Türkoğlu, D., Terzioğlu, A. M., & Can Yaşar, M. (2023). A graphical expression supporting listening and musical perception. *International Online Journal of Education and Teaching (IOJET), 10*(4). 2287-2299.

Received : 19.06.2023
Revised version received : 21.08. 2023
Accepted : 27.08.2023

A GRAPHICAL EXPRESSION SUPPORTING LISTENING AND MUSICAL PERCEPTION: MUSICOGRAM TECHNIQUE IN EARLY CHILDHOOD

Research article

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Abstract

Various techniques are employed to enhance music listening and perception skills in early childhood. One of these techniques is the musicogram method, proposed by Wuytack in the early 1970s following research into active music listening. This study aims to examine musicogram videos targeting early childhood shared on a social media platform, YouTube. The study employed a qualitative research method, and data was collected through document analysis. For data collection, videos were accessed on the video-sharing platform YouTube using keywords "müzikogram," "müzogram," "musicogram," "musicograma." Within the filtering criteria, musicograms in Turkish and different languages were included in the study based on their highest view counts across all time periods and sorted by ranking. As a result of the study, it was observed that classical Western music was predominantly used in musicograms prepared in different languages, whereas digital music and familiar children's songs were preferred in Turkish musicograms. It was also found that the symbolic representation used in musicograms did not correspond to the melodic rhythmic patterns of the compositions. The use of musicograms for early childhood has gained significant popularity on social media; however, there is a need to enhance the content to be more comprehensive, including theoretical and practical information.

Keywords: Early childhood, musicogram, musicograma, musical perception, music education.

1. Introduction

Music is a complex, multi-modal human activity. It engages perceptual, memory, motor control, and cognitive abilities, drawing on abstract reasoning, problem-solving, creativity, and aesthetic evaluation skills (Maxwell, Eigenfeldt, Pasquier, & Gonzalez Thomas, 2012). Children's musical development occurs through exposure to educational activities and regular exposure to their own culture's music (Boal Palheiros, 2015:10). The formation of music culture involves processes of listening to, perceiving, forming preferences, and developing inclinations towards music. In this process, musical experiences provided to children from an early age are of paramount importance. Experiencing music can occur through the creation of original music pieces (composition, improvisation), the reproduction of existing composed pieces using instruments and/or vocals (performance), or by listening to music interpreted by

others (Gluschankof, 2018:211). In daily life, listening to music, especially recorded music, has become the most popular musical behavior thanks to current digital technology.

Music plays an increasingly important role in societies and individuals' lives. The impact of technological and social changes that occurred in the second half of the 20th century and the accessibility of equipment for music reproduction have fundamentally transformed the nature of the musical experience (Hargreaves & North, 1999). With the influence of digital technologies, music has become more accessible at various times and places, leading to a personalized musical experience (Frith, 1996). With the advancement of new technologies and the accessibility of recordings, recorded music listening is also used in classroom settings for various musical experiences, such as music appreciation, active music listening (Campbell & Scott-Kassner, 2009; Murphy, 2013; Strauss, 1988; Wuytack & Bohal-Palheiros, 2009), perceptual listening, or in-depth listening (Young, 2009) (Gluschankof, 2018, p. 212). Listening to music forms the beginning of children's music education. As time passes, well-developed listening skills are also necessary to effectively evaluate music (Boal Palheiros & Wuytack, 2006, p. 1264).

Various techniques are employed in early childhood to enhance music listening and perception skills. One of these techniques is the "musicogram" method, proposed by Belgian composer and music educator Jos Wuytack in the early 1970s, following his research into active music listening. The musicogram technique, which is relatively new in Turkey, involves tracking musical elements and forms using symbols such as lines, colors, and geometric shapes that require the listener's physical and mental engagement before and during a listening activity. This learning technique is based on active participation through a schema or unconventional graphical notation technique that reflects the fundamental elements of music (melody, rhythm, form, tone, texture), enabling the active analysis of music (Boal Palheiros, 2015:10; Wuytack & Boal-Palheiros, 2009). Wuytack, in his system influenced by Carl Orff's ideas, argues that every child, regardless of their level of musical development, can be actively involved in music-making. For this purpose, he advocates for children to learn music by actually engaging in music-making. In this way, they are encouraged to actively embrace and experience their musical journey from their earliest encounters with sound. Hence, music should be accessible to all children, ensuring that they have the opportunity to actively engage in their musical experiences (Boal Palheiros & Bourscheidt, 2011).

