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DEVELOPMENT OF CRITICAL THINKING IN SONGWRITING STUDENTS USING PROJECT BASED LEARNING

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Abstract: Competency-based education offers benefits to students because it prepares them to acquire a set of skills which they will need in his professional, social and personal future, such as problem resolution, teamwork, oral and written communication, self-directed learning, performance orientation, creativity, and a comprehension of the reality which surrounds us. The objective of the present research was to find the benefit of Project-Based Learning (PBL) in the development of Critical Thinking competency. To achieve so, a qualitative method was utilized, with an observational design during the period of May-June 2019 in a high school located in Samborondón, Ecuador. The sample was a group of 23 students between the ages of 13 and 15. The PBL strategy was applied during 4 sessions where the sub-competencies of Analysis, Evaluation and Self-regulation (Critical Thinking dimensions) where observed and assessed by observation. Results indicate that there was development in the Critical Thinking competency, especially in the sub-competencies of Analysis and Evaluation of the information.

Key words: Critical thinking, project based learning, songwriting, generic competencies.

DESARROLLO DEL PENSAMIENTO CRÍTICO EN ESTUDIANTES DE SONGWRITING UTILIZANDO APRENDIZAJE BASADO EN PROYECTOS

Resumen: La educación por competencias brinda beneficios a los estudiantes, pues prepara a los mismos de manera práctica en aquellas aptitudes que necesitarán en un futuro laboral, social y personal, como la resolución de problemas, trabajo en equipo, comunicación tanto oral como escrita, autoaprendizaje, orientación a resultados, creatividad y una comprensión más centrada de la realidad que nos rodea. La presente investigación tuvo como objetivo encontrar el beneficio del Aprendizaje Basado en Proyectos (ABPr) en el desarrollo de la competencia de pensamiento crítico. Para lograr los objetivos de este estudio, se utilizó un método cualitativo, con un diseño observacional, durante el periodo mayo-junio de 2019 en un colegio de la localidad de Samborondón, Ecuador donde la muestra fue un grupo de 23 estudiantes entre las edades de 13 y 15 años. La estrategia de ABPr se aplicó durante 4 sesiones donde las sub-competencias de Análisis, Evaluación y Autorregulación (dimensiones del pensamiento crítico) fueron observadas y evaluadas. La técnica de recolección de datos utilizada fue la observación en el aula y como instrumento se usó una rúbrica que midió las sub-competencias antes mencionadas. Los

resultados indican que sí hay un desarrollo de la competencia de pensamiento crítico, especialmente en las sub-competencias de Análisis y Evaluación de la información.

Palabras clave: critical thinking, project-based learning, songwriting, generic competencies.

Introduction

The term "competency" is not new; on the contrary, it is extremely old and has been used in countless contexts. However, in education, competency-based training has gained recent popularity among educational researchers. Many authors have conducted studies and written texts and articles on how learners should achieve the attainment of these competencies, both generic and specific, in order to perform well in their learning and work environments.

In ancient Greece, there was already talk of competencies and of how philosophers used learning strategies that allowed their students to learn about the reality of their environment based on problems posed in a real context. Today, this is precisely one of the axes of competency-based education: questioning reality and solving its problems. Moreover, Greek philosophers established relationships between different subjects in order to really grasp reality and its concepts. In today's world, competency-based education is also based on the implementation of strategies between different disciplines that help students to achieve truly meaningful learning (Tobón, 2013).

But what are competencies? It is difficult to define this term, as it has many definitions and applications in the field of education. It was in the 1960s that the term competencies began to be structured by Chomsky and Skinner. Chomsky (1970) spoke of a linguistic competence as a mental structure put into action through specific communicative processes. Later, the term competence began to be defined more as an observable behavior and not as an internal mental process. It is this meaning that has taken on greater prominence in the labor and educational world, given that educational institutions are beginning to train based on the performance requirements of their employees (Tobón, 2006). We could then define competencies as the set of knowledge, attitudes, and behaviors necessary for the performance of an activity.

It is necessary at this point to begin to make a distinction between specific competencies and generic competencies. The former are those that are exclusive to a given area of study, while the latter are those that are common to any discipline or subject. The development of the latter will be of utmost importance for the performance of students and their insertion in the labor market and in any social context (Villa & Poblete, 2007).

From a practical point of view, Sandoval (2010) argues that the labor market is continuously demanding professionals "of a high technical, flexible and innovative level [...] that will allow the company to be competitive" (p. 61). This position requires education to modify its curricula in order to improve and develop the country's economy, especially in an increasingly globalized world that involves markets in many parts of the world. According to a study conducted by the Tecnológico de Monterrey in 2009 (cited by Olivares Olivares, 2015), some of the most popular competencies among organizations are: Teamwork, working under pressure, proactivity, information management, entrepreneurship, and innovation.

It is necessary that these competencies are always acquired based on a context, a practical case or a real problem to be solved through concrete activities by the student. This is why developing a competency requires the combination of knowledge, values, skills, emotions, and attitudes that the student must acquire. Consequently, an educational model based on competencies will always be characterized by the establishment of relationships between different disciplines, skills, and ideas (García Retana, 2011).

