Virtual Interactive Walk Through Venice

Educational Technology for Learning Italian: 
A Virtual Interactive Walk Through Venice

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Abstract: Students can now learn foreign languages by taking advantage of the high and increasing potential of educational technology. Therefore, the interaction with a multimedia environment by means of an audiovisual path through the city of Venice gives them the possibility to virtually immerse in a sample of reality, motivating them to focus on the language as a functional means of communication. The activity is based on the neurolinguistic bimodality theory, which separates brain functions according to the hemisphere in which they are processed. The structure of the activity reflects the brain's natural language acquisition process: motivation, globality, analysis, synthesis, reflection, verification (Begotti, 2006). Although the benefits that technologies have on language acquisition are well known, little has been done to actualize them efficiently.

We describe our activity both theoretically and practically, putting a focus on the interactive video and its advantages, and describing how students can properly avail themselves of technological tools. Our video will be uploaded on Youtube and embedded in a website containing a whole didactic unit, that will be shaped around the virtual walk. Alternatively, it can also be treated as a single exercise and converted into software or an application for mobile devices. The activity expects students to watch and interact with a series of videos. Pedestrians provide them with directions using both Italian oral language and gestures, that, if understood properly, will lead them from Piazzale Roma, Venice's bus station, to St. Mark's square, the city center. They must choose the correct option (street) in order to proceed and meet the next person. Our project shows the effective use of technologies in the teaching of foreign languages for adults, and promotes interesting developments for today's andragogical teaching methods. The paper includes both limitations and further developments of this technological tool.
1. INTRODUCTION

Technologies play an important role today in the teaching of languages, thereby allowing learners to benefit from those technological tools that just a few years ago did not exist or were inaccessible to most, either because of the absent or inadequate equipment provided by the schools or the lack of interest of both the institutions and the teachers. This paper will describe how technologies can be properly incorporated in an educational program and why, taking as a reference a multimedia and multimodal activity consisting of a virtual interactive walk through the city of Venice.

This project aims to properly implement technologies inside of a scholastic environment and to include them efficiently in didactic units, taking into account the reconfiguration of the educational goals that modern society has caused. It will also value the benefits of technologies, in such a way that they are motivating and appealing for the learners and also for the teachers.

Considering the high and increasing potential of educational technology, its use should soon become a fundamental component of the teaching of languages. However, a lot is to be done in order to educate both teachers and learners to identify educational technology as an essential part of modern instruction.

This paper will focus on the practical application of audiovisual aids as a tool, as input and as a generator of motivation. It will discuss the theories that support the use of technological tools in teaching and learning second languages and, in particular, it will focus on the implementation and effects of those tools.

The remainder of this section will define the scope of educational technology. It will focus on how motivation is generated and on how teachers can properly implement an audiovisual product, so that it is able to please the learners and motivate them intrinsically.
1.1 Educational technology

Educational technology (ET) pertains to the application to education of technological, electronic and material tools (nowadays, especially computers and computer programs), with the aim of supporting learning and teaching at different levels and in different environments.

Educational technology also has an abstract conception. In fact, it can be intended as a set of the processes and ways of thinking addressed to the commensurate growth of intellect and technology (Lakhana, 2014). This leads to a systematic use of technologies in learning, so that education programs are defined by the technological dimension.

The progress in educational technology is strictly related to different but interconnected academic fields, such as psycholinguistics, neurolinguistics, computer science and engineering. Therefore, the research conducted in one of these field influences, more or less directly, the new developments and discoveries of the others. While psycho- and neurolinguistics provide us with theoretical information, computer science and engineering offer the tools (hardware and software) for the implementation of those theories. This interdisciplinarity shows from different perspectives the importance educational technology in the modern instruction and in the development of new technologies, acknowledging the institutions of its potential and thus pushing governments to support and fund research in the above mentioned fields.