1.1. Active Music Listening

Types of listening vary depending on the music, the listener, and the context. Different contexts lead to different types of listening, implying varying levels of attention and emotional engagement with the music. For instance, when listening to Western "classical" music in a concert hall or school setting, listeners are expected to remain quiet and still. On the other hand, active participation is encouraged with genres like rock, pop, jazz, or folk. In this context, musical listening occurs in two forms: firstly, there is passive listening, where music in the environment is unconsciously heard as background noise (on radio, television, internet, and computer). In this case, music is listened to for relaxation and enjoyment, evoking specific emotional states and allowing individuals to select the music they want to listen to (Homone, 2020). The second type of musical listening involves active and conscious listening, where the child is required to attentively follow the music to accomplish specific tasks assigned by the teacher. In the first scenario, the engagement with the music is done rhythmically, involving the entire body, and it can be integrated with physical movements or dance that engages the whole body or its parts. In active listening, tasks such as observing the message conveyed by the music or identifying musical phrases indicated on the score are performed by attentively listening to the music. In this case, the mind focuses on the information that led to the composition of the musical piece. An important aspect of active listening is its utilization of

visual perception to enhance musical perception (Delegido & Villodre, 2019:4; Homone, 2020). Active listening is conducted by an expert who aims to educate the listeners' musical taste and guide the acquisition of musical concepts and knowledge. Being active before and during listening enhances individuals' attention and concentration toward music (Wuytack & Boal Palheiros, 1995). In this context, "active listening" defines intentional and focused listening where the listener is engaged both physically and mentally, whereas "passive listening" refers to low-level attention and engagement, as in the case of background music, where music accompanies an activity (Boal Palheiros, 2002).

1.2. Using the Musicogram Technique for Active Music Listening

The Musicogram technique, in conjunction with active music listening, is an approach suggested by Wuytack in the early 1970s to teach classical music appreciation to children and young individuals without formal music education. This approach requires active participation from the listeners and employs visual perception to enhance musical understanding (Boal Palheiros & Wuytack, 2006:1266). The Musicogram is a graphical representation of music, serving as a visual depiction of the dynamic development of a musical piece. It replaces traditional music notes with a more straightforward and accessible symbolic system aimed at aiding the perception of the holistic structure of a composition, particularly for non-musicians (Figure 1). In a Musicogram, the musical form and elements (such as rhythm, melody, texture, timbre, dynamics, and tempo) are symbolically indicated. Musical expressions are represented using colors, geometric shapes, and symbols that are easier to perceive. This representation is based on general perceptual principles (Wuytack & Boal-Palheiros, 2009). The Musicogram aims to capture the listener's attention through a graphical representation of the temporal development of a musical piece, enabling them to establish necessary relationships through symbols or images to understand different elements of the music (Wuytack, 1996). The Musicogram is a graphical representation of music that takes the place of music notation, which might not be understood by someone who does not extensively study music. Its organizational system is more straightforward and consists of easily recognizable signs (Wuytack & Boal Palheiros, 1995:1265-1266). As a visual-auditory material, the Musicogram contributes to the activation of different centers in the brain by facilitating the perception of both musical and visual aspects of the content (Homone, 2020). In visual perception, the analysis of details occurs simultaneously with the perception of the whole. This advantage of visual perception is used to support the perception of the entire music piece (Wuytack & Boal-Palheiros, 2009:46). According to Wuytack's approach, the Musicogram technique involves:

1) The active engagement of the listener at both physical and mental levels through the interpretation of the musical materials of the piece before listening to it,

2) The listener's focus on the music during the listening activity and the recognition of previously played musical materials,

3) The analysis of the musical form through the listener's association of the entirety of the music with a symbolic visual representation, based on principles of musical form analysis (Wuytack & Boal-Palheiros, 2009:47).

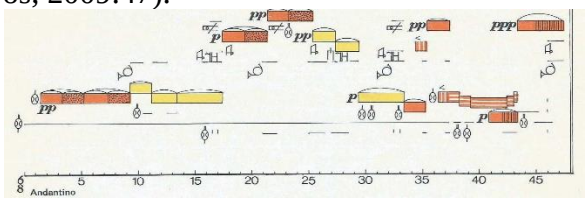

Figure 1. Jos Wuytack's Musicogram for G. Bizet's "The Doll" from Children's Games (Boal-Palheiros, 2015:13)

Following these three main principles, active music listening takes place in two stages. The first stage is introducing the music, where children are acquainted with the musical example. Experiences like singing, dancing, or playing an instrument occur in this stage. The second

stage involves listening to the music using the Musicogram technique. In this stage, children actively listen to the music while simultaneously following a Musicogram (Wuytack & Boal-Palheiros, 2009:47).

