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Music iconography used as video montage guide – Conception, development and validation of a teaching module in Communication Design

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Abstract: *The article proposed describes the findings retrieved from the researched carried out in the PHD in Design. The experience, combining sound, video and drawing, had as purpose design a learning experiment on Video montage in the scope of Communication Design. The drawing was used as music translation and provided guidance in conducting different paces in the moving image sequence. The use of drawing enabled the creation of a graphical score used in video montage as well as an implicit method to record the experience. The work can be described as a border line research making contact with distinct areas such as; drawing, moving image, sound and Technologies of Education. The research included dramaturgical and expressive amplitude, dramaturgical within the sequence of learning amplifying each phase of the Learning sequence, trough relations with historical references. Those relations worked as scenarios relating the different areas close to the project, the experiment stimulated in the students the construction of relations between different areas and exercised trans codification practices through the expressive amplitude of drawing. The Leaning module related the drawing of sound with video montage designing a transcodification tool for further learning activities.*

Keywords: Video montage, drawing, graphic score, transcodification.

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Introduction

This paper presents the research in Visual Communication Design developed in learning settings in high degree education level. The Learning module introduced visual communication students to the issues of relating sound and moving image by the use of drawing, sketching and video montage. The students did not have previous contact neither with the thematic of sound or the moving image. In this Learning module the drawing and sketching, functioned as new tools, for reinforcing, and create associations with new concepts related to sound, and video montage. The study took place between 2008 and 2011 in the Superior School of Arts – Polytechnic Institute of Castelo Branco - Portugal.

Due to the length of the study this paper presents a brief version of the research sequence in the following chapters; the concept motivations in the Theoretical Context section, the goals of the research experience in the Objectives, the activities sequence carried out in the research experience in Main Quasi Experiment. The proposed Learning sequence is the last contribution of this study, and the Findings presents the results and ideas sparked by the research.

Theoretical context

The audiovisual synchrony is a subject of great interest due to the recent expansion of audiovisual production in the area of Visual Communication Design, specifically in music videos and video promos. In many of these cases, the message from sound leads the image interpretation; the soundtrack can change the movement perception within the animated sequence of frames. The visual narrative sometimes is not continuous, giving several interpretations that change, according to the deviations of both the attention focus, from the soundtrack to the video and vice versa.

Music Videos influence the modern cognitive perception between sound and the image (Fahlenbrach, 2002). These products are widespread and easily assimilated by everyone. Such audiovisual messages exercises and stimulates the ability to relate sound to image. The music video videos establish certain cognitive behaviours, visible in the visual image expression.

It's crucial for students of Visual communication Design to establish an approach with these relations when producing audiovisual contents. Because often the student's don´t have musical training is fundamental to explore another approach when accessing the music comprehension and expression. When conceiving an exercise using the drawing as mean to express rhythmic values retrieved from the sound, the hand gesture helps translating the music sensorial elements to drawing allowing a link with the unknown message.

The space in which the gesture intervenes, is a metric space where a pattern generated by a mental image built upon a sound recording, creates a musical iconography (Martin, 2006) or more complex graphic compositions (Tan & Kelly, 2004) developing rhythm perception using graphic symbols like points and lines, this symbols are simple representations of rhythm (Bamberger, 1982). These typologies used in low-level mapping, produce excellent relations between graphic elements and music (Solis, 2006). The audiovisual montage in the synchronisation tasks can use these graphic elements, to communicate the connecting elements, pauses and ruptures creating a iconographic composition.

In the video montage, within the animated sequence of frames the pauses and ruptures in the connected elements deal with the subject of continuity.

Continuity is abreast to discontinuity; the continuity, and discontinuity can characterise a moving sequence of frames on the motion perception in continuous time. An animated sequence of picture frames builds in the viewer a time duration illusion, managing to gather in one experience the concept of continuity from the fluidity till the complete fragmentation (Graça, 2006, p. 135).

When addressing in the moving picture frames the continuity and discontinuity is raised the question of succession of image frames and its rhythm value. To define the concept of pace is necessary to refer Plato definition, on the grounds of "ordering the time duration" as a metaphor, possible to represent in the regular motion of ocean waves upon their advent to the beach (Graça, 2006, p. 156). We can contemplate the Rhythm as an organisation and a language of continuous as an umbilical link to the human essence, where the metric foundation got lost to the poetic flow (Meschonnic, 1982). The variations of intensities can also delineate the rhythmic flow, emanating in it the expressions of various forms of language.