1.2 Motivation

To understand if learning a language is easier today than in the past, the potential of new media must be considered. It is necessary to study the effects of technologies on people and take into account many variables, especially human, which may affect the acquisition process. One of these variables, and one of the most influential, is certainly motivation. The
greater the motivation, the greater the possibility of achieving educational goals, regardless of their nature.

Educational technology plays an important role in motivating students because it is meant to remove the obstacles, such as dated textbooks and old teaching methods based on lectures and repetition, that most scholastic systems place between the learners and the contents to be learned. In fact, as students are familiar with the technologies that are used in class, all their effort will be put on the feature of the language they need to learn, instead of struggling to adapt to their technological background to the traditional methods of teaching. If provided with a tool they know, students will be more motivated to use that tool for learning purposes.

Psychology has differentiated motivation into two types. Intrinsic, which occurs when a student engages in an activity because challenging and rewarding itself. Intrinsic motivation is the self-desire to seek out new things and new challenges, to analyze one's capacity, to observe and to gain knowledge (Ryan, R. M., Deci, E. L., 2000). Extrinsic, which springs from extrinsic purposes to the activity. It refers to the performance of an activity in order to attain a desired outcome. Extrinsic motivation comes from influences outside of the individual; for example the teacher. In extrinsic motivation, the harder question to answer is where people get the motivation to carry out tasks and continue to push with persistence. Usually extrinsic motivation is used to attain outcomes that a person wouldn't get from intrinsic motivation (Ryan, R. M., Deci, E. L., 2000).

Audiovisuals, i.e. all those technologies that use audio and video together, deal with both types of motivation: extrinsic (i.e. how the school system and the teacher introduce and deal with educational technologies in class) and intrinsic (i.e. the natural interest of the students in the activities proposed). The latter is the strongest and the longest lasting:
“Students who are intrinsically motivated are more likely to engage in the task willingly as well as work to improve their skills, which will increase their capabilities” (Wigfield, A., Guthrie, J. T., Tonks, S.; Perencevich, K. C., 2004).

To understand how motivation is stimulated, it is fundamental to consider three main motivational patterns. The Ego-dynamic Model (Titone, 1967) asserts that, if in the real encounter with the activity (tactic) the personal ego receives positive feedback, the strategy adopted is strengthened thus feeding the initial motivation (EGO $\rightarrow$ STRATEGY $\rightarrow$ TACTIC $\rightarrow$ EGO). The Stimulus-Appraisal Model (Schumann, 1994) asserts that the basis for the acquisition is the quality of the input that must meet certain requirements. Emotion plays a primary role in the cognitive process. In fact, through the Stimulus Appraisal, mechanism that transmits to the brain a judgment about the appreciation of the input, emotion puts in motion the Language Acquisition Device (LAD). The Tripolar Model (Balboni, 2012 and 2008) that leads the analysis of motivation to three basic macro-categories, often coexisting in the same individual, that are: sense of duty, need and pleasure.

Given the types of motivation and motivational patterns it is easy to deduce that the trick for long term acquisition is the combination of several factors: learners need to adopt an effective strategy and tactic, also thanks to a stimulating input, in order to cause in the student the pleasure that is necessary to generate an intrinsic and long-lasting motivation. Furthermore, intrinsic motivation can be stimulated by means of extrinsic motivations.

1.3 Scientific considerations

Audiovisuals are scientifically effective because they summarize in themselves and use different textual types, thus strengthening by about 50% the sensory memory: images allow the use of the iconic memory together with the echoic memory: visual stimulus +
auditory stimulus (Caon and Serragiotto, 2012). The interaction with this type of text involves the learning subject in all his or her cognitive and emotional abilities: according to the socio-neurolinguistic principle of directionality, visual stimuli are processed before in the right hemisphere of the brain, which perceives their globality and their socio-communicative context, and then in the left hemisphere, which analyzes them in a schematic ordered. This way it is possible to proceed in the acquisition process according to nature (Danesi, 1988). The synergy between text and images allows an immediate contextualization. The process of "anticipation" of the linguistic message immediately activates through the mechanism of the "Expectancy Grammar" (Oller, 1976). It will then be easy for the user to predict what will happen in the communication that is being viewed.