One of the most significant advantages of the musicogram is that it allows everyone to follow a music notation even without music knowledge. This understanding is made possible through the use of intuitive visual representations instead of traditional musical notations (Delegido & Villodre, 2019:4). The musicogram technique provides an opportunity for active listening that encompasses all these activities, enabling the listener to evaluate, comprehend, recognize, and make sense of different dimensions of the music. Thus, it initiates the first step towards musical analysis.

1.3. Current Study

Children's engagement with music often occurs through physically active activities. Musicogram also supports children's active engagement with the music they listen to. In the 21st century, thanks to digital technology and the internet, the musicogram offers various ways to conduct listening activities both in and out of the classroom (Homone, 2020). Particularly recently, there has been a significant increase in interest from families and educators in sharing musicograms in digital environments. It is worth noting that individual users' musicogram shares on web platforms have gained considerable viewership rates. When examining international research, it can be observed that researchers have investigated the impact of musicogram on children's musical perception and learning in early childhood (Azaryahu & Adi Jappa, 2022; Wuytack & Boal-Palheiros, 2016), its effects on early childhood music education and instruction (Villodre, 2019), and its use as a pedagogical resource (Valencia, Manzano & Barragan, 2023), as well as its influence on gross motor skill development (Quispe Cutipa, 2019). However, despite the increasing interest and high viewership rates in our country, a limited number of studies have been conducted on the musicogram technique and its usage. The relevant research has been found to be limited to studies such as the use of the musicogram technique in distance education (Onay & Aytemur, 2021), teachers' knowledge and opinions regarding the musicogram (Onay & Aytemur, 2021), the use of musicogram for teaching the Turkish National Anthem (Nart & Onay, 2021), and an evaluation of musicograms and their applications in Turkey (Şen, 2022). No study has been found regarding the use of musicograms, which has become an important area of interest in our country, especially in early childhood. Therefore, this study aims to examine musicogram videos for early childhood shared on a video-sharing platform, YouTube. The research is important in terms of providing comprehensive evaluation criteria to assess the musicality of highly viewed musicograms shared on the web, maximize musical learning opportunities, and make informed decisions while selecting musicograms suitable for early childhood. To achieve this goal, the following questions have been posed to shed further light on the topic:

- What are the descriptive characteristics of musicograms?
- What are the formal characteristics of musicograms?
- What are the formal characteristics of the visual notation of musicograms?

2. Method

The study employed a qualitative research method. Qualitative research aims to understand a specific social situation, event, role, group, or interaction. Qualitative methods rely on textual and visual data and have distinct steps in data analysis (Creswell, 2014).

2.1. Research Design

The study employed a case study design. A case study allows the researcher to thoroughly examine, understand, and make inferences about an event, individual, participant, or community without intervening in the situation. Hence, a case study is an empirical research type that focuses on specific current situations, aiming to answer questions starting with "how"

or "why" and providing the researcher with the opportunity to gather rich, in-depth data (Saban & Ersoy, 2016:113). Digital music technologies have significantly influenced how people engage with music in today's social world, opening up new avenues for field research. Building on this, the sounds and visuals of accessed musicograms in digital platforms that offer individuals quick access can be subjected to both formal and content analysis. This will enable the evaluation of a specific situation from these obtained musicograms.

2.2. Data Collection Method

Data related to shared musicogram videos in digital format was collected using the document analysis method. The documents were analyzed using the content analysis technique. The document analysis method is a systematic process used to examine or evaluate documents (Kıral, 2020). Documents can consist of both printed and electronic materials.

2.3. Data Collection

This study aimed to examine musicogram videos directed towards early childhood through the video-sharing platform YouTube. For this purpose, videos with audio and visual content on YouTube were scanned using subject tags such as "müzikogram, müzogram, musicogram, musicograma." Turkish and foreign-language musicogram videos with the highest number of views were identified based on upload date, genre, and ranking criteria. The criteria established for filtering include the continuous visibility of musicograms, being in video format, and the number of views according to the ranking criterion. In this scope, a total of 20 musicogram videos, including the top ten Turkish and various language videos with the highest number of views (in the first ten positions), were included in the study through the filtering process.

