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Title: Per-Q as an intervention project in virtual education for virtual learning environments

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Introduction

Musical intelligence involves emotional development that promotes empathy and the expression of feelings, a process that involves knowledge and improvement of language, and its expression, which includes sociocultural aspects of identification ([Rodríguez et al., 2016](#)). Furthermore, we must keep in mind that when music is performed in a group, and even more so if it is improvised, a high level of understanding of the other, empathy, and verbal and non-verbal expression is required ([Davis, 1990](#)).

Now, among the main elements of music we find the following:

- Rhythm, which for [Pérez-Aldeguer \(2014\)](#) is a construct that encompasses both tempo (relative unit of measurement)
- The pulse (as a regular unit of measurement)
- Metric (a specific grouping of sounds with their own meaning, a term inherited from poetry)
- The beat (alternation of strong and weak accents)

Methodology

The methodological process implemented for the project is based on the integration of an educational intervention proposal, which contemplates the recognition of rhythmic musical teaching through a Virtual Learning Environment (VLE), the delimitation of the target audience, the selection of the environment virtual learning, the design of the intervention, the definition of objectives, goals and indicators, as well as the definition of strategies and project programming, its implementation and evaluation.

Rhythmic musical teaching

Derived from the COVID-19 pandemic, it was necessary for in-person music classes taught by different teachers to migrate to the virtual modality, generating a bias in the use of appropriate pedagogy by the teacher to teach his class, as well as in the elements appropriate to the curriculum contained in the program. Once the diagnosis was carried out, in which the problems of online music classes were identified, the focus of the proposal was determined both in its main theme, the delimitation of the target audience and the ideal virtual environment for its implementation

Methodology

By determining rhythmic musical learning as the central axis of the proposal a study was carried out of different methodologies in which play, improvisation and multicultural competencies are present as common elements such as Dalcroze rhythmics, the Dum-Dum program, How to play Slap Happy and Rimo Stories, a guide to learning rhythmic stories through musical improvisation.

Delimitation of the target audience

Children between six and twelve years old are in the period of development in which they move from preoperative thinking to concrete operational thinking and in the maturation and progressive transformation towards a reflective awareness of structures. From these ages, it is possible to introduce rhythmic activities that involve ostinatos (repetition of the same musical idea) and formulas that can be adapted to the possibilities of the children, considering each difficulty overcome to introduce new rhythmic elements ([Meece, 2000](#)).

Classification and serialization allow us to understand the order of the rhythm, both in the steps to execute it and to structure it. The notion of numbers from the perspective of serialization and the understanding of space, time and speed allows us to capture the rhythmic sense not only through repetition, and where the support of a visual representation can be auxiliary as a reference to develop a musical idea. rhythmic.

Methodology

Selecting the virtual learning environment

The factor associated with the digital divide as part of the problem of users' limitations in digital skills and competencies can be addressed by selecting a platform that is easy to use, accessible and does not require high technological skills, such as Google Workspace, formerly known as G-Suite. The variety of tools that Google offers allows on the one hand, to design activities and dynamics that do not imply advanced digital skills in students. On the other hand, considering the characteristic environments of a virtual learning environment established by [Peña \(2014\)](#), the diversity of tools offers different alternatives for the development of the actions corresponding to each environment:

Sites: Development of the main page.

Classroom: Main platform with home section.

Calendar: Agenda information and dates.

Methodology

Selecting the virtual learning environment

Knowledge environment:

Classroom: Activities supported by resources.

Drive: Repositories, files, and content.

YouTube: Channel with content and activities.

Practical and collaborative learning environments:

Classroom: Space for activities and tasks.

Options for many "sharing" tools.

Evaluation and monitoring environment:

Classroom: Grades section.

Sheets: Spreadsheet for records and functions such as averages.

Management environment:

Classroom and Sites: Online services.

Methodology

Design of the intervention proposal

The project is based on rhythmic musical teaching as the main object of study, contemplating different methodologies and their implementation in virtual learning environments (VLE), as well as accessibility to learning and content, also considering the approaches of musical didactics and aspects of socio-constructivism for mediation in the VLE. Developed as a proposal aimed at children, gamification techniques and tools and the Multimedia Learning Theory are considered in the design of the activities and in the creation of original resources. Objectives and indicators were designed consistent with the design of the intervention proposal.

