Teacher-Led Inquiry and the Interactive Multimedia Foreign Language Lab: An Illustrative Example

Marinella Garatti

Abstract

This paper aims at sharing with different constituencies involved with the use of the multimedia language lab the experiences of a foreign language instructor who found this setting to have significant applications well beyond her expectations. In addition to its many benefits often cited in the literature, she found the lab an effective means for investigating the learning of her own students. Based on the practical example of a study on the learning of the Italian subjunctive mood conducted by the author in an Intermediate-I level class, the paper stresses how multimedia labs can also be an effective means for teacher-led inquiry and self-reflection, two areas which have become increasingly important in foreign language teaching, yet are insufficiently researched in our field.

Whether because of a genuine commitment to modernization, external pressures such as state and national standards, or simply because, in an increasingly competitive market characterized by budgetary problems and expanding student population, technology is often perceived to be "the single most significant ticket to success" (Saury 1998, 21), colleges and universities have seen a surge of investment in technology over the last few decades. One of the ways this impetus has manifested itself most visibly in many foreign language departments across the country is in the language laboratory (lab). This entity, having undergone a complete metamorphosis from its analogue-based counterparts of the 1960s, 70s, and 80s, today can function as a classroom setting, a location for out-of-class supplemental work and individualized instruction, and as a resource center for a department or a whole institution.

As is not unknown to the readership of this journal, the implementation of technology in the classroom in general has not always been smooth. The use of technology in the foreign language classroom has often been at the center of debates among different constituencies. Difficulties are well documented in the literature. For instance, particularly at "technophilic" institutions, as Lam (2000) points out, "there is an obvious discrepancy between those who provide the technology..."
and those who use it.” While administrators are often concerned with ensuring pedagogical cost-effectiveness and full-potential implementation of technology (Warschauer & Meskill 2000), the faculty may be resistant to change for a variety of reasons. These range from the perceptions that technology might be yet another bandwagon or a potential threat to their own livelihood as classroom instructors, to lack of time, technical, and/or pedagogical expertise needed to implement technology in their teaching (Brantmeier 2003; Chapelle 1997; Egbert et al. 2002; Furstenberg 1997; Lee 2000; Moore 1998). In the case of the lab, where numerous and cutting-edge technologies offer unparalleled instructional potential, its high costs have also often maximized challenges for another constituency, that of lab directors and personnel, who have seen their jobs being suddenly expanded and redefined to include demands that many were not trained to meet (Garrett 1997).

Yet, we also know that technology, and in particular laboratory settings where many different sources of media converge, holds extreme promise for the teaching and learning of foreign languages. Multimedia materials, as Furstenberg stresses, “are an intrinsically appropriate tool for language learning [...] and] interactive technologies enable the user to isolate, combine, and recombine in an unprecedented way the various elements of communication” (1997, 21). Hypermedia applications may promote language learning by helping learners notice language saliencies, for example, through the addition of color and fonts, images, and glosses. Language games may serve as a motivator and allow students to develop different skills in context (Cozens 2001). Last but not least, access to the World Wide Web provides instructors with a “virtually inexhaustible source of authentic target-culture materials, infinitely responsive to the interests of the student” (Lafford 2001, 32). It can enable one to communicate with speakers of the target language cheaply, quickly, and reliably across the globe, as well as to observe and use the target language in a variety of contexts, thus opening up the classroom to the world in unprecedented ways (Windeatt et al. 2000).

While our field over the years has seen fruitful scholarship on many areas pertaining to the role of technology in the foreign language teaching and learning—for example, in terms of instructional content and its applications, teacher and learner beliefs, and as a means for experimental and quasi-experimental studies on language acquisition—research on the role of technology as a means for investigation of one’s own teaching is not widely available in our literature.

This paper focuses specifically on the uses of the multimedia language lab for teacher-led inquiry, “a tool for change and transformation through reflection and action” (Navarez-La Torre and Rolóñ-Dow 2000, 79). In particular, I report on a study which I conducted in one of my Intermediate I-level college classes as they learned the Italian
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The subjunctive, a subject which U.S. learners often find to be challenging.