Critical thinking is one of the generic competencies that has most influenced authors to define, develop, and study it. It is important to develop this competence in students of all ages because in this way they can make their own decisions based on the content of the subject they are studying. It is also important to note that the formation of critical thinking is not only a concern of teachers and researchers, but also of governors (Vizcaíno, Marín, & Ruiz, 2017). It is, then, when the challenge for teachers is to create a learning sequence and strategies that awaken the student's intellect.

Among the definitions that can be found of this competency, Elder and Paul (2008) define critical thinking as the ability of students to appropriate the content of the subject and through this, to learn to think in their own way. Meyers (1986, cited by Véjar, 2008, p. 1) proposes incorporating elements of critical thinking throughout the students' curriculum, so that they use this competence in different areas of human knowledge. Thus, the critical thinker will think "outside the box" and leave a more lasting and complex impression by combining objective and subjective material. Likewise, the critical thinker will understand that memorization of historical data or dates is of little use if there is no practical application of such knowledge. This is why Véjar (2008) defines critical thinking as deliberate thinking that uses problem-solving, decision-making, evaluation, and metacognition skills to resolve conflicts, make decisions and analyze those conflicts in depth. For Facione (2011), the critical thinker must possess the following skills: interpretation, analysis, evaluation, inference, explanation, and self-regulation. The author mentions that each skill responds to specific questions that help the development of each of these skills. Facione considers self-regulation as perhaps the most notable of all these skills, as it is the one that allows the student to improve his or her own thinking process; this is why some call this skill *metacognition*.

For the development of this study, we worked with the dimensions *Analysis*, *Evaluation* and *Self-regulation* and their relationship and application with the didactic strategy of Project Based Learning (PBL) for the development of this competency. *Analysis* refers to identifying inferential relationships between questions, concepts, descriptions or other forms of representation that express a belief, judgment, experiences, reasons, information or opinions (Elder and Paul, 2008). *Evaluation* verifies the credibility of judgments or other representations that are descriptions of a person's perception, experience, situation, judgment, belief, or opinion (Véjar, 2008). Finally, *Self-regulation* consciously seeks to monitor one's own cognitive activities, the elements used in these activities, and their results, applying analysis and evaluation skills to one's own judgments (Facione, 2011).

It was considered to work with these dimensions because they develop skills necessary to develop critical thinking and of the three authors cited in the table above, all three mention evaluation as a dimension of critical thinking and two of them mention analysis as a dimension of critical thinking. Only Facione mentions self-regulation, but it was chosen because it is necessary for the student to take responsibility for his or her own instruction and this is something that the present study wanted to develop.

For Aquino (2018), the ABPr seeks to foster skills in students so that they can function in a real and practical environment and avoid the memory aspect of traditional teaching. In this learning model, students work actively from the design, planning, execution, and evaluation of real projects outside the classroom (Martí, Heydrich, Rojas, & Hernández, 2010). The search for the active student arises through the ABPr as the student is presented with a path to follow that allows him/her not only to acquire knowledge, but also to really learn concepts by applying them to a real context. The ABPr is effective in its objective of developing in the student different types of skills, values, and attitudes while working in a practical and concrete context, but at the same time complex and meaningful. This strategy also seeks to achieve the motivation of the students involved in the project, since they are the ones who, autonomously, achieve their

learning and are an active part of the teaching-learning process. Likewise, students work with the purpose of satisfying a social need, committing themselves to society by using their own innovative resources (Maldonado, 2008).