General objective

Develop a music education program based on rhythmic musical learning methodologies and from various approaches to musical teaching for children from 7 to 12 years of age through Google Workspace and with the support of self-made digital resources.

Methodology

Specific objectives

- Implement a first module of the program operating from the Google Workspace platform with Classroom as the main application.
- Implement asynchronous activities presented in video format as educational resources and implement them from Classroom.
- Create original digital resources as an interactive application.
- Use social networks and an official website as means of dissemination and socialization of the program.
- Register the application trademark with the IMPI.

Indicators

- The activities are based on theoretical and practical introductory topics of musical rhythm appropriate for the ages of the participants. ranging between 7 and 12 years old.
- The activities present characteristics of the rhythmic learning methodologies contemplated in the development of the project.
- Mediation in the virtual learning environment corresponds to the paradigms of mediation and its relationship with musical teaching approaches.
- The program is implemented on the classroom platform with the support of other tools from Google Workspace.

Methodology

Project schedule

Activity (2022)	apr	may	jun	jul	ago
1-Enterprise image desing					
2- Production of activities and resources					
3.1. Purchase of pera.com.mx domain and hosting					
3.2 Website design on Google Sites					



Implementation

Program Unit - Content of Module 1

- Concepts: rhythm and percussion.
 - Percussion instruments.
 - Movement symbols and use of percussion sheet music.
 - Basic exercises of rhythms produced by the body and movements.
- Multiculturality: rhythm and instruments of pre-Hispanic Mexico. The activities were developed considering the established themes of the first module and considering the following elements of musical teaching approaches:
 - Traditional approach: specific objectives, instruction, separation of the theoretical from the practical in different activities.
 - Constructivist approach: meaningful activities and practical experiences. Personalized attention to the student.
- Critical approach: active student, socialization of learning

Methodology

Assessment

In the context of the project, the evaluation model of Virtual Learning Environments (VLE) that was considered most appropriate was Marshall and Shriver's Five Level Evaluation Model, which places special emphasis on the teacher as a dynamic agent of training in virtual environments. (Rubio, 2003).

The five levels of the model are the following:

- Teacher: teacher capacity in online training.
- Course materials: in relation to the level of difficulty, relevance, interest, or effectiveness.
- Study plan: evaluation of contents.

Course modules: based on previous levels.

- Learning transfer allows determining to what extent the course manages to transfer the acquired knowledge (Rubio, 2003).

Conclusions

Based on the results of the evaluation, it is concluded that the implementation of the proposal demonstrates that the project has great strengths, among which stand out a solid theoretical base, an innovative proposal and mastery of digital competencies by the team involved to carry out and design quality products and resources suitable both for the public and for use and integration in virtual learning environments.

The choice of "Google Workspace" as a virtual environment is based on its accessibility and its variety of complementary tools that are also easy to use, in addition to the familiarization of users with the Classroom platform, established by public policies at the federal and state levels such as the main platform for the educational field.

Through the diagnoses and case studies presented in the research, the lack of appropriate methodologies and/or strategies to implement practical musical learning in virtual music education environments could be established as a main problem.

Conclusions

Although the target audience was delimited in the formulation of the proposal, the implementation and evaluation demonstrate a whole area of opportunities in aspects of inclusion, considering students with special educational needs when producing the resources and materials. On the other hand, the project must be constantly updated with respect to the way in which new generations act and interact in virtual spaces to produce more attractive resources that generate greater interest in the public, considering the speed with which the user relationships with technology.

The main weakness of the project was that the target audience, boys and girls, is a sector that does not have autonomy in its decisions and that depends on the decisions of its parents or families to be able to carry out activities related to courses or extracurricular classes.

Conclusions

Derived from weakness, a threat can be identified that gives rise to a new line of research: after two years of pandemic, we are returning to a "normality" in which social isolation is ruled out and where presence is prioritized again. The disinclination of families to have their children carry out online activities may be related to a fatigue with virtuality. The online modality, which during the pandemic was presented as the only way to continue with most educational activities, apparently returns to its complementary status, which opens new research questions:

- ¿What strategies and/or virtual resources do music education teachers and institutions continue to use after the pandemic?
- ¿Have the way music teachers use new technologies for their teaching practice changed?
- ¿What lessons does the pandemic leave us in terms of adaptation and educational innovation?

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