2.3.1. Document List

The criterion sampling method was used to determine the document list of the study. The musicograms determined by the criterion sampling method were evaluated through content analysis by creating subheadings (age/period, duration, genre of accompanying music, used symbols, musical notation, musical expression techniques, repetitive reminder elements, and usage-related information/narration) within the framework of expert opinions. The document list of the research consisted of the top ten Turkish and different language musicograms with the highest number of views at all times between September 15, 2022, and September 18, 2022. The findings related to the document list of the research are presented in Table 1.

Table 1. *Document List*

Order	Turkish Musicogram Title ™	Views	Foreign Language Musicogram Title (FLM)	Views
1	Küçük Kurbağa Müzikogram ve Ritim Çalışması	53.480	Musicograma "Pantera Rosa"	328.191
2	Müzikogram/Musicograma-Dance of Hours	36.549	Musicograma fácil	324.115
3	Ali Babanın Çiftliği Müzogram Ritim Çalışması	13.950	Musicograma Los Locos Addams	272.356
4	Müzogram	11.031	Musicograma Tritsch Tratsch polka	216.817
5	Müzogram Tekniği İle 10 Kasım Şarkısı	7.922	Musicograma Cross Dance	112.066
6	Neşe Palamudu	4.217	Musicograma-Polca TRITSCH-TRATSCH 1858 de Johann Strauss	79.315
7	Özden Keskin öğretmenimizin Küçük Kurbağa müzogram çalışması, haydi çalışsın parmaklar 😊	3.703	Muzogram "Mozart-Marsz turecki"	56.277
8	1.sınıf öğrencilerim için müzogram çalışmam-1	3.510	Musicograma "Danubio Azul"	25.852
9	Okul Öncesi ve 1. Sınıflar İçin Müzogram Tekniği ile Parmak ve Ritm Çalışması (Arı Vız Vız Vız)	3.263	Musicogram "Les Toreadors" Opera Carmen - George Bizet.	15.205
10	Beethoven 9. Senfoni Müzikogram	1.090	Musicograma - Daha Dün Annemizin - Twinkle Twinkle Little Star - Minican Kids Channel	13.470

When examining Table 1, it can be observed that the most viewed Turkish musicogram is "Küçük Kurbağa Müzikogram ve Ritim Çalışması" with a viewership rate of 53,480, followed by "Müzikogram/Musicograma-Dance of Hours" with 36,549 viewership rate, and "Ali Babanın Çiftliği Müzogram Ritim Çalışması" with 13,950 viewership rate. When looking at the most viewed musicograms in a foreign language, it is apparent that the viewership rates are

considerably higher compared to the Turkish musicograms. At the top of the list is "Musicograma "Pantera Rosa" with a viewership rate of 328,191, followed by "Musicograma fácil" with 324,115 viewership rate, and "Musicograma Los Locos Addams" with 272,356 viewership rate.

2.4. Data Analysis and Reliability

The criteria to be applied to the document list have been determined in the initial data analysis phase. Three main criteria have been established for data analysis: descriptive analysis of musicograms, content analysis of musicograms, and formal analysis of visual notation in musicograms. For the visualization of data, codes were assigned to each musicogram, and the findings were presented in tabular form. In this context, the analysis of the data was conducted in three dimensions:

Descriptive Analysis of Musicograms: The descriptive analysis of musicograms encompassed examination of the viewership count, target age and period, total duration of the musicogram, and information related to its use.

Formal Analysis of Musicograms: In the formal analysis of musicograms, elements such as the genre of the music used, employed symbols, musical notation, techniques of musical expression, and recurring reminder elements were examined. To ascertain the notation of the music, the "DaTuner" application (Figure 2) was utilized for elements such as meter, pitch, and tempo.