### 1.4 The audiovisual product

For the presentation of the audiovisual product in class will be needed to engage actively the learner: in the educational project, in the relation with the teacher and with his schoolmates and in the interaction with the input itself; choose the most suitable communicative channel to use (TV: DVDs, Blu-Rays; computers: Youtube, social networks; videophones: Skype); identify the most effective type of text (songs of movies, television shows, journalistic texts, video clips); proceed with great care in the selection of the pieces to be proposed in the classroom; consider whether the lexical corpus and the morphosyntactic repertoire are consistent with the level of language of the recipients; calibrate the socio-linguistic and socio-cultural context; weigh the value of phonetics and of the speed of the speech; consider the value of the linguistic and cultural authenticity (authentic inputs) and the redundancy; consider the consistency of the information (synergy between audio and video)(Caon and Serragiotto, 2012).
The use of an audiovisual text also lends itself to the reflection on extra-linguistic elements, such as proxemics, kinesics, facial expressions, vestemics and objectual culture. It also allows intercultural reflection. In fact, an audiovisual text can contain information relating to different linguistic-cultural contexts.

The audiovisual text is the most evolved form of tool for teaching purposes. In fact, in the classroom it is essential for the presentation of paralinguistic components (prosody, pitch, volume, intonation) and for the comprehension of extralinguistic components, seen above. Furthermore, as language teaching deals with communicative competence and not only linguistic competence, extralinguistic and paralinguistic components are now an integral part of the text: it is now necessary to approach a foreign language through communicative acts. Communicative acts are influenced by non-verbal signals and are one of the components of the communicative event: a unit of communication that will be analyzed later in this paper, simultaneously with the analysis of the virtual interactive video. Actually, the video can be seen as a sequence of communicative events. These, in order to be understood by the students, can now be shown in videos (explicitly) to replace the traditional teacher-fronted instruction. This is a very efficient way to teach students how to interact with people of different nationalities, with different native languages and in different settings.

In a multimedia context learners can interact with the text and with the community of learners: they are put in a position that enables them to understand contents critically, which means involving a reflection and a judgment. Community is intended here as the group of learners (hypothetically of all over the world) that have a similar age and can interact through dedicated learning platforms in the internet: the so-called virtual learning environments (VLE). Students can choose the text to be proposed to the community or even prepare their own text, thus becoming directors or lead actors of the action and, consequently, of the
educational negotiation. This is possible thanks to the powerful combination of Web 2.0 (dynamic, no more static) and user generated video sharing systems, such as Youtube.

A lot of scholars have talked about the binomial “technology and learning” but only a few of them have analyzed the practical application of a technological tool in a real-life situation. For example, Balboni describes how the teaching of languages should be adapted to complex societies, namely technological and multiethnic (2012), and Lakhana defines educational technology and discusses the relation between humans and technology (2014). This paper will discuss how teachers can implement technologies in class, covering both the equipment and materials needed and the different approaches that can be used.

There will be a discussion about the effectiveness of audiovisual and interactive media in second and foreign language acquisition. Marcel Danesi’s neurolinguistic bimodality theory (1988) will be considered as a reference. This theory separates brain functions according to the hemisphere in which they are processed and defines the brain's natural language acquisition process, i.e. from the right hemisphere to left hemisphere. Consequently, the project includes the construction of a didactic unit which reflects these theories.

**Purpose Statement**

The purpose of this project is to stimulate the reader/viewer to consider alternative methods to the traditional teaching and learning of foreign and second languages. This reconsideration of education is supported by an understanding of a standard and effective system of use of technologies in both scholastic and non-scholastic environments. The achievement of this goal will also be made possible through the creation of a self-produced interactive video published on Youtube. After analyzing the video it will become evident how the potential of such tools has increased and how technologies need to be implemented
properly and without delay, thus allowing learners to fully benefit from them. The following sections will describe the video, its applications and a few possible further developments of the project.

