the right hemisphere to do their interpretive work. The whole proficiency movement of the late 1980s was, in my view, indirectly influenced by the neuroscientific research and by Krashen's simple, yet powerful, idea. Today, neuroscientists have at their disposal a host of truly remarkable technologies for mapping and collecting data on brain functioning. The findings have, actually, confirmed previous ideas and theories of learning.

Mollica: *So, what are these theories of learning?*

Danesi: Essentially, bimodality theory espouses two basic instructional-design principles: the modal directionality principle and the modal focusing principle. It would appear, above all else, that the teaching of new notions and structures should follow an R-Mode (experiential) to L-Mode (analytical) "flow," as Krashen and others have suggested. This means that during the initial learning stages students need to assimilate new input through observation, induction, role-playing, simulation, oral tasks, and various kinds of interactive activities. Unlike many other brain-based approaches, however, bimodality suggests that formal grammatical explanations, drills, and other L-Mode procedures must follow these stages, otherwise the control of structure will not emerge spontaneously, unlike what Asher, Krashen and others have claimed. Incidentally, identifying a learning task as having an L-Mode or an R-Mode focus implies simply determining which mode is to be emphasized in the overall design of the task. This does not necessarily entail knowing which specific hemispheric function will be activated. The modal directionality principle thus claims:

- that experiential forms of tutoring belong to the initial learning stages, and
- that teaching should move quickly towards a more formal, analytical style (not ignore it).

I would like to make an analogy to music teaching. Learning how to play a new piece on the cello, say, entails the ability to mold the component mechanical skills needed to play the notes, phrases, etc. of the piece successfully into the global skill of "playing the music." So, in order to give the learner's L-Mode a better opportunity to analyze and organize the component skills into automatic psychomotor routines, the teacher normally starts out by playing the piece for the student, making appropriate aesthetic comments here and there. In this way, the student's R-Mode has an opportunity to decipher the new musical input in a holistic way. The component mechanical skills can now be understood separately and practiced apart from their expressive modalities. Needless to say, an advanced music student who is already in firm control of the required L-Mode skills through previous training will not have to spend as much time on this component as would a beginner. When the student has mastered the L-Mode aspects of the piece, then he/she will be in a position to integrate them with the R-Mode ones as he/she performs the piece. A consummate performance of the piece is, from a neurological perspective, a *bimodal* feat, requiring the integrated contribution of both the R-Mode and the L-Mode to the performative task at hand.

Mollica: *What is the implication of the modal directionality principle?*

Danesi: The modal directionality principle implies, above all else, that the teacher should leave ample room for student improvisation during the early learning stages. Instructional techniques which focus on discrete categories (words in isolation, sentence structure, rules of formation, etc.) will be of little value, since students generally have no preexisting L-Mode schemata for accommodating the new input directly. In order to make the new material accessible to the L-Mode (intake), therefore, the early stages should involve teacher and learner alike in activities enlisting

- exploration,
- imagination,
- spontaneity, and
- induction.

Once the initial learning stages have been completed, the teacher can "shift modes" and begin to focus more on formal, mechanical, rule-based instruction.

Mollica: *Is modal directionality, then different from the inductive method?*

Danesi: Modal directionality can be seen to be a different version of second-language teaching – the inductive principle. But

unlike its use in strictly inductivist methods (the Direct Method, the Audiolingual Method, etc.), it does not require the deployment of induction for *all* learning tasks, only those that involve new input. Thus, if a learning task contains knowledge or input that the learner can already accommodate cognitively, directionality can be efficiently avoided. So, modal directionality is really a commonsensical pedagogical principle that good teachers, and the better second-language teaching methods, have always embodied into their *modus operandi*. It is virtually a "law of learning" which claims that teaching should ensure a constant movement from experiential to expository learning conditions, from practical to theoretical content, and from concrete to analytical presentation styles.

Mollica: *So on what mode will the student focus?*

Danesi: The modal focusing principle claims that at certain points in the learning process the students will need to focus on one mode or the other for various reasons. After the learners have grasped the new concepts in an R-Mode way, for example, their mental systems can be said to be prepared to assign them to appropriate L-Mode categories. At this point, the teacher can step in with suitable L-Mode techniques, which focus on pattern practice, grammatical instruction, etc. Modal focusing might also be required at points in the learning process when, for instance, a learner appears to need help in overcoming some error pattern that has become an obstacle to learning – L-Mode focusing allows the students an opportunity to focus on formal matters for accuracy and control; R-mode focussing on matters of discourse formulation and conceptual meaning. Students themselves use their L-Mode overtly when they search for some ending to a verb, when they try to think of a word they have forgotten, etc. On the other hand, they use their R-Mode when they try to think of what to say. True *acquisition* can be said to occur when the students' attempts at discourse formulation can be seen to enlist both modes in a cooperative way.

Mollica: *Does the modal focussing principle, then imply that mechanical practice be conducted in an uncontextualized way?*

Danesi: Absolutely not! The modal focusing principle in no way implies that mechanical practice be conducted in an uncontextualized way. On the contrary, meaningful contexts should always be provided not only for new input, but also for focusing routines. This allows the R-Mode to complement and strengthen the intake operations of the L-Mode, especially during more mechanically-oriented focusing tasks. Contextualized language instruction enables the learners to relate L-Mode *form* to R-Mode *content*. Incidentally, I should mention that I adopted the terminology "L-Mode versus R-Mode," to refer to left hemisphere and right hemisphere functions respectively from art teacher Betty Edwards who coined them in a famous book on how to draw published in 1979 *(Drawing on the Right Side of the Brain)*.

Mollica: *What implications does "bimodality" theory have for second-language acquisition theory and for second-language teaching theory?*

Danesi: I suppose I coined "bimodality" to attempt my own rebuff to Lenneberg's critical period hypothesis. There have been many other critiques of this hypothesis. My goal was to suggest that perhaps the right hemisphere took over many of the functions that the left hemisphere had in childhood language acquisition. Thus, whether or not the native language has been lateralized by puberty, there is no reason to believe that this in itself will inhibit the acquisition and "neural absorption" of other languages after puberty. Bimodality claims that second-language acquisition is possible at all ages if the modal directionality and focusing principles are operative in the teaching process.

Mollica: *What influence did the "bimodality" theory have?*

Danesi: I also believe that, indirectly, the bimodality theory has influenced the critique of Universal Grammar theory in second-language teaching that surfaced in the late 1980s and early 1990s. According to the universal grammar paradigm, there exists a language organ in the brain that equips humans by the age of two with the ability to use the rules of a "universal" grammar to develop the specific languages that cultures require of them. The child only has to "set" a few language-specific "parameters" on the basis of parental input, and the full richness of grammar will ensue when those parametrized rules interact with one another and with universal principles. The parameter-setting view has been put forward to explain the universality and rapidity of language acquisition. The universal grammar theory

excludes the possibility of second-language acquisition ever equaling first language acquisition in childhood. But, in my view, to ascribe the inability to master a second language in adulthood to the accessibility of language universals rules out too many other possibilities – life experiences, previous training, etc. – which have nothing to do with language organs. UG theory simply ignores the brain's plasticity and the role of environment on learning. Moreover, the universal grammar theory must still answer the question of what rules are universal and which are not more satisfactorily than it has. When all is said and done, and the actual theory is examined closely, it becomes obvious that it is restricted to accounting for the development of syntax (sentence-formation) in the child. Admittedly, it does that rather successfully. However, the theory ignores a much more fundamental developmental force in early infancy – the ability of the child to make imitative models of speech samples and then to create new ones from them. Second, it ascribes primacy to language, ignoring other faculties (or assigning them a secondary status).

Mollica: *Is there only a UG for language, as Chomsky insists? What about the nonverbal modes of communication and of knowledge-making (gesture, drawing, etc.)?*

Danesi: Since these develop in tandem with vocal language during infancy, also without any training, does the brain possess "universal nonverbal grammars"? If the role of culture (the cognitive environment in which the child is reared) is simply to set the parameters that determine the specific verbal grammar that develops in the child, could it not also set, say, the specific gestural and drawing parameters that determine the specific forms of gestural and representational knowledge that develops in the child?