Of course, my findings cannot be generalized to other settings or populations. Moreover, it is important to stress that this paper does not intend to propose a “model” for teaching in the lab, or for the teaching of the subjunctive. Rather, the purpose of this study is to demonstrate the high level of versatility of the tools available in this setting.

This is an age, for better or for worse, of growing accountability, where we are increasingly asked to assess and provide evidence for the effectiveness of our teaching and for our students’ learning. It is also an age in which our profession has come to realize the importance of classroom-based research and self-reflection. Those of us involved in teacher training are also keenly aware of the need to foster such skills among the candidates we prepare in our programs. I believe that today’s lab holds great promise for supporting our efforts.

My purpose in disseminating this study is a comprehensive one: to share my experience with constituencies such as administrators, who might be considering investing in a multimedia lab, with faculty interested in teacher-led inquiry, and with lab directors and personnel who may be asked to assist them, and with technology developers. The capacity to conduct self-inquiry in the lab is one area, I believe, which stands to benefit tremendously from a collaborative discussion, and which may constitute fertile ground for research and for the development of new technological applications.

This study took place at a mid-sized college, in an interactive multimedia laboratory outfitted with individual student computer stations and a main instructor console. Our lab offered many of the typical tools available in such settings. For example, students could work independently, at their own pace, or as a whole class, in pairs and / or groups. The instructor could listen in on their conversations unnoticed, interact with individual participants, or communicate with the class as a whole. The teacher could also broadcast multimedia materials from the main PC and the web or other material from a document camera directly onto students’ stations, as well as take control of a student’s monitor and broadcast its content to the class. Students could also record themselves.

The “problem” which I set out to investigate through the multimedia lab was whether my teaching of the Italian subjunctive mood was effective for my Intermediate-I level class, given that participants differed widely in their prior exposure to the language, level of proficiency, and motivation for learning Italian. The Italian subjunctive mood is a particularly challenging topic of instruction for English-speaking learners. This mood is rarely used in English and many students are often unaware that the subjunctive exists in their mother tongue at all. The English subjunctive may sound like an infinitive (it is important...
that this "be" studied) or a past tense (if I "were" you), so it is common for learners of Italian to make mistakes in sentences that require the subjunctive. Also, in Italian, the subjunctive is used in a dependent clause when certain verbs and expressions in the main clause convey points of view, feelings and emotions, doubt, uncertainty, possibility, and volition (e.g., "non sono sicuro/a che = I am not sure that," "credo che = I believe that," "spero che = I hope that"), or after certain conjunctions ("benché" = although). The indicative mood must be used instead when verbs and expressions in the main clause convey factual statements or certainties ("sono sicuro/a = I am sure that" "è chiaro che = it is clear that"). The infinitive must be used when both clauses have the same subject ("credo che Paolo sia [subjunctive] intelligente = I believe Paul to be intelligent" vs. "credo di essere [infinitive] = I believe to be intelligent") and when the subordinate clause has no subject ("è importante studiare" = it is important to study).

Our class, an Intermediate I-level Italian course, met for a total of three hours over two days every week. At the time, faculty were urged to hold at least one of their classes per week in that setting. Throughout the semester we thus met once in the lab and once in a regular classroom. For this study, however, we met for two consecutive lessons in the lab.

Students were familiar with using the equipment, and with tasks such as working with peers over headphones, and recording themselves. In general we tended to use the lab for tasks which could not be easily carried out in a regular classroom, such as independent and collective access to the web, and for the integration of different types of multimedia material. This study, however, was designed to investigate my students' learning as they interacted with material presented in tasks which are commonly used in regular classroom settings: procedures such as reading and listening comprehensions, indirect and direct presentations of grammar rules, written grammar exercises (transformation, completion, multiple choice formats), and pair- and group-work based communicative activities.