Norman McNorma McLaren addressed the theme of relating sound and image in his work. In his movie Mosaic (1965), McLaren created the soundtrack using a drawing technique, erasing the upper layer of the 35mm film. The author erased the black colour emulsion with the aid of a small knife, to leave small marks, then, used a optical reader in a Moviola machine (a projector machine) to read those marks and produce percussion sounds.

McLaren explored concepts of animation and synchronism between sound and image. The variations in size and shape in the graphic marks affected the sound, tone, volume, and the sound quality. Using this method Norman Mc Laren produced an extensive variety of sounds.

The attempt to create a parallelism between the rhythmic nature of a sound recording and the moving sequence of image, is visible in the work of filmmaker Sergei Eisenstein. In it we can find another stimulus for this research project, in his theory of vertical melodic montage, specifically in the relations made at descriptive graphical structures of rhythm present in the image frame and in the musical score.

Synesthesia, the mixing the senses of perception fascinated Eisenstein throughout his life (Bordwell, 1993). During the 1930s, Sergei Eisenstein rebuilt his concept of montage, as responsible for an organic unity in the language of film. His interest in synesthesia and the wish to include sound, in his organisational theory, made him develop the theory of vertical montage. For Eisenstein there was a guiding principle common to both models of senses, vision and audition, allowing the development of several montage techniques and audiovisual messages. To Eisenstein, this principle was the movement, this element within several physical manifestations, would be the basis of the vertical mounting (Bordwell, 1993). Eisenstein suggested four types of vertical montage; metric, rhythmic, melodic and tonal, described in his book "Film Form and The Film Sense."

In the example of the battle scene on the film Ice Nevsky, a harmonic series of image frames cuts coexist with the musical pace and musical points of emphasis (Fig. 1).

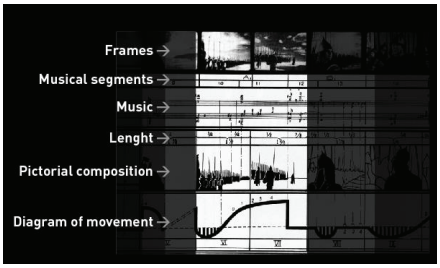

Figure 42. Segment of Nevsky graphical score.

In this research the musical iconography is used when relating the rhythm values between sound and image through the expression and interpretation of drawing. The term Iconography (from Gr. Eikón, image + *graph* r. from *graphein* describe) s. f. relates to the work dedicated to the study and explained description of images from different genres (Porto Editora, 2011). In this research the Musical Iconography related to the concept of representing or ilustrate associated values to music through the use of images (Heck, 1999, p. 91).

The author Erwin Panovsky in the pictorial analysis defines, in first place the iconography as the study of the object and the art work significance, and in second place the study of signs and symbols in Art. When applied in the context of Music History, the reading and iconographic comprehension is patent in the visual characteristics seen in the monophonic and polyphonic graphical scores. In the musical history there´s a rediscovery of the graphic annotation originated in the XX Century, documented in some publications such as Music of the avant-garde (Heck, 1999, p. 91). The musical iconography is also related to the Visual Art description, applied in elucidating the musical thinking (Knighton, 1997).

In this project the musical thinking relates to intensity, rhythm values interpretation. Originated from audition and translated using the expression produced trough drawing. In this project the musical iconography reference, is in the scope of the contemporary context related to the graphic score definition. The philosopher and critic Christoph Nox refers how new graphic elements, replaced the traditional Musical annotation symbols, stimulating a large spectrum of interpretative performances, conducting to a indeterminacy far beyond the compositions itself, reaching the performance area. In the Vanguard Artistic Movement, authors as Morton Feldman, John Cage, Cornelius Cardew and Anthony Braxton, developed the visual aspects of sound compositions.

Using as reference paintings from the constructivist movement, the lines, angles and circles recalled from the painter Kasimir Malevich, Corneliu Cardew created the Treatise score (1963-67) the design elements "produce in the reader, without any sound, something analogous to the musical experience." (Christopher & Warner, 2004, p. 187). Relating a overall picture in the frame of the musical expression interconnects with reading a musical score.