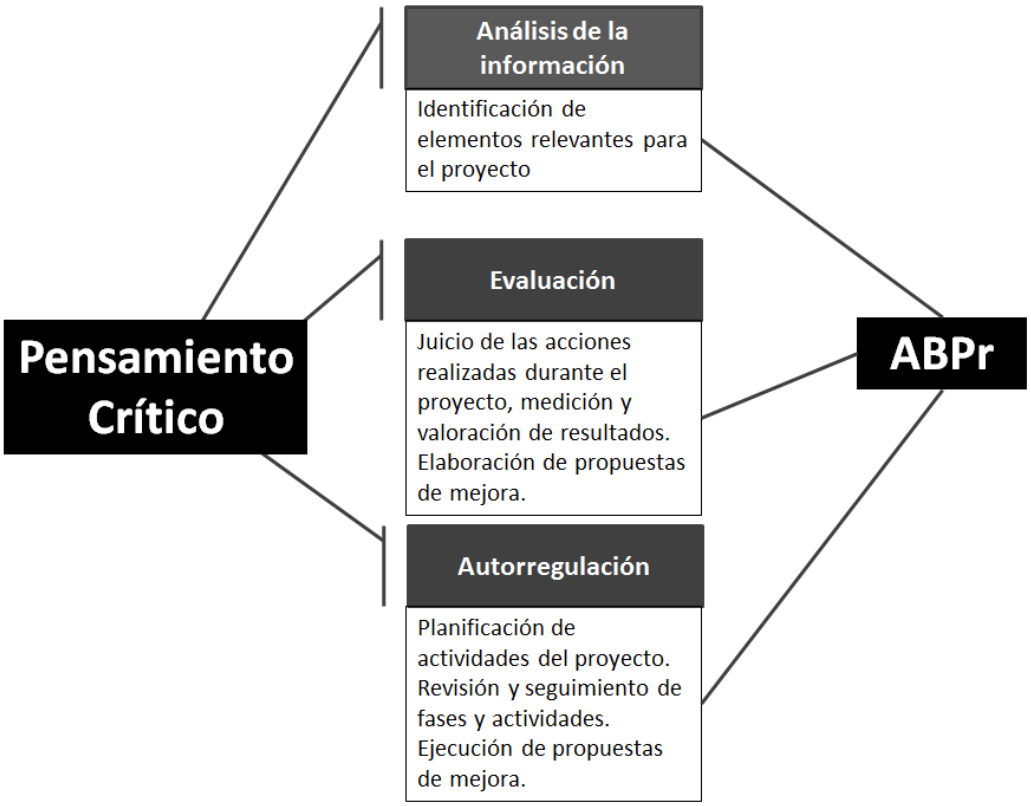

Figure 1. Relationship between PrBA and the development of critical thinking.

Note: Source: Facione (2011), Elder and Paul (2008), Véjar (2008), Tellez (2018) and Poveda (2018).

Since the subject matter of the project implemented in the present study is songwriting, the *Find Inspiration Method* by author and composer Anthony Ceseri (2012) was used. This method allows the composer to get inspiration from other songs in a concrete way. With this method, the composer can take an existing song or part of an existing song and apply modifications to it, so that, the result is a composition of his own. After choosing the song, the composer can dismember it, examine its parts, change them, and put them back together again to obtain a completely new song. This method is used by Ceseri in his book *How to write songs that sell* (2012) in each of the phases of writing a song. For example, it is used in the phase of choosing the theme of the song, the melody of the song, the lyrics of the song, and the chord progression of the song.

We worked with a group of boys between 12 and 15 years old who study at the Colegio Menor San Francisco de Quito Campus Samborondón. This institution is private and was founded in Samborondón in 2013. This school has gained popularity among many inhabitants of the area, as it has the successful antecedent of Colegio Menor San Francisco de Quito Campus Quito, founded in 1995. Both educational institutions are owned by the Universidad San Francisco de Quito. Its education is focused on the Liberal Arts model and based on international and American school models. It is recognized by the Ministry of Education of

Ecuador and accredited by AdvancED. Colegio Menor students belong to a medium-high socioeconomic status, as it is one of the most expensive schools in the city.

Three things must be taken into account. First, songwriting requires analysis and interpretation of previous works, genres, styles, messages, theoretical and practical aspects of music. Second, these skills along with the evaluation of the compositional process and the self-regulation that the student must follow in order to be consistent and successful in his or her attempt to compose better songs are crucial dimensions of critical thinking competence. And, third, that songwriting is, in itself, a project with clear phases and well-defined deliverables with the goal of creating a final product.

Given the above considerations, the following research question is posed: How does the project-based learning strategy develop critical thinking in high school students of *Songwriting* in a private institution in the city of Samborondón, Ecuador?

Method

In this study, a sample of 23 students belonging to the 8th, 9th and 10th grades who are studying and have chosen the subject of *Songwriting* at Colegio Menor San Francisco de Quito, Campus Samborondón and whose ages range from 13 to 15 years old, were used. These 23 students participated in all phases of the project and represent the totality of the *Songwriting* class, since the rest of the school's students belonging to the academic grades mentioned above are divided among other subjects related to the musical arts, specifically instrumental techniques such as trombone, trumpet, saxophone, flute, percussion, and choir. *Songwriting* was chosen for this study because of its particular quality of being a songwriting project.

The technique selected for data collection in the research is Classroom Observation. This is qualitative in nature and is used to collect subjective information during the development of the teaching strategy through pre-established observation categories (Hernández, Fernández & Baptista, 2010). The application of this technique can be direct observation in the classroom by the researcher or through recorded sessions later analyzed by the researcher. In this study, the results obtained after direct observation of the students during the activities carried out applying the ABPr didactic strategy were measured. Comments and responses to questionnaires located in each student's folder using *Google Drive* were also taken into account. These questionnaires made it possible to follow up on the assessments of the project activities.

The rubric used is based on the theory of critical thinking dimensions of Facione (2007), Elder and Paul (2008), Poveda (2018) and Véjar (2008), specifically the three dimensions chosen in Chapter 1 of this paper, which are: Information Analysis, Evaluation, and Self-Regulation. It is worth mentioning that the participating students already possessed knowledge about music theory acquired in previous years as part of the music program of the institution where this study was conducted. This is why the rubric includes music theory content.

Table 1

Assessment rubric for critical thinking skills during the application of the ABPr strategy.