Mollica: *How does the "bimodality" theory help the language teacher?*

Danesi: Again, I believe that it provides a general framework for organizing one's teaching approach. The implications that modal directionality and modal focusing call forth are really common-sensical ones. Yet common sense is not always present in the methods or the approaches out there, which are often the children of fashion and educational ideology. During the initial R-Mode stage, classroom activities should be student-centered and novel input should be structured in ways that stimulate experiential learning. As in Di Pietro's *Scenario Approach*, the learners should also be allowed to generate their own strategies for orchestrating discourse scenarios. The students' inductive and exploratory tendencies should also be allowed to operate freely when introducing new grammatical or lexical information. However, during the subsequent L-Mode stage, the focus should shift to the teacher, who should follow up with grammar explanations, drills, etc. Focusing on some problematic aspect of grammar, vocabulary, etc. is to be encouraged if a student appears to have difficulty grasping it or using it.

Mollica: *How can these two principles be used?*

Danesi: These two simple principles could be used moreover to provide insight on everything from textbook selection and materials preparation to syllabus design. In effect, I put forward and refined bimodality theory over the years to synthesize in concrete terms what good teachers have always known. Incidentally, the research on the use of bimodality theory has never produced negative results (to the best of my knowledge). As I stand back and look at it, it amazes me that a simple construct I created over two decades ago to simply articulate a feeling of disenchantment could be so serendipitously fruitful.

Mollica: *Any caveats to the theory?*

Danesi: Interpreting the research on the role of the brain pedagogically must always be done with a great deal of caution. This is so because learners have different learning styles (a preference for one or the other learning mode). A student with a dominant L-Mode learning style will gain very little from an abundant use of R-Mode techniques. Similarly, grammar-based instruction for students with an R-Mode learning style would probably prove equally futile. Finally, teachers should not expect to find a prescription in the notion of bimodality of how to teach a language methodically. Brain research is useful only in providing insights, not overarching methodological solutions. My hope has always been that my teacher colleagues will get some positive from it. That and that alone will have made all the work I have conducted on the bimodality construct worthwhile.

Mollica: *What techniques already available can be explained in*

bimodality terms or can be constructed bimodally?

Danesi: Actually, you yourself have been an unwitting pioneer in this area, with your work on puzzles and the commercial success you have had with your books of crossword puzzles. *[Editor's Note: See* Anthony Mollica, "Games and Language Activities for the Italian High School Classroom." *Foreign Language Annals,* 12, 5(October 1979): 347-354 and "Visual Puzzles in the Second-Language Classroom." *The Canadian Modern Language Review/La Revue canadienne des langues vivantes,* 37, 3 (March 1981): 583-628.] Puzzles span the spectrum of bimodality. Some are pure L-Mode ones, like crosswords; others, like visual puzzles, lean towards the R-Mode. And research on brain functioning is starting to show that we were right from the outset; namely that doing puzzles activates all areas of the brain.

Mollica: *I agree. Without knowing the theory, "unwittingly" – as you put it – I have used and use visual puzzles and word games, or "recreational linguistics", as I prefer to call them, to highlight language learning because students and I find them to be motivationally effective.*

Danesi: All visual techniques are highly effective, because they initiate the flow from the R-Mode to the L-Mode. The first systematic use of visual techniques in SLT can be traced back to Comenius' textbook, the *Orbis sensualium pictus (The Visible World in Pictures)* of 1648. Visual techniques are those that either:

- provide visual contexts to accompany the verbal input (as in cartoon strips with missing text), or else
- provide illustrative support for some explanation, exercise, activity, etc.

Audiovisual devices, such as videos, film strips, computer software of various kinds, can also be included in this category. The literature on the use of the latter is rather large and need not be discussed here. Suffice it to say, generally, that visual techniques not only support teaching, but also provide crucial R-Mode contextualization for learning.

Mollica: *Yes. Crossword puzzles, word searches, anagrams, interactive games, board games and so forth have become an intrinsic component of many second-language teaching approaches especially for the review and reinforcement of grammar, vocabulary, and communication skills. But what does the research show about these techniques?*

Danesi: Two clear facts have emerged from the literature on such techniques and from anecdotal evidence. First, they are supportive of language acquisition processes. Second, for such techniques to be effective, they must be designed with specific instructional/learning objectives in mind. A distinction between language teaching puzzles and language teaching games should be maintained for pedagogical purposes, as you and I have suggested in previous writing *[Editor's Note: See,* Marcel Danesi and Anthony Mollica "Games and Puzzles in the Second-Language Classroom: A Second Look," *Mosaic,* 2, 2, (Winter 1994, pp. 14-22)] since the former are problem-solving texts that require the individual learner to come up with a solution, while the latter involve group-based problem-solving activities.

Mollica: *What must the teacher keep in mind in preparing these activities?*

Danesi: Before selecting or preparing the specific LTPs or LTGs for classroom learning objectives, the teacher should always keep in mind that the preferences, learning styles, and backgrounds of the students must be taken into consideration. Most learners can handle LTPs that are cast in simplified form (e.g. elementary crosswords, word searches, etc.). But some have great difficulty in handling such LTPs as logic puzzles, rebuses, etc. Therefore, bearing in mind that LTPs and LTGs must be synchronized to the learners' abilities and level of competence, ludic techniques are useful for at least three reasons:

- Some language teaching puzzles promote L-Mode form-based language learning; others promote R-Mode conceptual learning. The former can be called form-based language teaching puzzles, the latter concept-based language teaching puzzless. Language teaching games promote R-Mode communication-based learning.
- Both language teaching puzzless and language teaching games can be easily constructed and keyed to specific and general instructional objectives. Once the learning task has been determined, the teacher can select or construct the appropriate language teaching puzzles or language teaching games to accomplish it.
- Language teaching puzzless and language teaching games should be used judiciously. They should never be used as "time-fillers." The learners should be made to understand that they are just

as much a part of the course as are other kinds of exercises, drills, activities, etc. The teacher should also keep in mind that the over-use of LTPs and LTGs is not desirable. To maintain interest, the teacher should always diversify the types of LTPs and LTGs used together with other kinds of techniques.

The number and diversity of uses form-based LTPs can have is limited only by the imagination and specific requirements of the teacher. Concept-based LTPs, on the other hand, focus the learner's attention on meaning, and are thus especially useful for promoting conceptual fluency. Riddles, logical deductions, simple math puzzles, and the like fall into this category.

If a pattern or task is determined to be novel, then the modal flow principle applies. This involves the use of R-Mode techniques during the initial orientation period. The more the student knows about the L2 less crucial is it to abide by the requirements of the modal flow principle, since enough L-Mode schemas are available to the learner to process the new input. The follow-up explanatory and practice stage is, of course, an L-Mode phase. Any structural, visual, or ludic technique can generally be used to meet the learning objectives of this stage. It depends on the nature of the course and the learning styles of the students. Allowing the students to apply the new pattern to creative role-playing constitutes the final "intermodal" phase. There is no evidence to suggest, incidentally, that role-playing techniques promote learning during orientation stages. They may, in fact, even be detrimental, leading to fossilized errors.

Mollica: *What is the most important aspect of "bimodality"?*

Danesi: The most important aspect is that a correlation between the linguistic, communicative, and conceptual systems must always be maintained. Needless to say, it would be just as foolish to claim that neuroscience provides the answers to solving the dilemma of how best to teach languages, as it is to claim that psychology and linguistics do. We will probably never be able to solve the dilemma with the theory-into-practice paradigm, because of the complex biological, social, emotional, and conceptual nature of the overall learning task. But we can certainly try.

Mollica: *Thank you.*

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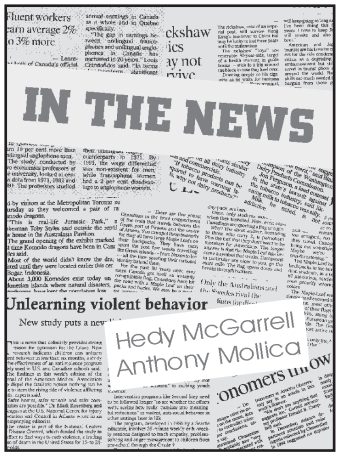

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Dino Miele

Technology and Second-Language Teaching

The article discusses the advantages and disadvantages of computer technology for second-language teaching and outlines a brief history of technology acquisition and language teaching methods used in the latter part of the 20th century.

