





RESEARCH



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INNOVATION AND ICTs IN THE SOUND LANDSCAPE OF FESTIVE MUSIC THROUGH THE CREATION OF MUSICOMOVIGRAMS

Innovación y TIC en el paisaje sonoro de la música festera a través de la creación de musicomovigramas

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ABSTRACT

This article is part of a research project on the sound landscape, listening and creation and recreation of environmental and musical education spaces. It consists in a proposal for the creation and use of an interactive auditory-didactic resource, the musicomovigram or musicogram in movement, to work with listening and emotional development through the Fiesta and the music of Moors and Christians of Alcoy and its sound landscape. The great potential of this resource derives from its ability to offer students an attractive visual support synchronized with the progression of the music they listen to, in such a way that both codes advance simultaneously. The main objective is to study the sound landscape and the acoustic environment, as well as the natural environment and the senses, to encourage auditory awareness in the classrooms and encourage active and conscious listening to different environments or sound landscapes,

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favorable or harmful. The results show that this type of applications makes it possible to develop the perception of the environment within the classroom with quasi - real approaches, increasing the connection between the natural perception of the medium and the artistic expression. The use of ICTs as transversal tools makes it possible to deepen the composition of the visual and sound landscape by relating the environmental sounds with the instruments and selecting musical styles based on the landscape.

KEY WORDS: innovation - ICTs - sound landscape - festival music - musicomovigramas - listening - environmental education.

RESUMEN

Este artículo es parte de un proyecto de investigación sobre el paisaje sonoro, la escucha y la creación y recreación de espacios de educación ambiental y musical. Consiste en una propuesta de creación y utilización de un recurso auditivo-didáctico e interactivo, el musicomovigrama o musicograma en movimiento, para trabajar la escucha y el desarrollo emocional mediante la Fiesta y la música de Moros y Cristianos de Alcoy y su paisaje sonoro. La gran potencialidad de este recurso deriva de su capacidad para ofrecer al alumnado un soporte visual atractivo sincronizado con la progresión de la música que escucha, de tal manera que ambos códigos avancen simultáneamente. El objetivo principal es estudiar el paisaje sonoro y el entorno acústico, así como el medio natural y los sentidos, para incentivar la sensibilización auditiva en las aulas y fomentar la escucha activa y consciente de los diferentes entornos o paisajes sonoros, favorables o perjudiciales. Los resultados demuestran que este tipo de aplicaciones permite desarrollar la percepción del entorno dentro del aula con aproximaciones quasi-reales incrementando la conexión entre la percepción natural del medio y la expresión artística. La utilización de las TIC como herramientas transversales permite profundizar en la composición del paisaje visual y sonoro relacionando los sonidos ambientales con los instrumentos y seleccionando estilos musicales con base en el paisaje.

PALABRAS CLAVE: innovación - TIC - paisaje sonoro - música festera - musicomovigramas - escucha - educación ambiental.

INNOVAÇÃO E TIC NO ÂMBITO SONORO DA MÚSICA FESTEIRA ATRAVÉS DA CRIAÇÃO MUSICOMOVIGRAMAS

RESUME

Este artigo é parte de um projeto de investigação sobre o âmbito sonoro, a escuta e a criação e recreação de espaços de educação ambiental e musical. Consiste em uma proposta de criação e utilização de um recurso auditivo - didático e interativo, o musicomovigrama ou musicograma em movimento, para trabalhar a escuta e o

desenvolvimento emocional mediante a Festa e a música de Moros e Cristianos de Alcoy e seu âmbito sonoro. A grande potencialidade de este recurso deriva de sua capacidade para oferecer ao aluno um suporte visual atrativo sincronizado com a progressão da música que escuta, de tal maneira que ambos códigos avancem simultaneamente. O objetivo principal é estudar o âmbito sonoro e o entorno acústico, assim como o meio natural e os sentidos, para incentivar a sensibilização auditiva nas aulas e fomentar a escuta ativa e consciente dos diferentes entornos favoráveis ou prejudiciais. Os resultados demonstram que este tipo de aplicações permite desenvolver a percepção do entorno dentro da aula com aproximações quase reais incrementando a conexão entre a percepção natural do meio e a expressão artística. A utilização de TIC como ferramentas transversais permite aprofundar na composição visual e sonoro relacionando os sons ambientais com os instrumentos e selecionando estilos musicais com base neste âmbito.