Critical thinking skills established by Facione (2007), Elder and Paul (2008) and Véjar (2008).	Valuation level		
	High	Medium	Low
Information Analysis	The student understands and expresses the meaning of styles, song structures, and compositional elements of music; categorizes these meanings and clarifies their meaning.	The student understands and expresses the meaning of styles, song structures, and compositional elements of music, but does not categorize their meaning or clarify their meaning.	The student does not understand or express the meaning of styles, song structures, and compositional elements of music, nor does the student categorize their meaning or clarify their meaning.
Evaluation	The student assesses the credibility that integrates his perception, experience, situation, judgment, or belief towards what elements are most appropriate for the song he is going to compose; compares strengths and weaknesses, makes judgments.	The student assesses the credibility that integrates his or her perception, experience, situation, judgment, or belief as to what elements are most appropriate for the song to be composed, but does not compare strengths or weaknesses, nor does he or she make judgments	The student does not assess the credibility that integrates his or her perception, experience, situation, judgment, or belief as to what elements are most appropriate for the song to be composed, nor does he or she compare strengths or weaknesses, or make judgments.
Self-regulation	The student consciously monitors his cognitive skills, applying analysis, evaluation, questions, confirms, and validates his own results.	The student consciously monitors his cognitive skills, applying analysis, evaluation, but does not question, confirm or validate his own results.	The student does not consciously monitor his cognitive skills, applying analysis, evaluation, nor does he question, confirm or validate his own results.

Since the observed students attend 5 sessions per week within this subject, this instrument was applied every three sessions and after each homework or written activity that the students turn in.

Likewise, at this stage of adolescence, songwriting seen in an academic way is not something that students are used to and that takes time, the object of the present study was only the collection of data in the early stages of songwriting. The study was conducted between May 6, 2019 and June 14, 2019, dates corresponding to the first test of classes of the 2019-2020 school year.

This project was based on *The Find Inspiration Method, drawing inspiration for your music from other songs,* from the book *How to Write Songs That Sell* by Anthony Ceseri (2012), according to this method, students choose themes, styles, techniques, elements, and musical

motifs in other songs that they develop and analyze in order to give them a twist and make them their own for their own composition. This activity requires a lot of analysis and judgment to be able to choose the best option to be used in their song and to be able to raise their level of critical thinking. Each student had a folder in *Google Drive* where the activities and their choices of such elements, styles, among others, were captured. Throughout the project, students were able to revisit previous phases if they decided to change any of the elements they had previously chosen. The composition is something alive and not static, since it is common that they want or can change something of their composition if they prefer, for this requires a lot of self-regulation and it is something that is observed in each phase of the project.

The phases and their activities are described in detail in the following table, as well as the relationship between the project phases and the ABPr phases.

Table 2
Didactic strategy implementation process

Strategy implementation phases (Ceseri, 2012).	Correspondence with ABPr phase	Activity	Integration of critical thinking in each activity	Sub-competency to be evaluated
Introduction and pair formation.	Start-up Phase and Team Formation	Description of the study.	What objectives do we want to achieve?	None.
Choice of song theme.	Information gathering, Analysis and synthesis, Production	Brainstorm different themes that the song can address.	What is the best theme for what we want to express?	Analysis, Information Evaluation, and Self-Regulation.
Choice of song perspective.	Information gathering, Analysis and synthesis, Production	Ask, Who is speaking? To whom is he/she speaking? And why?	What is the best perspective to use?	None.
Choice of song form and structure.	Information gathering, Analysis and synthesis, Production	Analysis of different structures and shapes.	What structure best fits what we want to express?	Analysis, Information Evaluation, and Self-Regulation.
Choice of chord progression and its rhythmic pattern for each section of the song.	Information gathering, Analysis and synthesis, Production	Analysis of different chord progressions and rhythmic possibilities.	Which progression best accompanies what I want to express in my song?	Analysis, Information Evaluation, and Self-Regulation.
Choice of melody to be developed and varied for each section of the song.	Information gathering, Analysis and synthesis, Production, Evaluation and self-evaluation.	Analysis of different melodies and their types. Establishment of contrasts between each section.	What kind of melody should I choose? How do I make variations on an existing melody to make it my own? How do I establish contrasts between the sections of my song?	Analysis, Information Evaluation, and Self-Regulation.

The data analysis was carried out qualitatively through the classroom observation technique using a rubric that measures the LOW, MEDIUM and HIGH levels of the students in

terms of the acquisition of the critical thinking sub-competencies specified in Chapter 1 of this work according to Facione (2007), Elder and Paul (2008) and Vejar (2008). The phases of the project in which the rubric was applied were the following: 1) choice of song theme, 2) choice of song form and structure, 3) choice of chord progression and its rhythmic pattern for each section of the song, and 4) choice of melody to be developed and varied for each section of the song. The aforementioned phases were chosen because they demonstrate the greatest opportunities for analysis, evaluation and self-regulation to be developed by the participants. In each of these phases, students analyzed previous information, applied the knowledge acquired in their own project, and took responsibility for their own progress during the project.

Results

Information analysis

Facione (2014) defines the subcompetency of Information Analysis as the identification of relationships between questions, concepts, or other forms of representation that express some belief or judgment about certain factors. The process by which information is analyzed for Facione involves examining ideas, contemplating various arguments, and analyzing those arguments. This process is the one that was worked on with the students during the 4 sessions. In the particular case of this sub-competency, the students analyzed several sources of information in each of the sessions, with various types of content in order to make the choice that best meet their needs within the project.