In a personal conversation with Maestro José Filomeno Raimundo on June 24 the author stated that Juan Sebastian Bach read a music score using visual criteria by which he corrected the score as a visual composition, correcting its graphical structure. The musical note is a sign that expresses the tone pitch and duration. The reading of notes

arranged in a musical score follows a linear or overlapping sequence. It is possible to interpret a melody visually as if it was a line or a rocky mass.

The musician does not recognise the notes individually listed in the score, but the overall sound, the sound image. There´s a compression of space and volume in polyphonic compositions, because volume is not just a line, the volume contains tonal variations. Bach read the pieces as intertwined networks such as pictures, graphics and related with fields and not as singular elements, the musician read the graphical score as a landscape.

These notions of sound and image relations were very important in the teaching/learning experience carried out in this PhD research, putting in evidence two types of visual shapes; the visual shape of the frame and the "sound" shapes in the graphical score. In the context of our research the use of drawing as intermediary of sound and image in settings of movement enhances the relation between the two media. The drawing may record the various music rhythmic variations. In the drawing the points and lines cadence, suggest a rhythmic record used to produce different juxtapositions of image frames in the video montage.

In the experimental context of the research the students represented the music by graphic means. The graphical score has predominately qualitative information used then by the students as a reflection about the rhythmic qualities suggested by the lines and points sequence.

This perspective is relevant in contrast with the traditional approach where students develop the process of video editing trough several trials and errors, assembling the sound layer with the image layer previously edited, or simultaneously editing the video, trying to get a match with specific points of the sound layer. The traditional process although playful is less engaging for students not accustomed to the synchrony between sound rhythmic information and the movie frame continuity.

These are elements of great relevance in learning practices when introducing the video montage, is however necessary to find new forms, to unite these two worlds, the video montage and the sound in a model compatible with the practices of visual communication design.

In the context of creating a learning module, the framework in the context of teaching bLearning (Blended Learning) is extremely important, when searching for references in more traditional attitudes and postures, moreover, assimilating them in a modern context of teaching / learning.

In this study the sound leads the visual experience, in the movie frame the information retrieved from the sound may manipulate the image, occurring then a "control" of sound over image.

Objectives

The aim, of this work was to create an experimental module dedicated to the processes on interpretation of musical rhythm as video montage conductor. Based upon a new context for teaching and learning and exploring strategies for implementing online, this study explored two goals:

a) Conceive an experimental Learning module, where drawing functions as interpretative record of musical rhythm as guide of the video montage task and:

b) Validate in bLearning context, through comparison the experimental teaching module and the traditional teaching module

The test of the Learning module used a contrast experiment between the experimental module with drawing as an interpreter and the traditional module without the use of drawing. The Learning module tested in the Main Quasi Experiment and after validated by the opinion panel served as reference for the Learning Module described in this paper (Fig. 2).

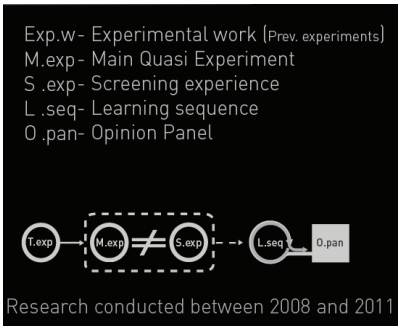

Figure 43: Research design conducted between 2008 and 2011.

Main quasi experiment

In this research two previous experiments preceded the Main Quasi Experiment. The first experiment with the sum of 25 students, comprise a test where the students related intensity variations in a musical segment with different kind of imagery. The second experiment in the scope of an inquiry involved 49 interviews. The previous experiments meant to ascertain what would be the experimental hypothesis to apply in the main quasi experiment.

The Main Quasi Experiment organised in two weeks, had five classroom sessions, involving the total of 24 students. The sessions included the theoretical references, practice, and results. The experiment distribution in the experimental and in the traditional module, followed different strategies but both used bLearning settings. The experimental learning module, tested the hypothesis of an auxiliary method to video montage, the drawing of sound rhythm as interpretation of the rhythmic information (rhythmic variations of the musical piece) as an annotation tool, using the sequence; listening, drawing, and video montage. The traditional module applied the sequence; listening and montage, without the drawing as rhythmic interpreter. The experimental module followed a D.E.S (Dramaturgic E-Learning Strategy) to create a field of symbolic relations between tools and techniques related with expressive values. The two modules used the same videos and musical segments distributed in the eLearning platform adopted by the school.