PALAVRAS CHAVE: inovação - TIC - âmbito sonoro - música festeira - musicomovigramas - escutar - educação ambiental.

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1. INTRODUCTION

The Fiesta of Moors and Christians is one of the most deeply rooted cultural traditions throughout the Spanish Levant. This fiesta generates its own music, the festive one, which is a great contribution that has enriched the original band repertoire while having its own contents that give it character and distinguish it from any other musical genre. Its three musical forms for the parade are the Moorish march, the Christian march and the pasodoble (Botella, 2012; Botella and Hurtado, 2017). These pieces constitute a musical and didactic flow of first order to work with transversal curricular contents in the same way that we do it with the classical music, contributing therefore to the development of favorable attitudes of the personal and collective development, as well as of learning from a holistic and experiential vision.

Music is sound and, as such, it is perceived by the ears contributing to the process of musical formation through the listening technique. It can also be used as a tool to enhance attention, observation, analysis and emotional and sensory development (Botella and Hurtado, 2016). The Fiesta of Moors and Christians is an ideal setting to work with listening and this way to perceive the landscape through the senses.

According to the European Landscape Convention, it is any part of the territory, as perceived by the populations, whose character results from the action of natural and / or human factors and their interrelations. Consequently, the conception of landscape must integrate the following dimensions: a) Perceptive, considering not only the visual perception but the whole of the senses; b) Natural, with factors such as soil, water, vegetation, fauna, air, in all their manifestations, state and value; c) Human, which includes man, his social relations, his economic activity and his cultural heritage and d) Temporary, understanding that the perceptive, natural and human dimensions do not have a static nature, but rather evolve in the short, medium and long term. All sciences receive nourishment from the landscape. The landscape is a source of interdisciplinary and daily knowledge that surrounds the human being throughout his life and conditions his life while being modeled by human action, that is, the landscape as cultural, artistic and natural heritage (Botella and Hurtado, 2017).

The Canadian composer and pedagogue R. Murray Schafer (1933-) coined the concept of environment or sound landscape (1969, 1972, 1975) in the mid-1970s with interesting applications in musical analysis and composition, but also with notable implications in the ecological and pedagogical field. Schafer constructs the representation of the sound environment as if it were a musical composition (Carles, 2007). The term is the union of the words *sound* (sound) and *landscape* (landscape) forming the word *soundscape*. This idea explains how we can distinguish and study the sound universe that surrounds us. It is "basically a sound environment and can refer to real natural or urban environments, or abstract constructions - musical compositions, analog or digital montages that are presented as sonorous environments-" (Delgado, 2015, p. 121). In these terms, the landscape should be considered, as Gomez (2010, p. 91) explains, "a fact of general interest, environmental, cultural and productive heritage, and an inexhaustible source of knowledge in constant transformation that demands increasing social commitment."

Therefore, the general objective of this proposal is to recreate the sound landscape of festive music as a strategy for environmental and musical education via listening through the creation of musicomovigrams. As far as musical education is concerned, it focuses on perception and expression (Ballesteros and García, 2010). The first one is based on hearing and can be worked through stories, songs and classical works. The second includes singing, dance, movement and instrumental practice. Music, through the sensory experiences it provides, enriches and gives the children a psychophysical, emotional and social balance (Sarget, 2003). Musical activities allow the development of a multitude of abilities such as: memory development, participation, group sense or auditory discrimination. In this sense, Caprav (2003) and Reynoso (2010), cited by Díaz, Díaz and Morales (2014), affirm that, when we find ourselves in a totally sound world, education through music is considered one of the fundamental pillars in the integral development of the human being. That is, music provokes a reaction between the

physical and psychological processes that allow the development of skills such as: hearing, spatial relationship, fine motor skills, rhythm, laterality or concentration.

It is important to note that music has a series of auditory-sensory characteristics that act on different parts of the brain. On the one hand, rhythmic auditions are located in the part of the brain where motor and dynamic actions take place. Auditions of melodic works are in the place where emotions and feelings are produced. Finally, in the harmonic auditions, they need to produce a more intense intellectual activity and, therefore, take place later. Recent studies attest to how the sensory perception of the soundscape establishes a close relationship between music and emotional health that facilitates cognitive development and emotional intelligence (Botella and Montesinos, 2016, Botella, Canet and Fosati, 2015 and 2017).