For *Session 1 - Choosing the theme song*, the students were divided into pre-established pairs. The teacher presented the brainstorming activity to the students and taught how to do it in front of the students. After having presented the activity, the students brainstormed in pairs in which they first chose a general topic and, following the teacher's instructions, were able to go from those general topics to more specific ones on which they composed the lyrics of their song.

The result of this activity was evidenced in their *Google Drive* folder where the teacher was able to check that the students had completed the activity after monitoring and supervision within the classroom.

Session 2 - Choosing song form and structure consisted of analyzing existing songs that the students had previously heard, some of them were their favorites. The objective of this phase is for them to rationalize which song structures they were most attracted to and would use for the composition of their song. For this, the students filled out a document in which they expressed in detail which structure they chose and which song or songs they referenced for the selection of that structure. An example of a song structure is the following: intro - verse 1 - verse 2 - pre-chorus - chorus - interlude - verse 3 - pre-chorus - chorus - bridge - final chorus - outro.

In addition, the students made a topic development diagram in which they were able to divide the story to be told in their song into three parts. This allowed the students to not tell the entire story of their song in the first section of the song, as there would be nothing to tell in the rest. The first part was to contain a simple idea, the beginning of the story; this section would be embodied in stanza 1 and stanza 2 of the final song. The second part is where the idea expressed in the first part is developed, that is, if in the first part the composer described a moment in time in which the story takes place, the second part would talk about what the main character felt in the story; this section would be expressed perhaps in the pre-chorus or stanza 3 of the song. Finally, the third part is where the most important part of the song is expressed, the chorus or bridge, usually the parts of the song that have the largest instrumentation. In this part the main message of the song is told.

As in Session 2, in *Session 3 - Choice of chord progression and its rhythmic pattern for each section of the song,* participants analyzed chord progressions used in other songs that matched the theme of their song. For this activity, the students already had prior knowledge of diatonic chords, chord construction and musical analysis in Roman numerals. Knowing this, the students were able to capture on paper which chords they would use. An example of a chord progression using Roman numeral analysis is as follows: I - vi - IV - V (major chords are expressed in upper case and minor chords are expressed in lower case).

As in session 1, students filled out a document in which they wrote their chosen progressions and the songs to which those progressions refer. This document was saved in each individual *Google Drive* folder. It should be emphasized that the progressions did not have to be exactly the same as the referenced songs, but those songs served as a starting engine for the students to make their own.

For *Session 4 - Choice of melody to be developed and varied for each section of the song,* once the structure and chord progression of the song was chosen, the students analyzed existing melodies from which they learned how phrases and melodic lines act with certain chords and, in contrast to other sections of the same song, so that their song can tell a story and has a dynamic characteristic of a professional song.

For example, in some of the songs they referenced, the melody of the verses had a low or middle register, the pre-chorus took that melody from a low register into a middle register to end in a high register by the time it reached the chorus. This provides a melodic dynamic to the song that takes the listener of the song on a melodic journey while telling a story with words. The goal of this activity is for students to be able and know how to melodically contrast one section from the other so that their song is not boring and the best way to do this is by listening to and analyzing famous songs by other songwriters and composers.

In this activity, students were urged to be very careful not to copy the melodies of other songs, as this would constitute plagiarism. It is also worth mentioning that only the melodies and lyrics are copyrighted, not the chord progressions or themes of the songs. Thus, the students could have chosen a chord progression exactly like that of another song, even in the same key, and not be in danger of plagiarism for any reason.

After applying the rubric, the results can be seen in the following graph. In it, sessions 1 to 4 are shown on the *x-axis* and the levels on the *y-axis*, where LOW is 1, MEDIUM is 2, and HIGH is 3. The average achieved in the first session was 1.69, in the second session it was 2.04, in the third session it was 2.26, and in the fourth session it was 2.44. As can be seen in the graph, there was an increase in the development of the Information Analysis sub-competency of 0.75, a value obtained by subtracting the average of session 4 minus the average of session 1.

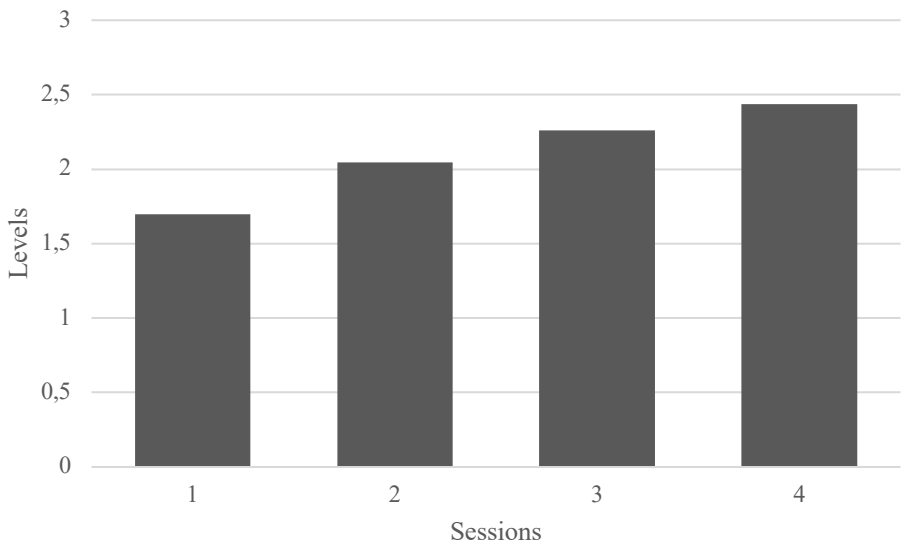

Figure 2. Graphical representation of the average values achieved in the subcompetence of Information Analysis in the 4 sessions of the project.