> Good language teaching is good language teaching, with or without technology.
>
> Migliacci, 2002, p.1

Introduction

The above statement tends to summarize up how teachers viewed the use of technology in second-language acquisition (SLA) instruction in the last years of the twentieth century and the beginning of the twenty first century. In this paradigm shift many teachers moved from a behaviorist learning model emphasizing communicative to one that emphasizes communicative/conversational language, (Migliacci, 2002). As SLA in-struction evolved, refinements were made by emphasizing the use of language in authentic social contexts. The use of technologies paralleled these shifts. While the behaviorist focused on vocabulary acquisition, grammar drill and practice, those embracing the communicative/conversational model used technology to stress simulations, text reconstruction, voice recognition, online social communities, introduction of video and audio as well as other internet learning activities, (Migliacci, 2002). In the later model, students would learn to use technology tools as a part of the ongoing approach to language learning. Context-based, task-based, and project based approaches to language learning lead to a parallel integrative approach to technology use, (Warschauer, M., & Healey, D., 1998, pp.1-3).

Technology is a Broad Term

Technology is a broad term that properly includes such useful media as radio, sound card readers, overhead projectors, LCD projectors, Electronic Smart-Boards, CD/DVD players, Video Streaming and Television. The scope of this paper is confined to instructional integration of common classroom forms of video and computer technology which includes the Internet. Online and local computer based learning can be an effective tool in second-language acquisition because it can be streamed in a convenient way to provide accurate autonomous and understandable material to second-language learners. According to Brown (1998)

> We cannot ignore the fact that learners need access to abundant amounts of comprehensible input in order for [second language] acquisition to happen", (Brown, 2005, p. 34).

This can only happen with the incorporation of technological tools such as computers and language software which can facilitate foreign language learning. The technology can be used by students in conjunction with formal language studies or by learners who are not taking any second language classes. This blending of technology and language acquisition activities can be used as an integrated component of formal SLA classes or as a supplemental study resource within SLA courses. Internet tools are widely available for both native and non-native teachers who wish to improve their L2 skills and show their students how they can continue to develop second-language proficiency outside of classroom learning.

A Computer Can Connect to Hundreds of Languages

The wide variability of interesting and high-quality foreign language (FL), second language (SLA) text and audio on-line courses now available via the Internet provides an extremely valuable resource for all FL learners. Today, a computer anywhere in the world connected to the Internet allows access to materials in dozens if not hundreds of language learning modules or software packages. But these resources will have little impact on one's developing language proficiency unless they proper staff development is provided to our SLA instructors. This training will help instructors incorporate computers as an integral part of second-language acquisition and as well as empowering instructors to blend computer assisted instruction, knowledge and skills along with their tacit knowledge and ability to choose how, when, and to whom to apply such expertise. Computer-assisted software promotes student centered learning, which is widely believed to be important in SLA. Furthermore these technologies have the advantage of reducing learner anxiety by providing a non-judgmental, independent learning environment. According to Liaw (1997), SLA students using computer assisted software and online learning may develop improved attitudes toward the second language and its culture. Liaw states that teachers

should offer second-language learners a language rich environment in which students are constantly engaged in language based activities which include computer technologies. Using this approach, students will be able to interact with each other so that learning through communication can be facilitated by both face to face exchange as well as computer facilitated software. In such instances the computer can act as a tool to increase verbal exchange. Existing literature indicates that computer assisted language learning tends to provide an environment for

> natural, meaningful, and realistic language production and reception between and among native and non-native speakers of the target language (Leloup, Pontiero & Cortland, 2003, p. 2).

Furthermore, the authors reported a positive attitude toward computer language learning overall when engaged in technology assisted learning tasks. These learners engaged in conversational computer contact with others in various secure chat rooms, email and video conference settings. In these settings increased interaction occurred because writing becomes speaking which tends to produce more language than face to face discussions. In addition, the use of email and chat room discussion groups reduces anxiety and increases motivation and participation for many students. In particular, the students expressed a fondness for tasks that promoted social interaction between both native and non-native speakers. And the social interactions were not dominated by a small group of students which can often occur in regular classroom settings. Further research conducted by Cobillos, 1998; Gray & Stockwell, 1998; Liu et al., 2002; Warschauer & Healy, 1998) support the notion that technology promotes social interaction between native and non-native speakers. This is due to the reduction of social context clues and non verbal clues that tend to inhibit participation, (Cobillos, 1998; Gray & Stockwell, 1998; Liu et al., 2002; Warschauer & Healy, 1998).

Second-Language Acquisition and Technology

Second-language teachers have always seen the benefit of technology in language acquisition courses. They have always been ahead of the curve in integrating technology in classroom instruction and learning. Fifteen years ago Tracey Forrest who was on the English Department faculty of Baruch College, The City University of New York in 1993 stated that, "today's computer and video technologies hold a great deal of promise in supporting second- language learning and literacy development", (Wrigley, 1993, p. 318). The following testimonials are proof that Forrest's statement still holds true today.

- Students of Polish as a second language in California correspond by e-mail with counterparts in Krakow, Poland to plan a bilingual web site that they will be jointly producing on the Internet. The students work in international teams to plan, design, and edit the web site, which includes graphic and textual information about their two universities as well as a student-produced video, (Barson and Debski, 1996).
- Students in an advanced second language French class in Ohio watch French television news via satellite TV. Then they read French online news groups to follow how French students are discussing a proposed minimum wage reduction. This helps them to learn about current events and attitudes in France, as well as the precise cultural methods used by native French speakers for argu-mentation, influence, persua-sion and negotiation, (Scini-cariello, 1995).
- ESL writing students in Ontario use real-time computer-assisted conversation to gain additional writing practice in class. The written interaction fosters greater student participation and collaboration. (District School Board of Niagara, 2008).

The above examples are characteristic of what is occurring in language classrooms across the Province of Ontario. With the introduction of networked multimedia computing and the Internet, language teachers throughout the Province have introduced computers in the language and literacy classrooms. This is particularly true in higher education, where students and instructors have greater access to computer labs and Internet browsing than their K-12 counterparts. In addition, the above noted examples demonstrate that a profound shift is taking place in the way people communicate and express themselves. This shift is fueled by technology that is increasingly crafted for a global audience. Today's youths and adults have pervasive access to goods and services from every corner of the globe, access to networks and communication services that span the planet. This phenomenon is creating generational ties between youth that transcends borders and with it a new concept of language and what it means to be literate in the 21st century classroom of today. This evolving language erases the traditional notions of language and literacy that many teachers of the 20th century classroom are familiar with. Unlike the traditional notions of language and literacy, which are mostly "unimodal" and textual, this new form of communication and self expression occurs "multi-modally", (2004 Global Innovation Outlook, 2004). The multimodal form incorporates visual, audio and textual elements which provide an immediate gratification process for both educator and

learner. This immediacy allows for instant results for students and a quick assessment for the teacher on how the student is progressing with the dimensions of the new language. Such well conceived interactive tasks or activities using technology add to the quality of teaching and learning. This technology, which has done much throughout the ages to make the creation and dissemination of written communication a familiar everyday event, is no longer beginning to play an important role in SLA teaching, rather, it has become a must have tool in education. These technical tools that allow students to type, manipulate and create images, video and sound are more and more a commonplace in both schools and homes across Ontario. The native and non-native students of today are the most fluent in the new language forms created by technology. They know that the world around us is changing and becoming smaller. Communication and media are changing, and becoming more global. These youths are at the forefront of these changes, and in Canada and around the world, researchers; leaders and educators are realizing that that models of education that do not use technology to aid in SLA are reducing the impact of the technology medium for students, (Brown, 1996). In a diverse country as ours, United States, Australia, Japan, the United Kingdom, and all across Europe, attention is slowly turning to taking advantage of the new skills and abilities common to today's youths and maximizing their potential to second language acquisition by blending present teaching strategies with technology.