Hearing is a fundamental axis in the teaching of music, along with the theoretical knowledge of musical language, instrumental and vocal interpretation, and dance or movement. Thanks to active and comprehensive hearing, the student will approach the fascinating world of music. Therefore, it must be converted into a habitual practice and not into something isolated. With hearing, we will enhance their skills of attention and concentration at the same time that we will cleanse the ear and educate the sense of rhythm. Perceiving and feeling the landscape is part of experiential and experimental learning that is achieved through attention and concentration. This way, hearing becomes a powerful tool to work on the sensory perception of the landscape, through the creation of emotional experiences that favor the understanding of the natural environment and its relationship with artistic and emotional expression. This thought is linked to the opinion of Benítez (2015) when he states that:

The soundscape creates the possibility of building ways for preservation, reappropriation and making aware of the environment based on a project for sensitization, observation, analysis and diagnosis that provides methodological strategies to understand the sound activity in the transformations taking place in our territory (p. 26).

2. METHODOLOGY

Through the elaboration of musicomovigrams, the sound landscape of the Fiesta of Moors and Christians is recreated to perceive its cultural and environmental essence through listening and cleaning of ears. This way the elements of the landscape are identified and related to the musical elements, analyzing emotions and the effects of sound on health and the environment. In order to achieve this objective, we will use the following methodological procedures directly related to the project structure:

1. Analysis of the sensory perception of the landscape through listening. In the axis of perception, proposals are made to listen to the multiple landscapes of the

course of the Fiesta of Moors and Christians, recognizing the various urban and / or natural settings in which the parades take place. The elements of each landscape are described, the sounds and sound environments heard and a field material is prepared for the performance of the listening.

2. Creation and production of virtual sound landscape scenarios by using ICTs as transversal tools to work on the contents of the subjects involved. At the same time, they allow the physical and real environment to be brought to the classroom and create experiences to know and deepen the elements and the composition of the visual and sound landscape, even generating unreal or distorted scenarios based on reality (changing the sounds, introducing new sounds, creating sounds through instruments that represent natural sounds...).
3. Based on the identified elements and sounds, musicomovigrams are produced that express the relationship between landscape, natural and environmental sounds and musical creation. These resources consist in audiovisual documents in which the music appears synchronized with a certain graphic movement that represents some of the elements that you want to work on during the audition, such as structure, pulse or timbre, among others.

The study of the soundscape is applied in teacher training. The participants in the study are 55 teachers in training, 4th year of the Primary Master's Degree of the Universitat de València.

3. INNOVATION PROPOSAL

Currently, there is a widespread knowledge of the need to adapt the educational system to social demands, for which it is inevitable to introduce processes of educational reform and innovation. We are in a process that involves a notable change in the renewal of content and in the organization of the educational system (Díaz, Pascual, San Fabián Martínez, 1996). New technologies have changed the ways of learning and, above all, visual perception prevails through the presentation of images that go at great speed (Ogalde and González, 2008). Effecting these actions involves the development of specific skills. Educational institutions should be aware of these new ways to promote learning to incorporate them into their models effectively. Therefore, it is important that we become aware of what the Educational Reforms imply, not to remain in the denunciation of what is not useful, nor to add criticism which, instead of building, destroys the purposes of progress and development (Margaleff and Arenas, 2006).

Innovating in the teaching work motivates the teachers because it makes them feel updated and keeps them up to date seeking new ways to teach. Thus, we will be able to maintain interest in the subject, offering new generations knowledge according to the current needs of the professional field. In addition, it is essential to pay special attention to aspects such as teacher training, conditions, the number of teachers per classroom, as

well as their organization, among others. All this without forgetting that the characteristics of the current students require an educational response that is very demanding and difficult to carry out. Innovation implies a professional effort as a teacher, so that the student has a learning experience, where the interaction with the contents leads him to develop skills such as reasoning, analysis of information and organization and integration with the others.