The impetus for this study came from the fact that, as described below, participants were very different in their linguistic skills, personalities, and goals. Over the years, I had had the opportunity to teach in different contexts and situations and to work with mixed-abilities groups, and consequently developed an interest in the interplay between teaching and learning styles. However, this was the first time, thanks to our lab, that I felt I could open a wider window on my own teaching and on my students' learning. Unlike previous studies, I was not interested in comparing different instructional methods within carefully controlled settings in an attempt to control as many interfering variables as possible. Rather, I sought to gather insights about how different individuals in a particular class.
at a given point in time, were interacting with new information as it was presented to them through a number of tasks and activities. What I wanted to know was whether students were benefiting from a particular lesson, both as a class and individuals, and whether their cumulative learning, as we progressed through the lesson, matched their perceptions of and preference for particular activities.

I asked: Given the same linguistic and instructional input on the teaching of the Italian subjunctive, is there a correlation between individual students’ perceptions of task effectiveness, difficulty, and enjoyableness on the one hand, and learner achievement, as measured by correct rule explanation, tense recognition, and usage in written and oral tasks, on the other?

The Subjects

Participants were nine, highly diverse students of Intermediate I-level Italian enrolled at a mid-sized college. To protect their anonymity, I will refer to them as Subjects 1-9 (S1, S2, and so forth) and arbitrarily refer to each of them as “he” or “she,” independently of their actual gender.

The principal reason for this study was that these nine learners were extremely diverse.

Generally speaking, Intermediate-1 level classes at our institution are composed of students coming from different institutions. Some come from our own elementary-level courses, while others took Italian in the middle- and / or high school. Others again, elect to take this class for personal reasons, at times having studied it in overseas programs or other settings. Some are heritage learners, others are already familiar with another Romance language, and others again might not have had many opportunities to interact with native speakers before. Some already speak Italian fairly fluently but struggle with writing and grammar rules. Others might be able to recite rules but cannot use the language for communication.

Because language is a requirement for all undergraduates at our institution and can be met either by taking 6 credits at introductory levels of a language or 3 credits at an intermediate level, a few students prefer to struggle in an upper-level course for which they may not entirely be ready, rather than take two classes. Of course, like all learners, it can be assumed that participants in this study also differed with respect to learning styles, preferred learning strategies, beliefs about teaching and learning, and reasons for learning a language.

This class, however, was even more diverse than usual. Only two of the study’s participants (S2 and S9) were continuing from our own elementary courses, six had studied Italian in junior or high school (S1, S4, S5, S6, S7, S8) but never at the college level, and one was a native speaker of Italian (S3), who spoke Italian at home but hadn’t had for-
mal instruction in that language since elementary school, when his family moved from Italy to the U.S. Four of the six participants from junior- and high-school were non-native speakers of Italian (S1, S5, S7, S8) and two were heritage learners (S4, S6). One of the heritage learners spoke an Italian dialect with his family (S4), and consequently had very little difficulty understanding the language we used in class or when he was communicating. However, his Italian was often inaccurate and the written aspects of the language were below standard. The other heritage learner (S6) never spoke Italian at home, though he had heard Italian being spoken by grandparents and other relatives since birth. This student, like S4, could understand written and spoken modes easily, yet exhibited some of the same difficulties in oral and written communication as the non-native speakers in this class.

Moreover, this group had very different goals for being in my class, as a survey administered at the beginning of the year and subsequent personal conversation revealed. S3, the native-speaker student from Italy, did not need language credits but wanted to perfect his grammar. He worked diligently throughout the semester and often asked for extra grammar work or wrote additional compositions. S6 and S4 wanted to better understand their roots and speak with their family, though they were both dismayed to find out how different the Italian taught in colleges was from their home dialects. S1, S2, and S9 expressed interest in either minoring or majoring in Italian. All three wanted to study abroad and travel in Italy, and S2 was also investigating possibilities for an internship with an Italian firm. S1’s main interest in gaining proficiency in the language, instead, was the desire to work one day within the fashion industry. S5, S7, S8 were very candid about the fact that they were taking my class because this was a general education requirement. For S7, instead, the main draw for taking my class was studying with a friend who was also in the same class.

In terms of classroom participation throughout the semester, all participants worked well with others. However, their personalities were very different: S1 and S4 were the most exuberant, with a tendency to speak at all times. S3 would volunteer only after it had been ascertained than nobody else was going to. S9 and S2 preferred eaves-dropping to participating and favored listening, reading, and writing to speaking and working in groups, giving close attention to detail so as to avoid grammatical mistakes.