Brief History of Technology and Language Teaching

Virtually every kind of language teaching, ESL, FSL, SLA, FL and so on, has had its own technologies to support it. One of the most ubiquitous technology relied upon by teachers who followed the grammar-translation method in Canada was the blackboard. It was the perfect vehicle for one way transmission of instruction and learning. The blackboard was later replaced with overhead and slide projectors. They were another excellent medium for the teacher one-way teaching in the classroom. In time, the audio-tape became a sought after medium for the audio-lingual method (in which students were believed to learn best through constant repetition in the non-native language). University language classes in the 1970s, '80s tended to include mandatory trips to the audio lab, where students would perform the dreaded repetition of drills, (Warschauer & Meskill, 2000). By the late '70s this method fell into disuse, at least in part due to poor results achieved from expensive language laboratories in both secondary and post secondary education. Sandholtz, J. H., Ringstaff, C., and Dwyer, D. C. (1997), stated that, whether in the language lab or in the classroom, repetitive drills which focused only on language form and ignored communicative meaning led to poor results. Then in the early 1990s a shift began to occur in the language labs and the classroom. The legacy technology of blackboard, overhead and audio-tape was being replaced by the computer. At first the computer and the associated language programs (typing tutor, word processors and SLA, helped the teacher to provide what were known as "drill-and-practice" or, more negatively "drill-and-kill" exercises. In many cases, they were also used for authentic interaction between student, teacher and computer based learning. Lastly, the greatest enhancement occurred with the advent of the World Wide Web and the Internet. This medium enhanced the advantages of using technologies in language education and created the conditions for change in a postindustrial society. Because of this language educators seek not only to teach students the rules of grammar, but rather to help them gain apprenticeship into new discussion communities online. They accomplish this by creating opportunities for authentic and meaningful interaction both within and outside the walls of the classroom using the Internet. With the Internet, teachers provide students with the tools for their own social, cultural, and linguistic exploration. The computer and the Internet have become a powerful tool for this process, as international cross-cultural discourse between native and non-native students takes place on a regular basis in online environments, these technologies help prepare students for the kinds of international cross-cultural communication which are increasingly required for success in 21st century business, academic, vocational, and personal life.

Brief Summary of Technology Results

This recent enthusiasm of using technology in second-language teaching witnessed, for example, by the large numbers of presentations at national conferences as well as the growing number of computer based second-language teaching software tends to bring a sense of déj vu. Three decades ago, many language programs were also enchanted by promises of magic through technology. During those decades the technology consisted of a classroom equipped with audio-based language labs. Audio tapes, video tapes along with audio headsets allowed students to listen and repeat phrases presented by the technology. According to Meskill, The promise of such labs brought disappointing results (and, indeed, it is the audio-based labs which have been replaced by computer labs in today's schools), (Meskill, 1987). Many of today's English as Second-

Language (ESL) teachers are experiencing the same issues as their predecessors. They found that computer based software designed for ESL and SLA very disappointing; they still see the need to help their students' access and use computers. They found that when they emphasized using computers to teach ESL, the kind of literacy taught by the software was weak in both technical and language literacy activities. Therefore, in order for SLA technology not become an illusion in the 21st century classroom, it is worthwhile to examine through a brief outline the potential advantages and disadvantages that teachers may encounter when introducing new technologies for language teaching. The advantage of introducing technology in SLA labs is that it has become inexpensive and ubiquitous. The disadvantages are three: Budget (investment of money), Time (investment of time), ineand uncertainty of results.

Advantages

Educators (Jonassen, 1996; Salaberry, 1999; Rost 2002) indicated that technology has many advantages for second language learners as well as more independence from the classrooms. It empowers learners the option to work on their learning material at any time of day or night. New communications technologies are part of the broader ecology of life in this new century. Much of our reading, writing, and communicating is migrating from other media (print, telephone, etc.) to the computer screen. Under such circumstances, we can no longer think only about how we use technologies to teach language. We must also think about what types of language students need to learn in order to communicate effectively via computer. Whereas a generation ago, many SLA teachers taught foreign-language students to write essays and read magazine articles the now must incorporate into their teaching unit how to teach these students to write e-mail messages and conduct research on the Web in the language being acquired. This realization has sparked an approach which emphasizes the importance of new information technologies as a legitimate medium of communication in their own right rather than simply as teaching tools. The advantages of using new technologies in the language classroom can be interpreted through the changing goals of language education and the changing conditions in the postindustrial society of the 21st century student. Research tends to show that today's language educator seeks not only to teach students the rules of grammar, but rather to help them gain apprenticeship into new online discourse communities. This is accomplished through creating opportunities for authentic and meaningful interaction both within and outside the classroom, and providing students the tools for their own social, cultural, and linguistic exploration through computers, personal mobile devices, video conferencing, video streaming and webcasts. Technology can be considered a powerful tool for this process, as international cross-cultural conversation is normally taking place in an online environment by student's world wide. Therefore, the main advantage of these technologies is that they can be used to help prepare SLA students for the kinds of international cross-cultural communication which are increasingly required for success in academic, business, vocational, or personal life, (Wrigley, 1993).

Disadvantages Financial (Investment of Money)

There are challenges in introducing technology into SLA for teachers. Whatever results may be achieved over the long term with technology one must realize that there are specific startup expenses related to implementing technologies into the teaching and learning units for SLA. It should be noted that presently there are decreasing enrollments in School Boards and University enrollments throughout the province of Ontario. The decreasing enrollments present challenges to administrators, educators and professors who wish to introduce technologies into SLA. Decreasing enrollments equate to decreasing budgets. Therefore, there are limited funds and competition is high for the purchase of technology by many other departments in the educational environment. For Secondary Schools and University language programs, the expenses usually entail hardware, software, staffing, and training for at least one networked computer lab where students can drop in and use assigned software and one or more networked computer labs where teachers can bring whole classes on an occasional or regular basis. Furthermore, there are considerations for wireless mobility and access points and software needed to collaborate in a wireless environment. To date my experience has shown that introducing new technologies usually involves allocating a budget where one-third is used for hardware, one-third for staff development and support, one-sixth for software, and the remainder for maintenance and upgrade costs of software and hardware. In many budget strapped school boards or Universities it is often the case that the language programs the computer hardware via a one-time grant (or through hand-me-downs from computer-science departments or business labs in school or on campus), in such cases, the costs go into upgrades and electrical and furniture placement and there is little funding left for staff development, maintenance, or software.

Knowledge (Investment of Time)

When technology is mentioned to improve efficiency and effectiveness, the first reaction that enters ones mind is hat technologies may save money over the long term and above all they also save time. But, these potential long-term benefits to an institution are little consolation to the individual teacher who is spending enormous amounts of time learning constantly-changing software programs and trying to figure out the best way to use them in their classroom. In fact, many teachers and professors will encounter increases in time due in part to the lack of staff development funds and the difficulty of using and incorporating new local and online multimedia technologies, software and peripherals in their existing teaching units. The lack of training creates time restraints not only on learning how to use the new technology, but also from the changing classroom dynamics that occur with real-time online classrooms, (Zuboff, 1998). Technology can create excellent opportunities for long-distance exchanges for SLA students, but such connections can be extremely complicated in terms of coordinating goals, scheduling, and planning, especially when involving teachers from different countries or educational systems. Also, there is a serious limitation in the argument stated earlier that the benefits of electronic communication can provide opportunities for student-initiated communication without anxiety and stress. The weakness is that it can also turn into a time-challenge for the educator, as a their e-mail box, social web site and chat rooms become flooded with messages from previously reserved students expecting instant gratification to their conversations.

Uncertainty of Results

There is no single predictable outcome for using computers, anymore than there is for using books or libraries when assessing student achievement. Thus schools and university language teachers are expected to invest large amounts of time and money in new technology integrations without any guarantee of achieving particular results. Research in both the business sphere (e.g., Kling & Zmuidzinas, 1994; Zuboff, 1988) and in education (e.g, Sandholtz, Ringstaff, & Dwyer, 1997; Warschauer, 2000) indicates that simply bringing new technology into a school board or university does little to bring about the kinds of social transformation needed to make effective and efficient use of those machines. Unfortunately, in many educational institutes, there is a natural predisposition to use new technologies in ways consistent with previous methods of organization and practice, what has come to be known as "twthabd", the way things have always been done. This can often result in inefficient and de-motivating uses of computers, in which students see their interpersonal connections and personal power reduced (for example, through highly automated uses of technology such as computer-based drills) rather than increased, (Meskill, 1997).