The methodology of active musical audition with musicogram was proposed in the early 1970s by the Belgian pedagogue Jos Wuytack (1935-) to teach classical music to children and young people without musical knowledge. This system needs the physical and mental participation of the listener before and during the hearing and also uses visual perception (the musicogram) to improve musical perception (Wuytack and Boal, 2009). It was a resource widely used by teachers in the 1990s when the LOGSE created a musical space in the school. Musicograms are generalized in the Spanish context and proliferate thanks to the use of certain active musical methodologies (Orff, Kodály, Willems or Dalcroze...). In reality, they are graphic records of musical events, that is, a visual representation of the dynamic development of a musical work. The musical notation is replaced with a symbolism, thus helping to get the total perception of the work.

In the last decades, the musicogram has been evolving to the *musicomovigram*, a term coined by Honorato (2001) that defined it as “the graphic representation of the musical score by means of animated cartoon, very stuck to the musical structure and transparent in its understanding for the child who, this way, captures in a single intuitive beat the meaning of music” (pp. 2-3). The two basic theoretical axes on which the study of musicomovigrams is based are, on the one hand, the didactic of musical hearing and the evolutionary development of the resource itself within the framework of the incorporation of ICTs. With the new technological advances, there is the need to give a new meaning to musicograms, adapting them to contemporary times and, therefore, to audiovisual media. This is how musicomovigrams (Honorato, 2001, Botella and Marín, 2016a, Ramos and Botella, 2015) emerge, as a further step in the study of active and reflective listening with musicograms (Wuytack and Boal, 2009) or graphic representation of music. They constitute an audiovisual resource in movement that ICTs make ideal for working with musical content from a comprehensive and cognitive point of view. Their great potential derives from their ability to offer students an attractive visual support synchronized with the progression of the music they listen to, in such a way that both codes advance simultaneously.

On the other hand, different proposals for the application of musicomovigrams have been made, integrating them both in didactic sequences of music education (Botella and Marín, 2015, 2016b) and in gamutization (Ramos and Botella, 2015). Similarly, an empirical study showed that musicomovigrams facilitate the monitoring of traditional

musicograms and improve students' motivation, as well as their ability to sustain attention over time (Botella and Marín, 2016a).

The designed proposals consist in working through listening and musicomovigrams, created *ex profeso*, formal, cultural and emotional issues with musical pieces linked to the festive repertoire of Alcoy⁴ and its soundscape. An example is the musicomovigram created on the piece *L'Ambaixador Cristià* by Rafael Mullor Grau where the melodic protagonism is held by the wooden instruments in constant dialogue with the brass instruments. The conducting and harmonic thread is percussion. The students develop the sense of rhythm at the same time they perceive the timbre of woodwind and brasswind instruments. The listening plans proposed by Copland (1955) are put into practice to work on audition. On the one hand, expressive listening through the movement and the first contact shots. On the other hand, a purely musical one, in which the students will look at the most characteristic elements of the piece, such as the binary structure plus the introduction and coda, the different instrumental timbres -especially woodwind and brass- or the sound intensity. And, finally, the emotional level, where the music of the fiesta discovers those emotions through their listening, relating them to the representation and using them to work on attitude, motivation and reflection in relation to culture, heritage and the sound environment. To do this, students describe the sensations they feel and associate the instruments with the real sounds they discover during the tour through the streets and natural landscapes where the historical events took place. Percussion marks the rhythm of the Christian march and the melody in charge of the trumpeter as usual in this type of Christian compositions. Students adjust the tempo to the rhythm of the march at the same time they discriminate the entry of the instruments.

The results show that this type of applications makes it possible to work with the perception of the environment within the classroom with quasi-real approximations, increasing the connection between natural perception of the environment and artistic expression by relating the natural sounds to the musical instruments and pieces. In the relationship between the sound of the landscape and the musical instrument that best represents it, most of the students relate the sounds of nature to stringed (piano, harp, violin) and wind (flute, clarinet) instruments, while the sounds of human origin are related to percussion (drum, drums) and wind instruments like the trumpet.

On the other hand, the analysis of the data shows that the participating students better identify the elements in the real scene than in the virtual one due mainly to the technical and sensory limitations of the recording and editing devices.

⁴ Alcoy City and its municipal area occupy an area of 130.61 square kilometers, implying that it is the largest municipality of all those that form its region. Within the Valencian Community, it is part of the Alicante Province and is the capital of the region of L'Alcoià.