Evaluation

The evaluation of the information is the next step after the analysis, since it is where the student made a judgment on the information and content analyzed. The student compared the strengths and weaknesses that will allow him/her to choose one source of information over the other (Facione, 2014). The student reasoned about those aspects on which there is disagreement (Norris and Ennis, 1989) and this was what the students in this study were able to do, especially since it was a study carried out in pairs; there were disagreements at the beginning, but as the project progressed their way of evaluating the information allowed for more reasoned agreements.

In session 1, the students evaluated, after brainstorming, which theme would be the most appropriate for their song. We must remember that they are 13 to 15 year olds and that this is a school project; therefore, the theme of the song must be appropriate and free of any controversy and polemic. The result of this activity, as well as the rest of the activities, was captured in their individual *Google Drive* folder.

After listening to many songs and analyzing their structures, in session 2 the students chose the one that best fit the message they wanted to tell in their song. After deciding on the base form of the song (intro - stanza1 - stanza2 - pre-chorus - chorus - stanza3 - pre-chorus - chorus - bridge - final chorus - outro), the students defined the number of measures each section would have. An example of this is shown below:

- Intro - 4 bars
- Stanza 1 - 8 bars
- Stanza 2 - 8 bars
- Pre-chorus - 4 bars
- Chorus - 8 bars
- Stanza 3 - 8 bars
- Pre-chorus - 4 bars
- Chorus - 8 bars
- Bridge - 4 bars

- Final chorus - 16 bars
- Outro - 4 bars

In session 3, the students applied the chosen progressions to each section of their song. They also assigned the duration of each chord within each progression. After the students were able to hear which chord progressions they liked best for their song, they had to evaluate which chord progression(s) best fit the message of their song. For example, if their song had a happy, motivational, or tender theme, their chord progression could not contain a majority of minor chords, as this would give their song a bit of a dark color that would not have been compatible with the lyrics of their song. Similarly, if your song had a somber or sad theme, your chord progression could not contain a majority of major chords, which would have given a bright, cheerful color to a sad lyric.

After evaluating their choices and selecting the chord progression to use, the students had to choose the duration per measure for each chord. They could choose the same duration for all the chords or different durations depending on what they felt was most appropriate for their song.

In session 3, after having listened to melodies of other songs, their dynamics, their contrasts and how they acted in relation to their chord progressions, the students finally evaluated their choices and composed the melody that effectively accompanied their previously chosen chord progression. After applying the rubric, the results can be seen in the following graph. In it, you can see sessions 1 to 4 on the x-axis and the levels on the y-axis, where LOW is 1, MEDIUM is 2 and HIGH is 3. The average achieved by the 23 students in the first session was 1.69, in the second session it was 1.91, in the third session it was 2.17 and in the fourth session it was 2.43. As we can see, there was an increase in the development of the sub-competency of Information Analysis of 0.74, a value obtained by subtracting the average of session 4 minus the average of session 1.

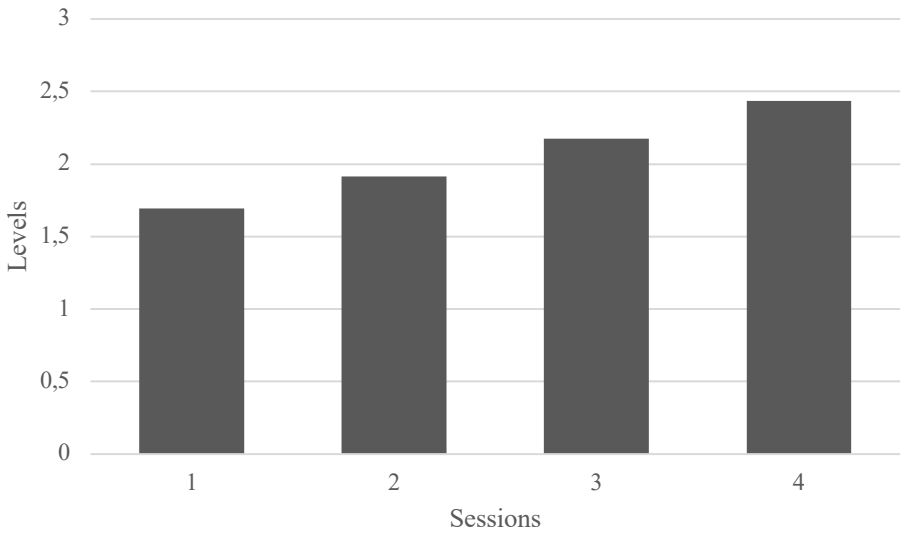

Figure 3. Graphical representation of the average values achieved in the evaluation subcompetence in the 4 sessions of the project.