In the Main Quasi experiment the two study groups worked with the same videos (Fig. 3) And the same sound segment; however, only the study group A, the group testing the experimental learning module, used the score, and the drawing technique.

Figure 44: Images frames from the different videos distributed to students. Videos from the Prelinger Archive, the public domains from this archive allow the free download and reuse.

The musical segment used belonged to the piece by Wolfang Amadeus Mozart - Clarinet Quintet In A, K 581, "Stadler" - 4.Allegretto Con Variazioni (Fig. 4).

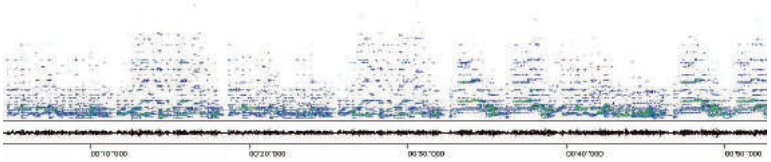

Figure 45: Sonogram retrieved from the music segment applied in the drawing exercise: Wolfang Amadeus Mozart - Clarinet Quintet In A, K 581, "Stadler" - 4. Allegretto Con Variazioni. Position of segment and interval – 4:00s - 4:55s.

After listening the musical segment, played three times, the students performed a musical representation, using as drawing representative elements: lines and dots. The students drew their representations on a spread sheet divided into six sections, representing 60 seconds (Fig. 5).

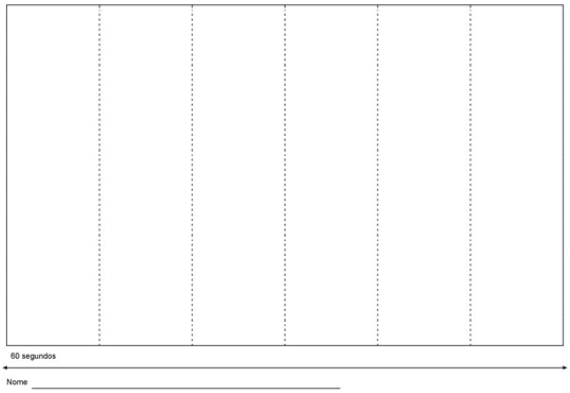

Figure 46: Graphical score used in the sound interpretation exercise.

Afterwards the students used the graphical score as an editing guide and carried out the video montage, producing a 60 seconds video. After gathering the students final work, the teacher analysed the drawings by comparing, the several representations of sound intensity, with the video segment composition in the digital tool timeline (Fig. 6).

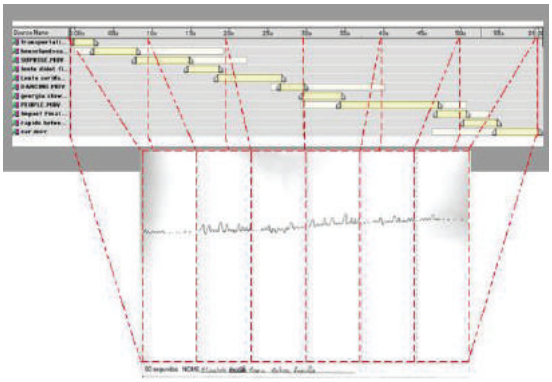

Figure 47: Relation between the graphic score and the video montage using the Adobe After Effects video timeline.

The activities related to the monitoring of the experiment were carried during two weeks, divided into three phases; introduction and motivation, development of exercise, and finalisation. Simultaneously there were activities for sharing auxiliary materials and support.

Although, the LMS (Learning Management System) platform used by the school, was not compatible with the latest programming language standards, not allowing the import of XML data. Was a concern the learning module organisation as a tool with possibilities to export to a contemporary system, therefor the learning sequence followed the IMS-LD standard. IMS-LD is an acronym for Instructional Management System - Learning Design a standardised system resulting from a research project with the aim of building a semantic system, an Educational Modelling Language - EML able to represent learning units used in e-learning.

Learning sequence

The organisation and strategy for designing the experimental learning module, resulted from associating boundaries of distinct areas of study, as well building a Learning route able to motivate and engage the student's attention and positive feedback. It is vital to stress the test sequence importance and the chain of learning materials and task, which are the core issue in the learning sequence. The base materials used in the exercise of video montage, videos and sounds may differ from one exercise to the other, because that is a non controllable variable of the quasi-experimental procedure applied in this research.