Instruction took place over two consecutive lessons. As had been the case throughout the semester when teaching in the lab, the instructional pace was much swifter than in our regular class, possibly because of the ease with which one can shift from one topic to the next in electronic settings, pair up students, correct written work, and enhance visual input, highlighting key rules in a different color or font, and so on. The lesson during the first day was characterized
by the following steps.

Day 1, Step 1:

- Pretest (To establish whether learners had prior knowledge of the subjunctive)

- Listening Comprehension. (A very brief passage on a familiar topic containing clear-cut instances of different familiar tenses and modes as well as of the subjunctive, designed to introduce the new rules in context. Five written questions were also assigned to record potential difficulties with passage comprehension. No explanation, translation was given and answers were collected immediately)

- Reading Comprehension (Same passage and questions as above through a different and additional mode. Again, no explanation was given and answers were collected immediately)

- Identifying subjunctive (Same passage as above. Ss were told that we would begin to study a new grammar point, the Subjunctive. No other explanations were given and Ss were asked to write whether they could identify instances of what might be subjunctives.)

Day 1, Step 2:

- Circle subjunctives in text (To help them identify possible instances of the subjunctive through a process of elimination within what was now a familiar context)

- Identify tenses on a list (Process of elimination in an unfamiliar context)

- Explain subjunctive rule (To test students' initial hypotheses on the subjunctive)

Day 1, Step 3:

- Computer program part 1 (Delivered through a PowerPoint presentation illustrating how to conjugate the subjunctive)

- Application exercises (Recognition, transformation and multiple choice)

- Feedback (Peer / teacher feedback)

- Communicative task (Exercises over headphones)

- Post-test 1 (Similar format and difficulty to pre-test)

Day 2, Step 4:

- Pretest 2 (Similar format and difficulty to pre-test)

- Review (Key slides from program #1)
Feature

- Computer program part 2 (PowerPoint presentation)
- Exercises (Recognition, transformation, multiple choice)
- Feedback (Peer / teacher)
- Recording (Impromptu recording reacting to provocative statement on familiar topic)
- Post-test 2 (Similar format and difficulty to pre-test)

Day 2, Step 5

- Survey questionnaire (Preferences and beliefs about tasks and activities. See appendix 1)
Findings

Because some of my students had shown clear preferences about the learning of grammar—in particular S3, S9, S2 welcoming it to an extreme—I assumed that my students' strong beliefs on the matter might have an impact on their learning of the subjunctive. But, most of all, I was eager to ascertain, given the particular sequence of instructional activities I had selected, at what point my students would be able to discover the rules governing the use of the subjunctive rule, and whether, given the same sequence of work, to what extent different individuals would benefit from particular tasks.

A paired sample t-test was performed and showed that there students had benefited from instruction as indicated by significant differences in scores between their prior knowledge of the subjunctive (M = .32, SD = .23) and post-test (M = .72, SD = .17) measures (t(8) = -5.6, p < .00). In order to determine whether learning might have varied according to the level of prior knowledge, correlations analyses were conducted. No significant relationships were found for pre- and post-test scores (r(7) = .48 p < .19). Significant correlations, instead, were found between different tasks. Specifically, students' scores on the listening comprehension task were significantly related to their ability to recognize subjunctives in the passage (r(7) = .76 p < .05). Also, their scores on the reading comprehension were related to their ability to correctly identify subjunctives on a list of verbs (r(7) = .81 p < .01). Transformation exercises and ability to identify subjunctives on the reading comprehension passage (r(7) = .69 p < .04) were also related, as well as transformation exercises and communicative tasks (r(7) = .76 p < .002).

In order to determine whether benefits from initial instruction on the subjunctive lasted beyond the first lesson, another paired sample t-test was carried out. Again, differences between the pre-test administered on Day 1 (M = .32, SD = .23), and the pre-test administered at the beginning of Day 2 (M = .67, SD = .18) were statistically significant (t(8) = -4.7, p < .002), and differences did not appear to be related to the degree of prior knowledge.