Summary

New computer software, hardware and online technologies match well with newer approaches to second language teaching. With this approach students are viewed not as blank slates to be written on or empty vessels to be filled but rather as active and engaged partners in their own learning process. However, even in situations where teachers may already believe in the above perspective, teaching in an online environment can challenge intact epistemologies and practice in SLA and ESL methodologies. The new multimedia software, audio technologies and online world represent new challenges, and learning how to integrate these new technologies into the classroom will likely be as long and complicated a process as occurred in the business world of the 20th century. Moreover the lack of dependable funding for equipment and support will add to the difficulty of introducing new technology in SLA education. Integrating new technologies should be an important goal of language programs, but a goal of which the cost and complexity should not be underestimated. The most effective technology-enhanced language programs take may take years to develop, and will be based on a lot of trial and error, administrative support for teacher experimentation and collaboration will be crucial, and sustained, careful attention must be given to the forms of social organization and pedagogy which accompany the use of new technology.

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Mosaic Forms Partnership with the Department of Language Studies, University of Toronto Mississauga

We are pleased to announce that **Mosaic.** *The Journal for Language Teachers* has entered into partnership with the Department of Language Studies, University of Toronto Mississauga. This means that **Mosaic** will be published jointly by the Department of Language Studies and éditions Soleil publishing inc. This partnership allows us to bring another editor, Prof. **Mihaela Pirvulescu** and additional members to the Editorial Board: **Geoff Lawrence,** Ontario Institute for Studies in Education, **Katherine Rehner,** University of Toronto Mississauga, and **Maureen Smith,** Faculty of Education, University of Western Ontario. Other members will be added in the near future. Founder-editor Anthony Mollica stressed that "By appointing Prof. Pirvulescu as an Editor and new members to the Board, **Mosaic** will become stronger both in its content and will widen its readership. These colleagues bring in fresh ideas in both theory and practice."

Mihaela Pirvulescu

Mollica also pointed out that the current Volume of **Mosaic** begins a series of "interviews" with an internationally known scholar to speak about his/her theories on language teaching and learning. Following each interview, a bibliography on that topic is published to facilitate research for readers wishing to pursue that topic more in depth.

Charles Elkabas, David Trott and Russon Wooldridge

For a Cybernautical Approach to French Language Learning

Information and communication technologies oblige us to rethink our approach to teaching in the context of the new "classroom".

1. Introduction

The current technological explosion is radically transforming our way of conceiving the transmission of knowledge, and offers ever-improving new and revolutionary teaching tools. Whereas in the past methodologists, elaborators and publishers of teaching materials worked separately to later present their finished products to teachers, we are at present witnessing a proliferation of teaching materials available to all on line, as well as a dialogue between the different creators of these same materials. The teaching and learning of French is now placed in a wider, multi-level context, that of the elaboration of a scientific discourse, of an evolving methodology, of the application of a theoretical model to practical learning situations. These so-called revolutionary tools should, in our opinion, spring from a new symbiosis between the creators of teaching and learning materials and the experts of information and communication technologies (ICT).

2. Theorizing and Elaboration of a Scientific Discourse

2.1 Accompaniment

What path is the French teacher to follow in the ICT age? Under the combined impact of enhanced independent learning, the increase of non-conventional learning methods and the advent of virtual communication, the teaching function has these past few years undergone a profound recasting, or even redefinition. From being the omnipotent master and dispenser of knowledge, the teacher has little by little been divested of this power to become first a knowledge manager, then a guide in a multi-facetted learning space.

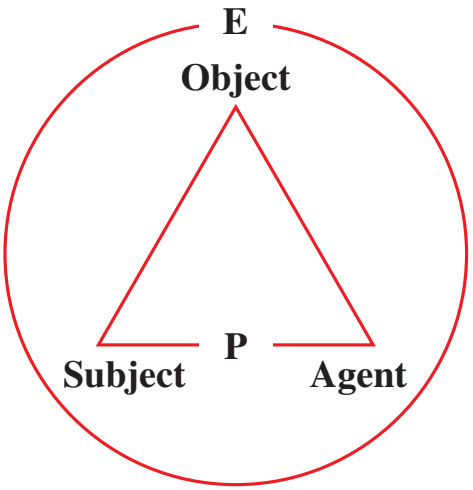
The teacher of today has the principal obligation to become a Prothean character able to intervene in a variety of individual or group teaching and learning contexts. The modern equivalent of the Greek paedagogue, or boy's tutor, is the by turns visible and discreet pedagogical guide.

2.2. Reconfiguration of the Teaching-Learning Triangle in the Cybernautical Approach

The last three decades have seen the appearance of a tendency to question the teaching role and to rethink the relation between teacher and pupil in a rapidly changing "classroom". Indeed, flexible methods and approaches such as the *Communicative Approach, Community Language Learning* or *Suggestopedia* have had the primary goal of distancing themselves as far as possible from the dogmatism of the *Audio-Lingual Method,* and rejecting all use of a rigid, monolithic manual. The revolutionary effect of these modern practices has been to start a move towards the autonomization of the learner, and subsequently to set off a reconfiguration of the respective roles of the learner, who has gradually become a Subject, and the teacher, who has become an Agent serving the former.

In the *Cybernautical Approach,* which is described later on in this article, the personal autonomy of the learner resides in an encouragement to interact, and presents adepts of ICT-assisted language learning with the problem of engaging in a dialogue in which the part of the Agent is difficult to define. How is this approach to foster the search for, or discovery of, knowledge? Should the teacher-guide actively intervene in the process, or on the contrary is this role, now shared with ICT, henceforth one of waiting for requests for help or explanation? How is the teacher to find an efficacious and fruitful balance (in terms of the aims of language teaching and learning) between interventionism and a wait-and-see policy? The solution lies, in our opinion, in a broader understanding of the learner's discoveries, whose *narrativization* by the teacher resembles more closely an improvized scenario than the premeditated writing of a closed, fixed text.

In order to give a schematic representation of the factors involved, we shall refer to Legendre's learning model (Germain 1993) revised in the enlarged context of ICT (see Elkabas, Trott and Wooldridge 1998, 1999) in which "P" represents the teaching-learning process in the circular space or environment "E", which in effect



encompasses and determines it. The relation between the processes situated at the triangle's poles offers an effective tool for the formulation of the proposed *Cybernautical Approach*.

Sharing the "Agent" function with a technology capable of replacing the human agent in certain tasks, the teacher must put in place various forms of "cohabitation". As well, this cohabitation must conform not only to new interpersonal precepts, but also in terms of the circular space "E", which is not that of the separate compartments of the past. Today's teacher needs new knowledge and new perspectives, as much conceptual and theoretical as epistemological and technical.

3. Methodology

The *Cybernautical Approach* involves the use of ICT in language teaching and learning. The term *cybernautical* (a composite of *cybernetic* and *nautical*) suggests itself for two reasons: on the one hand, language teaching and learning depends on communication mechanisms in both people and machines and, on the other hand, this type of teaching-learning engages its participants in navigating communication networks.

Since the *Cybernautical Approach* is not a method, it needs neither a single, recognized manual nor a series lockstep stages to be followed in the classroom. It does, however, possess three distinctive features:

a) learner-centred teaching in real and virtual space;

b) a reconfiguration of this space;

c) the use of a constantly renewable, and renewed, extensible manual.

In the *Cybernautical Approach* the teacher must at all times keep the learner in view; accompany the latter in all learning spaces; and be able constantly to adapt the learning path according to changing, individual needs. The emerging scenario has in a way to capture the stages of an interactive improvisation such as takes place in *Commedia dell'Arte:*

> the process of improvisation must determine the textually appropriate response of [a character's] interlocutor, which is then to be regarded as another stimulus, itself awaiting a response in the evolving script. (Pietropaolo 1989).

3.1. Learner-Centred Teaching

Both supporters and opponents of computer-assisted learning are agreed that there is an abyss between traditional learning (in the classroom) and "virtual" learning (in the lab). Until the fusion of the two is complete, there is always the danger of a rupture between the two types of space. Desmarais *et al.* (1998) sense this in their study, and to counter this tendency take care to emphasize in the learner the ability to personalize learning and the capacity for self-motivation.

ICT-assisted language learning, as we understand it, cannot be reduced simply to putting learners in rooms equipped with multimedia workstations and letting them get on with independent learning tasks. Neither is it a modern version of traditional distance teaching. Information and communication technologies facilitate autonomous learning, but in no way do they lead to the total autonomy of the learner, at least not in the immediate future.