2. INTERACTIVE VIDEO

The interactive video expects learners to watch and interact with a series of videos, linked in succession through Youtube annotations. Each video lasts around 10 seconds and consists of a pedestrian providing the viewer with directions using both Italian oral language and gestures, that, if understood properly, will lead him or her from Piazzale Roma, Venice's bus station, to St. Mark's square, the city center. The learner must choose the correct option (street) in order to proceed and meet the next person.

Each actor has been recorded in front of a Green screen; therefore the setting has been added later during the post-production by using the chroma-keying technique. Each setting is steady to avoid distractions for the learner, who only has to focus on the interlocutor of the communicative event. Each communicative event simulates a dialog where the question of the learner is always: “Mi scusi, sa dov'è Piazza San Marco” (translated: “Excuse me, do you know where St. Mark's square is?”) and the answers of the pedestrians vary according to the location of the setting.

The interactive video is uploaded on Youtube and embedded in a website containing a whole didactic unit, that is shaped around the virtual walk. The didactic unit is structured in this way: it begins with a brief introduction where the student is welcomed and told what the activity consists of (according to the andragogical approach). The student is made aware of what he or she is supposed to do, of which parts the activity is composed (useful information, video, quiz), and of what he or she will learn after completing it. This introduction is meant to
motivate the student, intriguing and challenging him or her to complete the walk. After the
introduction, the first part of the unit consists of the information needed in order to be
prepared to start the walk. It includes a quick description of Venice and of the vocabulary
needed to understand the directions the pedestrians will give in the video. This part will
include images and maps and has been thought to stimulate the right hemisphere of the brain
through a global view of the activity. In addition, the vocabulary is iterated several times: in
the description of Venice, in a dedicated list with pictures and in the video. The second part is
the virtual interactive walk, described above. The third part and last part is a quiz, whose
purpose is to make the students aware of the progress made. Alternatively, it can be used by
the teacher as a test.

The interactive video can also be treated as a single exercise and converted into
software or an application for mobile devices.

Each video can be analyzed by using Hymes' SPEAKING Model as a reference
(1974). Sociolinguist Dell Hymes developed the model to promote the analysis of discourse
as a series of speech events and speech acts within a cultural context. For this reason, as Table
2.1 shows, the SPEAKING model is used here to describe the interactive video.

<table>
<thead>
<tr>
<th>Table 2.1: Applying Hymes' SPEAKING Model to the interactive video</th>
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<tbody>
<tr>
<td>Setting / Scene: physical circumstances, namely space and time.</td>
</tr>
<tr>
<td>Participants: speaker and audience (the audience can be distinguished as addressees and other hearers).</td>
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<tr>
<td>Ends: purposes, goals, and outcomes.</td>
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<tr>
<td>Act Sequence (or acts): form and order of the event.</td>
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<tr>
<td>Key: cues that establish the &quot;tone, manner, or spirit&quot; of the speech act (also psychological key).</td>
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Instrumentalities (or instruments): forms and styles of speech: register and dialect.

Internet (Youtube), standard language variety with sporadic dialectic features, typical Italian extra-linguistic elements (for more, see Caon, 2010).

Norms: social rules governing the event and the participants' actions and reaction.

Mediterranean Europe, Italy, Northern Italy, Venice.

Genre: the kind of speech act or event.

Conversation (virtual interaction).

3. DISCUSSION

The interactive video aims to develop communicative competence through a series of communicative events, thus allowing the learners to develop those skills that previously could only have been developed through real-world interaction.

3.1 Equipment and materials

After discussing the effects of audiovisuals on the learners, a focus should be put now on the practical application of the audiovisual aids: their implementation in teaching and their actual use in classroom.