Self-regulation

Self-regulation refers to the monitoring by a subject of his own mental processes, applying the analysis and evaluation of his own knowledge and judgments. This makes the subject constantly examine himself and correct himself if necessary (Facione, 2014). Students become responsible for their way of reasoning and the way they act in front of a certain situation so that they can make the best possible decisions (Elder and Paul, 2006).

The description of the sessions for this sub-competency is no different from the others already detailed in the sections on the other studied sub-competencies. During these sessions, the teacher served as a guide while the students carried out the work on their own and in collaboration with each other. The teacher supervised the activities going from one pair to the other and observed their attitudes, forms of communication, collaborative work between pairs, and proactivity when doing the activity.

After applying the rubric we can see the results in the following graph. In it, we can see the sessions from 1 to 4 on the x-axis and the levels on the y-axis, where LOW is 1, MEDIUM is 2 and HIGH is 3. The average achieved by the 23 students in the first session was 1.91, in the second session it was 2.22, in the third session it was 2.35, and in the fourth session it was 2.57. As can be seen, there was an increase in the development of the sub-competency of Information Analysis of 0.66, a value obtained by subtracting the average of session 4 minus the average of session 1.

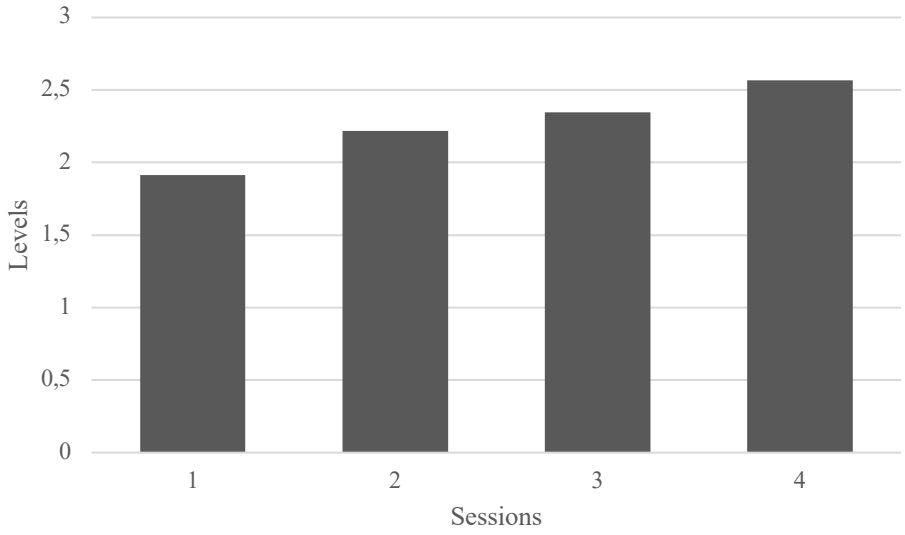

Figure 4. Graphical representation of the average values achieved in the Self-regulation subcompetence in the 4 sessions of the project.

Discussion and conclusions

Learning music is not one-dimensional. It requires perceptual, cognitive, and motor skills. All these skills interact with each other and evolve in complex ways that we are still trying to understand (Lehmann and Davidson, 2006). However, what is crucial is that music instruction is appropriate if the development of critical thinking is to be achieved, since the learner is not going to do it on his or her own.

This study sought to answer the following research question: How does the Project Based Learning strategy develop critical thinking in high school students of *Songwriting* in a private institution in the city of Samborondón, Ecuador? It was concluded that the use of this

didactic strategy does favor the development of critical thinking in this type of students after using a qualitative instrument for the collection and analysis of results.

The general objective of this study was to determine how Project Based Learning (PBL) allows the development of critical thinking in high school students of the subject *Songwriting* in a private school in Samborondón, Ecuador and it can be said that although there was an improvement in the critical thinking skills of students on average, it was not a very marked increase, since in certain students there was no development of critical thinking sub-competencies.

To meet the specific objectives of knowing the level of critical thinking in students and the assessment of each of the critical thinking sub-competencies, the classroom observation technique allowed evaluating these results in the sessions in which the strategy was implemented by seeing how students achieved the objectives of the project, carried out the activities of the project, and the results obtained in it.

Classroom observation allowed us to see the change in some students as they assimilated knowledge about composition and about which aural and structural elements were the most appropriate for the composition of their song. In some cases, it was even possible to see that they went from a LOW to a HIGH level during the development of the project. Also, being a peer project, communication among the students improved as the project phases progressed; at the beginning it was difficult for them to reach a consensus on which elements were the best for the composition, but by the end of the project, their agreements were flowing in a better way.