Because it was possible that students' knowledge of the subjunctive might have increased outside of class, perhaps as a result of their studying the topic on their own, a third paired sample t-test was run. It did not appear to be the case that additional learning had occurred outside of class, as differences between scores on the post-test at the end of the first class (M = .32, SD = .23) and on the pre-test administered at the beginning of the second lesson (M = .72, SD = .17) were not statistically significant (t(8) = -1.1, p < .312).

Students also appeared to have benefited from instruction on additional aspects of the subjunctive which occurred on Day 2, as indicated by a t-test between scores on the pre- (M = .67, SD = .18)
and post-test ($M = .75, SD = .19$) on Day 2 ($t(8) = -4.0, p < .004$). This time, however, statistically significant correlations suggested relationships between scores obtained on the pre-test and on the post test ($r(7) = .94 p < .000$) on that day.

Significant correlations were also found for these tasks and activities: multiple-choice and grammar exercises ($r(7) = .90 p < .001$), and for listening comprehension and oral impromptu recording ($r(7) = .70 p < .04$). Overall post-test scores also related to the communicative task ($r(7) = .75 p < .02$).

A paired samples t-test showed that not only the class learned how to recognize and how to use the subjunctive, but also how to explain the rule for it. Significant differences ($t(8) = -4.4, p < .002$) were found between students' initial hypotheses for the subjunctive expressed on Day 1 given after listening and reading comprehensions ($M = 2.3, SD = 1.0$), and the explanation on the subjunctive they provided at the end of Day 2 ($M = 4.0, SD = 1.1$). A positive correlation was found between rule hypotheses from Day 1 and Rule Explanation on Day 2 ($r(7) = .94 p < .000$).

While the two lessons can both be considered effective, an analysis of how different individuals benefited from instruction shows a complex picture. For instance, the native speaker of Italian who moved to the U.S. as a child and spoke Italian at home, did indeed receive the highest score in the pre-test (88%) and performed well in most tasks, but his ability to recognize tenses on a list was below that of a non-native speaker and within the same range of four other students, one heritage learner and three non-native speakers. Most of all, although he was very fluent in his recording, exhibiting native-like accent, pitch, and rate of speech, he avoided using the subjunctive as much as possible and was far from accurate when using it. The two heritage learners received the two lowest scores in the class on the pre-test. Not surprisingly they had no problems in understanding the listening and reading comprehension, but scored only in the 60% range on the first post-test. They also struggled with grammar exercises. S7 received the lowest score on the listening comprehension (20%) but perfectly understood the passage once she could read it. She was the weakest of the group on all other measures, however, especially the oral impromptu exercise. S9, one of the students who tended to favor "eavesdropping" rather than active participation in the classroom, did not appear to have prior knowledge of the subjunctive, yet her scores on grammar exercises, listening, and reading comprehension were very strong. What was very interesting was also her impromptu recording. Her use of the subjunctive, grammatically, was the strongest of the class, yet, her poor pronunciation and rate of speech made her recording hard to follow.
Likewise, it is also interesting to notice that student perception of how useful a task might be to their learning, and of how enjoyable they perceived it to be, did not always relate to how well they performed on such a task, and no significant relationship was found between these categories and scores. For example, S9 found the reading comprehension to be the easiest task and received a perfect score on it, while S7, who also reported the same task being the easiest, scored extremely poorly on it. To the contrary, S2's rating of the reading comprehension as the most helpful activity was matched by a perfect score. The most helpful and most liked scores in general were grammar exercises, peer-work corrections, the two short computer programs. S4 ranked the communicative exercise as favorite activity, though performed poorly in it. S3, S6, and S7 found the same activity to be the hardest, though appeared to have benefited from it. The communicative activity and the recording were overall the least favorite for five people, though, again, scores do not always match such a perception.