The strategy proposed in the learning sequence (Fig. 2) resulting from the research carried out in the experiment, uses an exercise of expression of sound through drawing. There is however, a pragmatic perception of its implementation, delimited in an introductory stage in learning the relations between sound and video montage. The expressive values produced by the drawings are expressions of personal level with expressive qualities, valid only for the author of the drawing.

The module has, as limitations, the inability to create settings for direct synchronisation between sound and image, but it allows a deeper reflection about the rhythm perception and how it influences the apprehension, of movement in the pace of the animated sequence of images.

From the study resulted a learning sequence proposal feasible to implement in introductory studies in video montage. The learning sequence involves four stages. In the first stage “Origins” the students consult and discuss theoretical references, (authors relevant to synchrony between sound and image), in the “Listening” stage the students listen the musical segment and then in the “Drawing” they express their sound memory in a graphical score, afterwards, they create the “Video montage”, using video segments earlier distributed to the class. The cryptic element created by drawing and the link with different subjects creates a continuity between listening and montage, that access although cryptic allows a future application of a transcodification technic (Fig. 7).

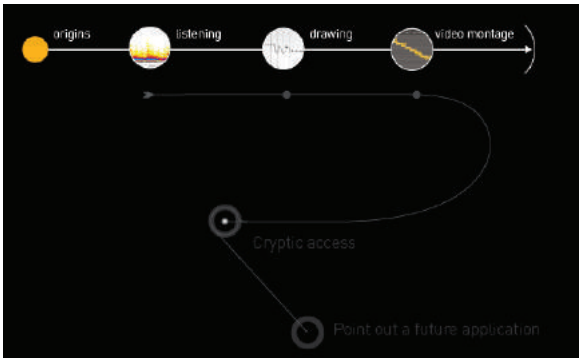

Figure 48: Learning sequence, proposed model.

The drawing is a part of the dramaturgy strategy, inserting a cryptic element in the Learning path, in analogy; constructing a continuity, a narrative organised by lines and points, a personal interpretation, a story built on the emotional experience acquired from listening to the sound segment (Fig. 8).

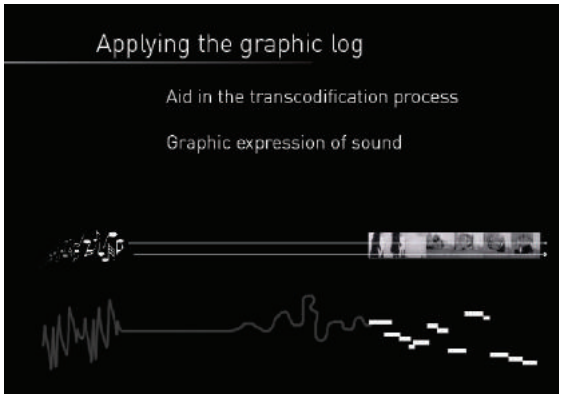

Figure 49: Transcodification process and the graphic expression of sound.

The Learning module applies the drawing incorporated in a D.E.S. (Dramaturgy's Elearning Strategy) approach, in a directive that could improve the emotional experience retained by the student. The D.E.S. method follows assumptions that dramaturgy contexts are more engaging; facilitates intrinsic motivation and results in

positive emotion during learning (Burmester et al. 2005). When referring this method the Learning module design builds a relation between memory allocation and his relation with the experiment amplitude. Far greater the symbolic task more intense will be the experience retained from the learning sequence.

The transcodification skill developed in the experimental Learning module is crucial for future applications, if developed in other Learning perspectives it may offer new strategies in coping with new Learning challenges in training or in professional settings (Fig. 9).

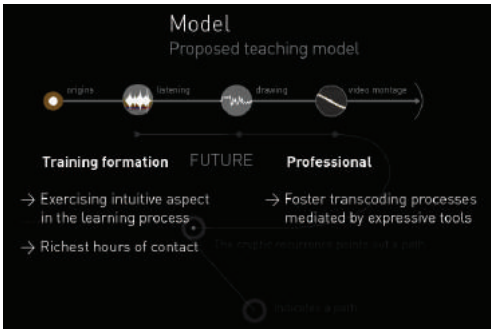

Figure 50: Proposed learning model.