Solitary learning has its limits. Those who commend it as a means of replacing traditional teaching seriously underestimate the no less crucial contribution of human and social elements; those who reject it do not acknowledge the significance of the immediacy and proximity of the linguistic and cultural information provided by media new and old.

Information and communication technologies can potentially minimize the physical constraints of time and space by allowing flexibility of learning spaces, particularly whole-group learning (classroom, lab), special-interest subgroup collaborative learning (online forums), dialogue learning between teacher and learner (distance email or face-to-face «office hours»), and, above all, independent learning (library, lab, home, café, public transport, etc.) The sum of these learning spaces is articulated by the course Web site (see *infra,* 4.3).

3.2. Learning Environment

The audio-oral labs of the 1960s, 1970s and 1980s were at first loudly trumpeted, then marginalized in the great majority of universities and colleges. Although language departments strongly recommended that their students go to the lab, few teachers accompanied them. Teachers and students were adhering to a perceived traditional division between teaching in the classroom and learning in the lab, the latter considered less important. It is then not surprising that language labs gradually fell into disuse.

The danger of a repetition of this process is even greater today. We should however note that courses that lend themselves to an ICT-assisted use of teaching-learning spaces have the means to abolish the traditional classroom-lab dichotomy. The *Cybernautical Approach* which we propose is based on interaction, or indeed the fusion of what others think of in terms of irreconcilable poles.

The advent of ICT has incurred, in the domain of the institutionalized learning of second or foreign languages (as also in other fields), the abolition of the «teaching/learning» bipolarity in favour of the unipolarity of «learning», one of whose components is teaching. In other words, institutionalized

language acquisition is no longer considered as taking place in the classroom, but in a multiplicity of learning spaces, the classroom being only one among others. By the same token, gone also it the dichotomy between classroom and language lab, all spaces now being «laboratories».

The teacher has always had to struggle with the physical constraints of time and space, constraints that have become ever heavier since the end of a continually expanding society (beginning of the 1970s). With the simultaneous demise of the «full-time student», to the physical constraints of teaching spaces were added an increasingly reduced flexibility of timetable programming. The number and disposition of seats in a physical teaching space (classroom or lab) depends on historical factors, of which we need only mention the general university model of the transmission of knowledge in a lecture room or hall (monologue), whereas language learning, largely a social phenomenon, requires a meeting, or «round-table», room (dialogue).

4. Application

4.1. Impact and Use of ICT

With ITC the teacher is inevitably obliged to become a guide in order to be able to accompany, directly or indirectly, the learner from one learning space to another. As has already been emphasized (see *supra,* 3.2) the impact of ICT is strongly felt in the teaching-learning relationship. But it is particularly in the learning process (movement between Subject and Object) that the greatest changes will probably take place.

We already know that model-based theories (ascendant, descendant, interactive) of the reading process help little in understanding the reading process that takes place in a multimedia environment, in which sound, image and text present multiple challenges to the beginning reader (Chun and Plass 1997).

Whereas writing was before limited to compositions written «for the teacher», writing in a multimedia environment becomes a motivated act, contextualized and even experimental. (See a model of published student work on the Web site of R. Wooldridge) The ability to electronically connect individual correspondents or whole classes radically changes our way of getting students to write (Besnard, Elkabas and Rosienski 1996, 1998).

Listening practice was traditionally carried out through sound recordings or video-clips prepared beforehand by the teacher. In a multimedia environment involving several communications channels listening requires a variety of models: a) text, sound and image (national or international news, for example); b) sound and image without accompanying text (films, plays, advertisements); c) drawings or graphics with sound track (weather forecast); d) text and sound (musical sites).

4.2. Extensible Manual

The exclusion of the traditional textbook from the learning process is without doubt the most striking feature of the *Cybernautical Approach,* and the absence of a «book» is likely to disorientate theorists and practitioners alike. This option is not however new (see Freinet 1968, Curran 1972, Lozanov 1978). Not so long ago Spinelli (2000) adopted essentially the same stance when she relegated the printed manual to a secondary role: «Because of access to the world wide web and the authentic materials it provides, the role of the textbook will shift from being the driver of the curriculum to that of a resource material.»

The French manual, as the following table shows, is undergoing radical changes because of the Internet, caught up as it is in the overall democratization of knowledge. See Table 1.

Today's manual is a product of the art of interactive improvisation: it results from a series of interactions between repertoires (materials, individual needs, tools, typical reactions, possible solutions, etc.) that the teacher tries to match up and combine on the spot.

4.3. Online «Cybernautical Manual» and Course Web Site

We consider the organization of the course site (course site and section sites in the case of multi-section courses), the place where the «cybernautical manual» is located, to be one of the most determining elements in the success of the course. Trott & Wooldridge (2002, 2005) examine the course FSL 161 taught at the University of Toronto. We shall take this course as a model.

FSL 161 (Practical French), as taught in the first few years of the 2000s, represents a first attempt to effect certain changes leading to the cybernautical French manual. It offers an array of «texts», a hypertextual learning approach, an «open» content, a «spiral» presentation, a «living» interaction with the language, a model of learning through action, work based on current affairs, and evaluation that includes research dossiers and collaborative work.

Starting from a printed manual, the course opens out its horizons by means of its Web site, which thus enriches and updates the printed book, corrects its content and relativizes it through the multiplicity of perspectives offered. A given lesson from the book, first dealt with in class according to the timetable indicated in the syllabus to be found on the course homepage or on individual section sites, is augmented by links to Web documents, with informative de-

The French Manual Yesterday and Today

Unique: prefabricated texts or selected passages determine the subject of study (dialogues, so-called «authentic» texts follow or precede grammar lessons)	**Multi-choice:** selected subject determines the choice of texts (teacher and student search for online documents – grammar, sound clips, images, etc.)
Didactic Process: behaviourist or communicative	**Didactic Process**: hypertextual
Content: immutable, limited and static	**Content**: open book, infinite and dynamic
Presentation: linear and predetermined	**Presentation**: hypertextual and spiral learning; determined according to learner's needs
Conception of Language: fixed image and atomization of the language	**Conception of Language**: multi-facetted, living language
Function of Agent: knowledge dispenser and manager; controller of didactic process	**Function of Agent**: guide (learners seek and analyse information in the accomplishment of authentic tasks; John Dewey's «Learning by Doing»)
Practical Work: illustration of concepts presented in the manual	**Practical Work**: solving of current real-world problems
Evaluation: based on examples drawn from the manual	**Evaluation**: based on research dossiers and co-operative and collaborative work

Table 1

Table adapted from J. Mansfield & L. Echternacht, «Basic Business and Personal Finance», in *Integrating the Internet into the Business Curriculum* (ed. Dennis Labonty),Reston, VA: National Business Education Association, 1998, p. 47.

scriptions and activities proposed on the *Thèmes* pages. These last give course instructors a wide variety of options from which each instructor can select what meets the particular requirements of their group of learners. The themes treated in the manual and in Web documents relate to everyday experiences such as food, personal appearance, domestic chores, nature and the environment, world affairs, shopping and services, travel, health, the city, friends and family, school and work. The *Ressources* pages make it possible to answer the individual needs of a given student.

The language is presented «in situation», through readings dealing with current events, listening activities covering an inexhaustible range of subjects (songs, interviews, current affairs, radio and television programmes, sound tracks from currently playing films, etc. – some of these contained in or linked from the *Ressources* pages of the course site). In order to authenticate them as much as possible, these learning activities are set in situation: the students are, for example, invited to gather information on current postal rates in Morocco, to plan a «real-life» travel itinerary through the online consultation of air company and railway rates and timetables.

Help is given learners to improve their writing skills (reviews, reports, syntheses, etc.) by the provision of desktop tools comprising links to search engines, online dictionaries, an emailer and technical assistance. The written language, for long neglected in favour of oral production (especially since the advent of the *Communicative Approach*), regains a place of honour in the *Cybernautical Approach* since it is at the very heart of exchanges between students or between learner and teacher.

This is perhaps a good place to emphasize the dynamic nature of the *Cybernautical Approach*. The World Wide Web itself is dynamic and preponderantly reflects current language usage, as well as current events and concerns. The tools themselves may change to reflect this. Thus, the two dictionaries – *Encyclopédie Voilà avec Hachette* and *Dictionnaire universel francophone en ligne* – included in the desktop tools in the early 2000s are no longer available online, whereas there have since appeared the *Wikipédia* and the *Wiktionnaire (Wikipedia* and *Wiktionary* for the English language), both dynamic since they are run through interactive wikis and are therefore better able to keep up with current usage.