While these findings cannot obviously lead to generalizable claims on the learning of the subjunctive, they were instrumental to the development of subsequent lessons. While we continued, as we had done before this study, to use the lab for culture-laden instruction, I began designing lessons in a different manner. Instruction for the day would center on a common topic for all participants and I would ensure that everyone would have sufficient exposure to the new language topics. Lessons incorporated both group and individual activities and I experimented with pair and group assignments. At times I grouped them in light of common strengths, while at other times I would pair more and less proficient learners in a particular task. Because of the fact that in the lab I could zero in closely to individual students' abilities—whether they were writing or speaking over headphones—I was better able to address individual needs. Unlike in a regular classroom, where during communicative activities everyone speaks at once, there is no noise in the lab. Most of all, unlike in a regular classroom—as one of my students commented—"there is no hiding in the lab." Weaker students are less likely to pick up answers from other groups than they would be in a regular class and everyone must participate. Furthermore, perhaps because corrections and explanations no longer need to be done in front of the whole class, even those who might prefer to "eavesdrop" in class tend to ask more frequent and direct questions in the privacy of headphones.

In conclusion, while when I began to use the language lab I was afraid of trading many years of successful teaching in a regular classroom for a setting whose console had the same cold and complicated look of an airplane cockpit, I soon found the lab to be empowering
in a number of ways. In addition to the advantages provided by the many converging technologies which are often discussed in the literature and at conferences and workshops, I began to realize that this setting would also provide me with different tools for conducting teacher-led inquiry. For instance, in the lab instruction tends to proceed very efficiently as a number of materials can be projected directly on students’ monitors without the need to have them locate books, pages, and paragraphs. The text, words, and/or endings in question can be very easily highlighted with the use of different colors or fonts. Switching from task to task is as fast as the click of the mouse. Assigning partners for peer or group work no longer requires moving chairs and desks. While collecting oral data from all students is virtually impossible during regular classroom time, in the lab it just takes a few minutes to record data for a whole class. Furthermore, everyone has access to exactly the same tools, and learning can be assessed under the same conditions. Of course, students can re-record themselves if they wish too, but the computer keeps track of all attempts, providing the teacher with even more in-depth data. The lab also provides high-quality input, whether audio or video, for all learners. Unlike a TV set in a crowded classroom, a language lab permits individual audio and video adjustments. Last but not least, the lab provides learners with a much more discrete setting than a regular classroom, and working with a peer or a small group means exactly that. Nobody else in the classroom but your assigned peer or peer-group and, potentially, the teacher hears you.

While I do also continue to teach in the traditional classroom, and particularly enjoy the versatility of electronic ones, I feel that the lab offers tools beyond those usually mentioned in the literature and I enthusiastically look forward to continuing to use this setting, not only for the flexibility of instruction it provides, but also for conducting inquiry into various aspects of my own teaching and my students’ learning.
References


Appendix A

A. Please check (X) all that apply.

Did you learn the subjunctive before taking this class? Yes __ No ____

If you answered no, go to section B. If you answered yes, please check all that applies below:

1. I learned the subjunctive when I was at the high-school ____
2. I learned the subjunctive in Elementary I/II courses ______
3. I learned the subjunctive informally, by speaking Italian……
   a. at home _____  b. in Italy ___  c. other: (please explain) __________________________
4. Before taking this class I could use the subjunctive:
   a. very well ___  b. well ___  c. just barely ___

A. Please explain the rule for the subjunctive with your own words:
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

B. Look at the following tasks and answer the questions below:

   TASK #1: The listening comprehension
   TASK #2: The reading passage
   TASK #3: Part I of the computer program (forming the subjunctive)
   TASK #4: Part II of the computer program (how/when to use the subjunctive)
   TASK #5: Grammar exercises
   TASK #6: working with a peer (exercise corrections)
   TASK #7: working with peers (Agenzia Felicità)
   TASK #8: recording my own story

a) The task I found easiest was task # ____

b) The task I found most enjoyable was task # ____

c) The task that contributed the most to my understanding of the subjunctive was task # ____

d) Tasks that also contributed to my understanding of the subjunctive were (please list in order of importance only those tasks you found helpful) tasks # ____ , # ____ , # ____ , # ____ , # ____

e) The task I found most difficult was task # ____

f) The task that I found least enjoyable was task # ____

g) The task that contributed the least to my understanding of the subjunctive was task # ____