In relation to song composition, Ceseri (2012) expresses in his method that the student will be able to separate a song into parts and examine each of them for the benefit of their final product. This was proven by the students as they demonstrated this ability at the moment of choosing the elements that they would later use in their song. The results of the application of the ABPr strategy present concordance with the studies conducted by Hopper (2014), in which the author concluded that this strategy fostered the development of communication skills and teamwork, and Cenich and Santos (2005) where students showed authentic motivation with their task at the moment of discussing and arguing the best options with their peers to present concrete arguments. The participants in this study corroborated these findings, because if at the beginning of the project communication among them was not very fluid and there were disagreements about what elements to use and how to use them, at the end of the study the consensus reached was much more effective in terms of communication.

The fact that the subject of the study was not traditional and is not a subject usually taught in schools and colleges meant that the students may not have expressed an academic attitude at the beginning of the project or taken a more serious attitude towards the project. A longer project in which the participant is given more time to enter into this attitude would have achieved more pronounced and noticeable results.

This study brings new knowledge to the academic community, as it shows the development of critical thinking skills in a subject or field that has been little explored in educational research: musical composition. The fact that the student is creating something of his or her own after analyzing and evaluating previously received information is something that many educators seek in their students and this study helps to better understand how to achieve this. Its degree of subject specificity makes this study unique in its category, as no other researcher has studied this subject before.

One of the positive aspects of having conducted the study is to provide the opportunity to develop not only critical thinking skills, but other generic skills through strategies implemented in subjects that have not received attention from teachers, researchers, and managers of an educational institution. This study allowed students to see how their level of

critical thinking goes beyond the usual subjects or those called traditional by the educational community.

Similarly, it is important to see how the creation of something of their own by the students becomes an effective tool in the development and promotion of this type of competencies. This type of research or study could be applied in the future to the plastic and graphic arts given its application in the musical and compositional fields.

References

Aquino, G. (2018). *Project-based learning to develop self-directionin third semester baccalaureate level students*. (Master's thesis). Nochixtlán, México: Tecnológico de Monterrey.

Cenich, G., & Santos, G. (2005). Project-based learning and collaborative work proposal: experience of an online course. *Electronic Journal of Educational Research 7*(2), 1-18.

Ceseri, A. (2012). *How to write songs that sell. Success for your songs.* https://successforyoursongs.com/go/how-to-write-songs-that-sell/

Chomsky, N. (1970). *Aspects of the theory of syntax.* Editorial Aguilar.

Elder, L., & Paul, R. (2008). Critical Thinking: Strategies for Improving Student Learning. *Journal of Developmental Education, 32*(1), 32-40.

Facione, P. (2011). *Critical Thinking: What it is and why it counts?* http://www.student.uwa.edu.au/__data/assets/pdf_file/0003/1922502/Critical-Thinking-What-it-is-and-why-it-counts.pdf.

García Retana, J. (2011). Competency-based educational model: importance and necessity. *Electronic Journal Actualidades Investigativas en Educación, 11*(3), 1-24.

Hopper, S. (2014). Bringing the world to the classroom through videoconferencing and project based learning. *TechTrends, 58*(3), 78-88. https://doi.org/10.1007/s11528-014-0755-4.

Lehmann, A. C. & Davidson, J. W. (2006). Taking an acquired skills perspective on music performance, In R. Colwell (Eds.) Menc *Handbook of Musical Cognition and Development*. (pp. 225-259). Oxford University Press Inc.

Maldonado, M. (2008). Collaborative Project Based Learning: An experience in higher education. (U. P. Venezuela, Ed.) *Laurus, 14*(28), 158-180. http://www.redalyc.org/pdf/761/76111716009.pdf

Martí, E., Rocarias, J., Gil, D., Hernández, A., García, J., Juliá, C., & Vivet, M. (2008). Google Scholar, Use of virtual resources in Project Based Learning. http://refbase.cvc.uab.es/files/MRG2009.pdf.

Olivares Olivares , S. L. (2015). Business Graduate Skills: Competency-Based Model. In M. A. Khan, *Diverse Contemporary Issues Facing Business Management Education* (pp. 25-51). IGI Global.

Poveda, A. (2018). *Impacto de la estrategia de aprendizaje basado en proyectos (ABPr) en el desarrollo de pensamiento crítico para básica primaria* (Master's Thesis). Tecnológico de Monterrey.

Sandoval, M. (2010). Knowledge management and competencies: a new way of educating? *Revista Ánfora 17*(29), 61-90.

Téllez, A. (2018). *Project-based learning to promote critical thinking in an environment of educational apathy* (Master's thesis). Tecnológico de Monterrey.

Tobón, S. (2013). Integral education and competencies. Complex thinking, curriculum, didactics and evaluation. ECOE.

Tobon, S. (2006). *Basic aspects of competency-based training.* http://maristas.org.mx/gestion/web/doctos/aspectos_basicos_formacion_competencias.pdf.

Vejar, C. (2008). *Critical thinking: An academic perspective*. Great Neck Publishing.
Villa, A., & Poblete, M. (2007). *Competency-based learning: A proposal for the evaluation of generic competencies.* Ediciones Mensajero S.A.U.
Vizcaíno Avendaño, C., Marín Romero, F., & Ruiz Ospino, E. (2017). Co-evaluation and the development of critical thinking. *Advocatus*, (28), 1-18. https://doi.org/10.18041/0124-0102/advocatus.28.892.

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