One example. The Quebec singer Richard Desjardins tells the adolescent Caroline in his eponymous song that she is grown up now and should think about leaving home; he tells her to take her dress and her favourite jewel and to say good-bye to her «doudou» («Prends ta robe et ton bijou, / Dis

bye bye à ta doudou»). According to traditional dictionaries such as *Le Petit Robert, Le Trésor de la langue française, L'Encyclopédie Voilà* or *Le Dictionnaire universel francophone, doudou* is an affectionate term used in the Caribbean to refer to a woman. *Le Wiktionnaire* gives the correct contextual meaning of the word, that of tens of thousands of Web documents and of its use in French-speaking families on several continents, by saying that it refers to the object (stuffed animal, blanket, etc.) chosen by a baby or toddler as a personal comforter and source of security («Objet procurant un réconfort psychologique à un petit enfant (généralement une couverture ou une peluche)»).

4.4. Role of the Teacher

The teacher is a guide who provides learners with objectives and the steps to achieve them while at the same time creating favourable conditions for each learner to work in. The teacher-guide encourages the learner to adopt a personal approach of discovery based on spiral learning (revision and consolidation of recently learned elements preceding the introduction of new ones) rather than linear. He/She teaches how to learn: the learner must be able to use the resources of the class site, such as the syllabus, help files, grammar aids, grammar checkers, email or the course forum/chat intended for outside-of-class exchanges.

Whereas the learner selects those steps best suited to achieving his or her goals, the teacher accompanies and guides the learner at each step. The teacher pays attention to both learners' speech and their affects, takes into account their reactions, and does not hesitate to elicit comments after each activity. To this end we underline the importance of the «safety-valve» function of the course site forum or chat, which helps to reduce anxiety on the part of the learner, and allows the creation of spontaneous contacts between learners or between learner and teacher. This takes teaching away from one centred on the teacher and towards one based on the learner, which has the effect of encouraging individual development.

Teaching takes place in two types of space: a physical space, the essential pivot of the classroom where learners work individually or as a group directed by the teacher; and a virtual space, which while maintaining the teacher's support and availability allows the learner to explore the didactic and real-life resources of the Web.

It is thus the teacher's task to find within these two spaces a balance between technology-assisted autonomous learning and traditional teaching.

4.5. Development of Language Skills: a Few Indicators

Information and communication technologies are now part of the daily practice of language teaching. However, as far as we know, there is as yet no typological inventory showing the wide range of ICT practices. Such an inventory will be one of the resources from which the teacher-orchestrator (see *infra*, 5) will draw the constructional elements of the narrativized history derived from the observed needs of the learner. To this end we have judged it useful to propose our own model of responses to two types of need: the needs of the teacher, as a guide in the development of the learner's language skills; and those of the didactician, to help with the determination of fields of research.

As a starting point, we use the model proposed by Haughey & Anderson (1998), in which technology is used in the general context of networked learning. Although the authors do not address the question of language teaching-learning, their model, based on «Internet learning», nevertheless offers fruitful directions for the language class. Each of the five approaches that are distinguished in the model is developed here from the standpoint of the needs of language learners:

a. Internet Resource based learning.
b. Intercultural activities.
c. Wide-area data collection and research.
d. Ask an expert: World wide mentoring.
e. Computer Assisted Learning.

Beginning French students can obviously not work in the context of categories a-e as they possess neither communication skills in the target language nor the advanced skills necessary to undertake research on the Internet. At this stage even if today they have multiple talents in the use of current technologies, language learners are entirely dependent on the teacher to guide their first steps. We therefore propose a progressive, systematic approach.

- The beginning student will benefit from a principally CALL-based (computer-assisted language learning) programme. The nucleus of this programme will comprise tutorials and simulation exercises, which can be found on line. Only later in the year will the learner gradually include the Internet for language acquisition.
- The elementary student can continue to profit from CALL, and will be able to work independently on points of grammar using resources on the course site. The Internet will be important for intercultural activities, which can be introduced at this level. Email correspondence between students at different institutions is highly recommended.
- For the intermediate-level student, language practice can be

done through directed work. For written projects or email correspondence, writing help can be obtained through online programmes.

- The advanced student will work more on authentic online documents, and will be better equipped to take part in exchanges of opinion (videoconferencing, email exchanges, electronic publication of individual and collective work), as well as embarking on virtual cultural excursions.

From the point of view of language skills, ICT can satisfactorily answer reading, listening and most writing needs; oral production can never be satisfactory in a pedagogical environment, classroom simulations always being no more than a pale reflection of the natural milieu of spoken language.

(More detailed examples of suggestions for work on the four language skills are given in the Appendix.)

5. The Teacher is also an Orchestrator

The extent of the impact of ICT on the transmission of kwowledge has not yet been fully explored and is hard to measure. However these technologies oblige us to rethink our approach to teaching in the context of the new «classroom». Since they make use of several channels of communication (sound, image, text) they have a privileged position, capable as they are of creating the essential conditions of all learning processes, in particular language learning: catering for different styles of learning (Felder & Henriques 1995, Oxford 1990) and of different modes of apprehension (Gardner 1983).

Will the *Cybernautical Approach* become the common form of second-language teaching and learning? We are convinced it will. On the one hand the technological revolution is inescapably leading us in this direction; and on the other hand the third-millennium student, obliged by material constraints (increasing cost of higher education, necessity of earning a living to pay for it, whence the difficulty sometimes to be in a given place, the classroom, at a given time, the course time slot) to assume a certain degree of learning autonomy, has to learn how to navigate like the Argonauts of mythology. The learner has however the advantage over these ancient heroes of being able to face the trials of adventure with the help of a special-purpose map.

The teacher is the one to «improvise» – in the sense, that to be found in jazz, of putting together a sign-posted, interactive composition – the text of the teaching score, unlike each learner whose part is unique but if necessary rewritable at any time by the teacher. The *Cybernautical Approach* aims through the experimentation and research it advocates to bring about a new way of systematizing resources for the acquisition of French as a second language.

Appendix

Compréhension écrite : Niveaux I et II

Objet d'étude : Météo, recettes de cuisine, plans de métro, horaires de train et de vols d'avion, agences de voyage, catalogues de vente, petites annonces, textes culturels (fêtes nationales et religieuses), horoscopes, sondages, etc.

Démarche : Rechercher des informations ponctuelles et pratiques, établir des parcours et énumérer les étapes, vérifier, confirmer ou infirmer un énoncé, repérer des faits, classer et associer des motifs, dresser des tableaux, souligner des éléments, etc.

Compréhension écrite : Niveaux III et IV

Objet d'étude : Consulter des sites consacrés aux voyages, à la gastronomie, et à l'humour, examiner des documents établis par les organismes gouvernementaux, culturels, artistiques, lire des biographies-clips de chanteurs et acteurs, des critiques de films, consulter des organigrammes, passer en revue des communiqués de presse, etc.

Démarche : Obtenir des informations sur un thème, reconnaître différents types de textes (narratif, informatif, ludique, etc.), formuler des hypothèses, proposer des résumés, etc. Plusieurs journaux, bibliothèques et musées proposent des sites pédagogiques. Les bases de données interactives permettent la découverte des différentes utilisations de la langue en contexte (cf. *Le Chien jaune* de G. Simenon: Elkabas et Wooldridge, 1996).

Production écrite : Niveaux I et II

Objet d'étude : Exploiter les exerciseurs et les tutoriels, consulter les grammaires interactives, faire les exercices auto-correctifs proposés par les nombreux établissements scolaires et universitaires, jouer aux mots croisés, etc.

Démarche : Établir un glossaire spécialisé, reconstituer des textes, répondre à des questionnaires, rédiger des cartes postales électroniques ou de simples demandes de renseignements, réserver des billets ou passer une commande, etc.

Production écrite : Niveaux III et IV

Objet d'étude : Examiner la langue des différentes publicités, du protocole épistolaire et celle des groupes de discussion, lire des critiques de films et de pièces de théâtre, les bulletins de nouvelles, consulter des documents, exploiter oralement d'abord les banques d'images, examiner les «générateurs d'histoires» et étudier, par exemple, le style des histoires policières, etc.