First, the necessary equipment must be gathered: in this case it is required a computer with internet connection. If the activity is proposed in classroom, a competent technical personnel, a suitable or appropriate room and further equipment, such as headphones, are essential. Once these elements are organized, the most suitable material will be chosen, by considering the average language level of the class. The interactive walk is thought for a beginner / lower intermediate level of learners, corresponding to the A2 / B1 level of the Common European Framework of Reference for Languages (CEFR).

3.2 The approach

One of the first problems that the teacher will have to solve is that of a distracted
class, often noisy, which underestimates the audiovisual tool and which takes advantage of the opportunity to rest, thus not exploiting the full potential of this technology. A disadvantage that must be taken into account is that the use of videos in class may reduce the authority of the teacher because considered less professional than his or her traditional colleagues (Caon and Serragiotto, 2012).

At this point the teacher will have to decide whether to leave the audiovisuals yielding to the traditional teaching or find a solution that allows the class to appreciate the audiovisuals so to grasp their full potential.

Who chooses to walk the second road will behave differently depending on the level where he or she is teaching. While in primary and secondary school, audiovisuals must be introduced as a game (pedagogical approach), in high school and universities they must be preceded by the explanation in class of their benefits in the learning process (andragogical approach). Operating in this way, teachers avoid boredom and frustrations in class and generate in the students the motivation that is needed to be consistent in their work. It is important to mention that this project promotes the systematic use of technologies in class and not the sporadic resort to technological tools when a specific occasion occurs. However, the introduction of educational technology must be slow and gradual and must be kept under control. In case, the introduction process can be modified according to the students' reactions.

Relevant is the role of motivation. In fact, technologies, if not already a source of intrinsic motivation, can be used to influence the students from the exterior, in the form of extrinsic motivation. In other words, technologies can be used to help achieve a goal even in the absence of intrinsic motivation. However, it is possible that a continuous positive feedback, such as good grades, awareness of knowledge and compliments from the teacher, will transform that extrinsic motivation in the more powerful intrinsic motivation.
3.3 The element passion

One way to introduce students to the study is to get them excited about a subject or be able to combine their passion to the object of study. It is never wrong when choosing as interest a game. This involves, is fun, removes the affective filters, thereby encouraging the creation of synapses (Balboni, 2012).

With regard to intrinsic motivation, passion is extremely powerful because it can generate a motivation that will hardly run out before the achievement of the desired objective. However, if the teacher wants utilize the passion of each student, he or she will have to know the class group, which is difficult in very large classes. His or her task is to enable the student to build a personalized educational trail through his or her passion or, when this is not present because of the age or other reasons, through play and audiovisual stimuli.

3.4 Benefits of the interaction student – audiovisuals

The goal of audiovisuals and of the enhancement of practical activities is also to reduce the Teacher's Talking Time (TTT): Confucius said: "Tell me and I forget, show me and I remember, let me do and I learn".

Audiovisuals can be shown or even better proposed from an interactive perspective. In the latter case, in fact, the enhancement of the sensory memory goes from 50% (of the mere vision) to 80% (Caon and Serragiotto, 2012).

It has also been seen that audiovisuals can be proposed with the involvement of the class in the creation of the video. This activity can be individual or collective. If it is collective, it includes the benefits of cooperative learning, which make clear the importance of the influence of the LASS (Language Acquisition Support System) on the LAD (Language
3.5 Further developments

Going back to the fields that are related to educational technology, i.e. psycholinguistics, neurolinguistics, computer science and engineering, it is now opportune to talk about how these new technological resources can lead to developments in the fields above-mentioned.

Technologies can be helpful in the teaching of languages for students affected by neurological disorders, such as dyslexia. In fact, students of foreign languages with such problems must be treated by using compensatory measures that encourage verbal communication and that ensure a gradual pace of learning (Melero, 2012). Such measures can also be implemented with technologies and audiovisuals: technological tools can be used to provide the student with a wider variety of information enclosed in the same input, thus permitting them to avail themselves of different kinds of stimuli, from which they can retrieve the information they need for the acquisition.