The development on an information architecture perspective is one of the module underlying ideas, the teacher can expose to the students in the end of the Learning module the mechanisms triggered by the transcodification exercise (Fig.10).

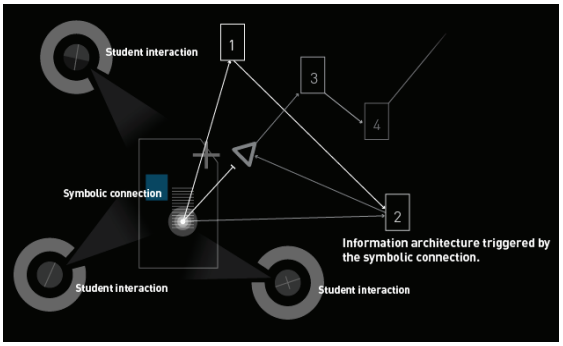

Figure 51: Mechanisms triggered by the transcodification exercise.

Findings

Within the limits of the study, on the hypothesis developed and applied in blearning learning environment, the exercise of expression by drawing used in context of the experimental module of learning allowed an easier relation to the fullest and took advantage of the map of relations sparked throughout the module. When conducted in a bLearning environment, the method allowed the student an easier construction of relations by the use of familiar metaphors. The practice of the experimental model also

allowed parallel paths, where the students went through another type of relations and perspectives instead of the traditional model characterised by a linear sequence of learning without the use of transcodification practices of expression.

The experimental practice makes an indirect approach procedure, the final video montage at the end of the editing exercise is not the only objective to accomplish, the path and strategy applied are crucial because they allow the student to discover new paths for other Learning subjects. Within the experience scope, in the specific context of the exercise, occurs a crossing of two resources, one based on a personal interpretation from the graphical score produced by the student, and the other constituted by relations built from the drawing exercise and other theoretical references, felt, but still not understood by the student.

The adventure of discover is an appended value when using one dramaturgy's model of learning as the D.E.S. model, the symbolic value added by the drawing can be instrumental in driving the experience, accomplished through the intersections of qualitative information (about sound, and rhythmic sequences of images) and the relation to tools and concepts.

In the outcome of the research, in the proposed Learning module the symbolic element represented by the graphical score, was prominent and unifier of intuitive listening and montage, accepting the drawn rhythmic annotations without the need of a metric system.

The rhythmic score created with the drawn annotations allows the record extrapolation into a video montage, a guide in editing an animated sequence of image frames. Offering a new way to understand the process and foster in a near future other transcodification processes mediated by expressive tools. In the experiment the experimental module has successfully produced better results, compared to a traditional approach, without the use of transcodification technics, based on a linear and sequential strategy without symbolic marks.

The proposed Learning module, when embracing a more captivating process, allows a greater adhesion by the students to the few hours of contact available by the teacher. This research is a contribution for future developments in new educational practices, applied to the area of visual communication design.

The use and intersection of drawing and the learning interaction by the students shapes a map similar to a patchwork, the experience path functions as “mood board”, collecting and uniting all the perspectives developed during the learning experience. The graphic expression relates the intensity values obtained from each phase of learning and the memory and summary of the experience. The "mood board" allows the student to create a story. Through the holistic gathering of information the students applies contemporaneous practices, widely used in web social tools. The storytelling perspective results from the student interaction with different learning subject’s trough the module using different types of information obtained from distinct kinds of visualisation. Rarely in a traditional approach, does the teacher call the student, to map his Learning experience, let alone visualise through a mosaic of experiences the priorities and time expended in the tasks. Foster this practice is relevant with a transcodification process, helping the student to manage motivation in future learning experiences.

There is a relation effect between the scope developed in this research and the recent “google effect” when allocating memory to places (Sparrow et al. 2011), observed when the students assign information retrieved from the drawing exercise. Each time the student draws his own symbols there's an improved chance of future

associations to the present learning experience, because he is allocating information of related subjects such as the sound rhythm and intensity to the symbols of his graphical score.

Although the limited sample of students and material makes more difficult to generalise the results, we find, the experimental module, applied in the proposed Learning Module the outcome of this research, as more captivating in contrast with other traditional approaches, it allows a greater adhesion by the students to the few hours of contact available by the teacher. Further in the future we will continue the research with a larger group of students, media and sample variety.

This research is a contribution for future developments in new educational practices, applied to the area of visual communication design, specifically in relating different media as sound and image through the use of transcodification practices.

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