Démarche : Reconstruire des informations, prendre des notes, faire des résumés, interpréter des images, rédiger des cartes de vœux électroniques, participer à un « salon de discussion », rédiger des publicités, rédiger un journal scolaire en collaboration, créer une histoire policière interactive, écrire une histoire à partir d'une banque d'images, établir des échanges électroniques – entre apprenants, entre apprenant et enseignant, entre apprenants de deux instituts, organiser des rencontres virtuelles et des activités de mentorat, etc.

Compréhension orale : Niveau I et II

Objet d'étude : Exercices d'écoute dirigés ou libres (musique, nouvelles,

sports), dictées interactives, etc,

Démarche : Confirmer ou infirmer une information ; rapporter des informations oralement ou par écrit.

Compréhension orale : Niveaux III et IV

Objet d'étude : Écouter des documents sonores (archives en ligne, médias), etc.

Démarche : Rechercher des informations ponctuelles et pratiques, vérifier et comparer des énoncés, donner des exemples de variantes régionales, etc.

Production orale : Niveau I et II

Objet d'étude : Faire des exercices d'orthoépie, lire des petits poèmes en prose, écouter des chansons, etc.

Démarche : Pratiquer le visualiseur et synthétiseur de parole (*Winpitch*), etc.

Production orale : Niveaux III et IV

Objet d'étude : Écouter les bulletins de nouvelles, des interviews d'artistes ou d'hommes politiques, des enregistrements de reporters, etc.

Démarche : Pratiquer intensivement l'auto-correction par le biais d'un visualiseur de mélodie, participer à des forums (*ICQ*) en environnement restreint (cours, réseau interne) ou élargi, etc.

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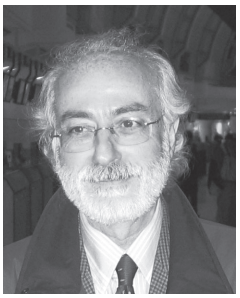
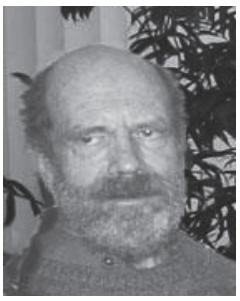


David Trott was a professor of French literature and language at the University of Toronto Mississauga. He is the author of *Théâtre du XVIIIe siècle: jeux, écritures, regards* (Montpellier: Éditions Espaces 34, 2000) and several articles on 18th-century French theatre.

Russon Wooldridge is a professor emeritus of French at the University of Toronto. He is the author of *Les Débuts de la lexicographie française* (Toronto: University of Toronto Press, 1977), *Le Grand Dictionaire françois-latin (1593-1628): histoire, types et méthodes* (Toronto: Éditions Paratexte, 1992) and articles on French lexicography and the teaching/learning of French using new technologies.



Jouons avec les mots

Anthony Mollica
Email: mosaic@soleilpublishing.com

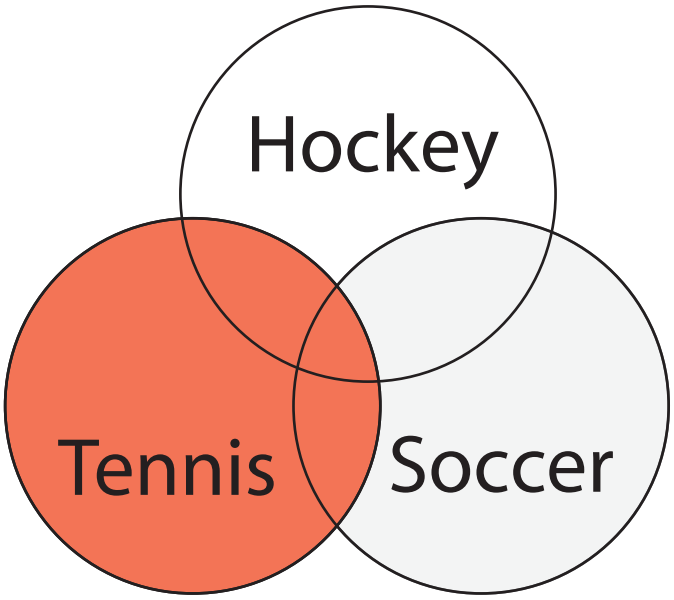
Les trois sports

Je suis professeur d'éducation physique. Dans ma classe il y a 30 étudiants qui veulent s'inscrire à trois sports différents (hockey, soccer, tennis).

Je sais que...

1. 24 se sont inscrits pour jouer au hockey.
2. 18 se sont inscrits pour jouer au tennis.
3. 10 ont décidé de jouer au soccer.
4. Personne ne s'est inscrit aux trois sports à la fois.
5. 4 joueurs veulent jouer au tennis et au soccer.
6. 4 joueurs veulent jouer au hockey et au soccer.

Pouvez-vous me dire combien d'étudiants se sont inscrits au hockey, au soccer et au tennis? Pour faciliter votre tâche, servez-vous du diagramme ci-dessous pour trouver la solution.



1. Nombre d'étudiants inscrits au hockey: _____
2. Nombre d'étudiants inscrits au soccer: _____
3. Nombre d'étudiants inscrits au tennis: _____

Tiré de : Anthony Mollica, *Activités créatives et motivationnelles : Jouons avec les chiffres.* Welland, ON: éditions publishing inc., 2001, p. 70.

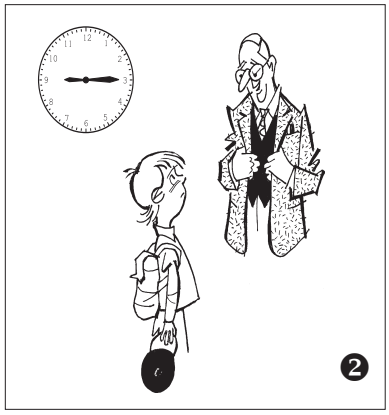
Juguemos con las palabras

Anthony Mollica
Email: mosaic@soleilpublishing.com

¡ Sonría en español !

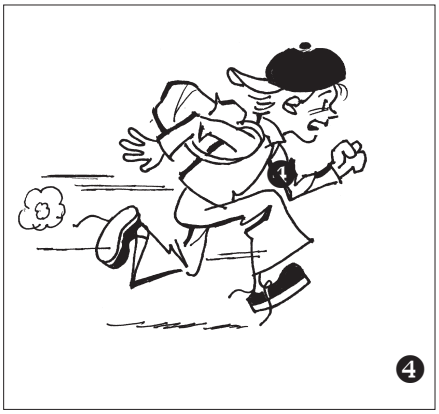
Ponga estas viñetas en orden cronológico.

hay un cartel que dice: *"Escuela. Reduzca la velocidad."*

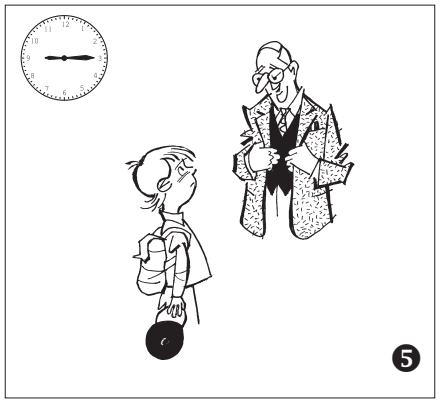


– Roberto, ¿por qué llegas tarde?

Pues, ¡yo caminé despacio!



Me di prisa, pero cerca de la escuela...



– Lo siento, señor director.

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Department of Language Studies
University of Toronto Mississauga

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- Award-winning faculty.
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Teaching and Learning
Language and Literature
Language and Linguistics
Linguistics
Cinema Studies

Teaching and Learning courses and programs are designed for students who wish to gain an understanding of the methodology of teaching for further studies in Education.

Language and Literature programs allow students to learn a language and examine the cultural and historical aspects of it. The department also offers programs for students interested in studying a language or culture along with other subject areas (e.g. Functional French, Francophone Studies).

The **Linguistics** program provides students the opportunity to study the properties that characterize human language in terms of the cognitive processes and social aspects that lead to their acquisition. Linguistics also compliments further studies in speech therapy, communication and psychology.

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For students entering directly from high school, CTEP is a five-year program. Students may also apply to CTEP after their first year of university.

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