Regarding the satisfaction and interest of the experience, more than 95% report great satisfaction and highlight curiosity, virtuality and the playful aspect as positive characteristics of the activity. Finally, they emphasize that musicomovigrams are a tool that improves listening since noise is eliminated and the acoustic environment can be cleaned to improve hearing.

The presented experience contributes to the training of teachers in digital teaching competences in the five dimensions: information, communication, content creation, security and problem solving since they must use specific programs for the creation and application of musicomovigrams. Among the competences developed by the participants are those related to *instrumental competences*: design and edition of the digital image, use of audiovisual language, educational use of the Web 2.0; *didactic competences*: selection and objective evaluation of educational resources in ICT support, integration of ICT resources as an instrument, resource and didactic content; *organizational skills and development of teaching materials*.

4. FINAL REFLECTIONS

Currently, teachers are required to improve the traditional role and become development professionals, capable of developing educational innovation projects for students of different ages, taking into consideration the current reality of the classrooms in terms of pluriculturalism and diversity of the teaching-learning process. In this line, it is essential that educators acquire multiple competencies so as to use them and update them according to the circumstances that arise in the classroom over time.

Integrating everyday culture facilitates the understanding and appreciation of the concepts and principles that man uses at each moment to live his own reality in the sociocultural field to which he belongs. This allows the student to be contextualized in a learning process that results in the transfer of academic knowledge and, therefore, to achieve the essential purpose of education that is to incorporate the individual into their environment with possibilities of success, and enrich and transform it. In order to achieve an adequate incorporation of everyday culture into the curriculum, the teacher must know the habits, values, interests and customs of the community. The incorporation of these contents, skills and values in the learning process implies the acquisition of competences in a holistic and integrated manner. Through simulations, it is possible to recreate phenomena and situations, thus facilitating the understanding of complex systems. It is evident that the innovations applied in the classroom show the reflection on the daily teaching task in the search for the transformation in the classroom.

From auditory perception, we can research the music-landscape-emotion relationship and generate educational materials that encourage positive attitudes and appreciation of the landscape, increasing the sensitivity towards its conservation, analyzing the

problems of acoustic contamination and its influence on physical and mental health. The use of ICTs as transversal tools to work with scientific and artistic-musical contents makes it possible to deepen the composition of the visual and sound landscape by relating environmental sounds to instruments and selecting musical styles based on the landscape. The natural environment is a context facilitating interdisciplinary that allows the synergy among disciplines and solves problems of everyday life. Based on experimentation, inquiry and reflection on the environment, the relationship between music and sciences is worked on, establishing a very interesting feedback between them (Hurtado and Botella, 2016).

The use of musicomovigrams as a teaching resource has many advantages because it helps clarify contents, increases the information related to a particular topic, promotes observation and encourages discussion and debate. On the other hand, audiovisual resources provide students with control since they can adapt their visualization according to their needs, stopping or receding to optimize their comprehension and assimilation. The composition of festive music offers the opportunity to relate music and the situations it represents (battles, entries, parades ...). This way we approach history and culture. But beyond the obvious is the occasion to discover the qualities of sound and how the human being perceives it through the ear. There is a connection between the musical art and the biology that makes it possible to relate the physiology of the ear with the transformation of the sound in our mind to give place to music. This holistic knowledge generates a deep imprint in our learning that will last a lifetime.

Through the implementation of the musicomovigram-creating project, environmental and musical education spaces have been created where the sound landscape and the acoustic environment can be studied, facilitating auditory sensitization and the establishment of the connection between the environment or landscape with music and emotions. The results show that this type of actions develops the perception of the medium and artistic expression, using listening and ICTs as a technique to deepen the composition of the visual and sound landscape.

The response of the participating students has been very positive and they have valued their contribution to learning since the sensory perception of the Fiesta of Moors and Christians through musicomovigrams facilitates the comprehension of the environment in a globalized and integral way, generating critical and socioconstructive thinking.

In conclusion, the use of musicomovigrams and listening to work with the sound landscape is a powerful educational tool for holistic teacher training that contributes to the essential purpose of education, which is to incorporate the individual into their environment to encourage responsible and committed attitudes and this way enrich it and transform it from its teaching, professional and citizen competencies.

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