To analyze the problems provoked by dyslexia, it is necessary to describe the process that is required for the recognition of a visual input: the viewer must recognize a pattern by activating a visual process of analysis. During this process, the brain is affected by a disorder that prevents it from retrieving and processing information properly. Consequently, educational technology can be used as a catalyst for acquisition.

It is essential to understand the psychological dynamics that characterize the dyslexic student in the school context and that may recur during the study of a second language. Once studied the situation of the learner it is necessary to operate accordingly by using technologies as compensatory means, in such a way that they can simultaneously compensate
the difficulties of the students with learning disabilities and be integrated in the classroom and be used by the whole class of students (Melero, 2012). From a psychological perspective, motivation plays a very important role in the acquisition of a language. Therefore, it is necessary to use technologies in order to motivate the dyslexic students to learn without feeling disadvantaged. That said, one way to introduce technologies in a class with students with disabilities is the possibility for these students to explain to their peers how the technologies that they have already used work: students with neurological disorders can use technologies before the other students of the class, so that later they can teach the use of those technologies to their classmates, thus they do not feel less able than their peers (without disabilities).

On the other hand, computer science and engineering offer the tools (hardware and software) for the implementation of the theories seen thus far. For this reason the research conducted in these fields is fundamental to define how and when a certain type of technology can be implemented. Given a new technological tool, studies in education define the possible and most effective ways to use that technology in the teaching of languages. On the other hand, these studies can lead to the improvement of such tools or to the creation of tailor-made technological tools for specific purposes in teaching. That said, it is meaningful for each field to keep track of the recent developments in its related fields, thus being able to work simultaneously toward a common goal.

4. CONCLUSION

Summarizing, the use of videos in class is a more than valid method if the video is intended as a tactic, that is a concrete means to achieve goals, because it allows to follow (or design) a path having multiple and multidisciplinary goals. It is also valid if intended as a
tool, because it allows the development of technical and operational skills, which are more and more useful in the world of work. Finally, the use of videos is valid if the video is intended as an input, because it meets all the requirements that, according to the model of Stimulus Appraisal by Schumann (1994), are necessary for the acquisition. The audiovisual input must: establish a new element (be original), be attractive (that is, pleasant), be functional to the needs of the student, be achievable (that is, not deemed too difficult according to the theory of the zone of proximal development – ZDP (Vygotsky, 1978)) and be sure from the social point of view, so that the fear of "losing face" does not trigger the affective filter.

The omniscience of the teacher and the passivity of the class should make way for an authoritative but not authoritarian teacher able to put the student in the appropriate conditions for the acquisition.

The vision of audiovisual material teaches the learner to observe the socio-pragmatic phenomena in order to allow him or her to behave properly in environments (culturally) different.

The audiovisuals overshadow the linguistic and formal correctness enhancing the communicative act as a means for the realization of the communicative functions.

In a different context, the teacher can give the possibility to the learners to create their own videos, allowing them to learn how to use the equipment, such as camcorders and video editing programs, that is more and more present in the world of work. It would also be appropriate for the school to possess, in addition to the equipment for the viewing of audiovisual material, also what is necessary for the practical realization of videos. Consequently, the technical skills of students and teachers will have to be updated constantly to stay abreast of technological development.
Audiovisuals, if joined with the collaborations of foreign schools and universities, give the students the opportunity to share valuable information for the understanding of realities and people located far from their own city.

The future of teaching is thus both the reduction of the distances between learners, in such a way that they are able to interact and exchange skills and ideas, and the creation of personal education programs, that are able to satisfy the individual needs of each student.

In the near future more and more computers and robots will help humans achieve educational goals; therefore it is a big responsibility to develop them efficiently. The human teacher will help students in the role of supervisor of their work and will spend more and more time getting to know students, thus being able to provide them with the technologies best suited to their needs. Educational technology will deal with form and grammar, while the human teacher will focus on the human aspect and his or her ability will be to know both technologies and theory of education in order to give each student the appropriate tool. However, teachers will also become more technological, in order to act as a well-trained intermediary between the student and the machine.

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