Figure 2. DaTuner Application

- ***Formal Analysis of Visual Notation of Musicograms*:** In the formal analysis of visual notation in musicograms, the accuracy of meter, pitch, and tempo has been evaluated by comparing the symbolic representation in each musicogram to its notation in the work.
- In the second stage of the data analysis process, coding and categorization were performed to visualize the data. Tables were created and visualized based on the criteria established in the first stage. In this stage, the reliability of data analysis was also addressed. The procedures performed are as follows: Each musicogram was observed from beginning to end for data analysis. Subsequently, by considering the reference criteria, the analysis of musicograms was carried out again for each sub-dimension. For the formal analysis of musicograms, inter-coders were consulted. Johnson and Christensen (2014:265) note that researcher triangulation is an effective strategy for achieving descriptive validity and reliability in the qualitative data collection and interpretation process. The involvement of multiple researchers, allowing for cross-observation control to ensure that researchers are in agreement with the situation observed, constitutes an important step in terms of the validity and reliability of the research. In this context, an inter-coder agreement was examined to ensure the reliability of qualitative data analysis. The inter-coder agreement was calculated using the percentage/coefficient formula of Miles and Huberman (2016:64). As a result of the individual analyses of a music educator expert, one field expert in child development, and two experts in child development, the agreement percentages are as follows:
- For the formal analysis of Turkish musicograms: Between Coder I and II: 92%, Coder I, and III: 97%, Coder II and III: 94%, with an overall agreement percentage of 94%.
- For the formal analysis of foreign language musicograms: Between Coder I and II: 88%, Coder I, and III: 92%, Coder II and III: 95%, with an overall agreement percentage of 91%. It has been determined that the coding agreement is at a high level.

3. Findings

The findings on the descriptive formal and formal analysis of the visual notation of the musicograms are examined under separate headings.

3.1 Findings on Descriptive Analysis of Musicograms

Table 2. *Duration and Usage Information of Turkish and Foreign Language Musicograms*

Turkish Musicogram	Duration	Usage info	Foreign Language Musicogram	Duration	Usage Info
TM1	02:01	Line/ rhythm	FLM1	01:18	Reading/ writing
TM2	01:37	Composition / Composer	FLM2	01:19	-
TM3	02:45	Composition	FLM3	02:04	Home practice
TM4	00:59	Composition / Composer	FLM4	01:29	Social media interest
TM5	01:33	-	FLM5	00:52	-
TM6	01:47	Rhythm	FLM6	03:04	-
TM7	00:23	-	FLM7	00:54	-
TM8	01:57	Line/ rhythm	FLM8	01:17	Composition/ Composer
TM9	03:15	Finger/ rhythm	FLM9	02:20	Project
TM10	01:00	Composition / Composer	FLM10	01:31	Musicogram Promotion

Upon examining the durations of musicograms based on their descriptive characteristics in Table 2, it has been determined that among Turkish musicograms, the shortest duration is 0.23 seconds, and the longest duration is 2:45 seconds. Similarly, among foreign language musicograms, the shortest duration is 0:54 seconds, while the longest duration is 3:04 seconds. Notably, within the top ten's Turkish and foreign-language segments, there is an absence of explanatory information regarding the applicable age range for each musicogram. Upon scrutinizing the provided usage information for musicograms, it is evident that Turkish musicograms are predominantly geared towards rhythm and line exercises, along with providing information about the composition and the composer. Conversely, in the case of foreign language musicograms, they appear to have applications in activities such as individual home practice or preparatory reading and writing exercises. These observations further indicate that foreign language musicograms include descriptions of the musicogram's nature, as well as information about the composition and composer.

3.2 Findings on the Formal Analysis of Musicograms

Table 3. *Formal Content Analysis of Turkish Musicograms*

Turkish Musicogram	Genre	Used Musicogram	Used Symbols	Music Notation
TM1	Children's Song		Vertical-horizontal lines, circles, triangles, and groups of triangles.	Time Signature: 2/4 Tempo: 109 Key: C Major
TM2	Classical Western Music		Letter (S), star, dot, vertical and horizontal triangle groups, line, broken (zigzag) lines, wavy lines, and finger opening-closing.	Time Signature: 2/4 Tempo: 110-120 Key: A Major
TM3	Transferred Children's Song		Parallel lines, dots, letter (C), horizontal lines, and triangle groups. Finger opening-closing.	Time Signature: 4/4 Tempo:112 Key: C Major
TM4	Classical Western Music		Dot, letter (N), reversed tail U, spiral, letter (Z), large symbol, letter (M), letter (V), dots, zigzag lines, wavy lines, triangle groups.	Time Signature: 4/4 Tempo: 110 Key: Key: D Major
TM5	Children's Song		Number (1, 0), infinity sign, parallel lines, vertical lines, zigzag lines, Atatürk portrait with a flag, letter (Ş).	Time Signature: 4/4 Tempo: 100 Key: D Minor

Turkish Musicogram	Genre	Used Musicogram	Used Symbols	Music Notation
TM6	Children's Song		Horizontal wavy line, vertical wavy line (human figure), letter (U), dots, numbers (1, 2, 3), curved arrow.	Time Signature: 4/4 Tempo:95-105 Key: D Minor
TM7	Transferred Children's Song		Vertical and horizontal lines, wavy lines, and right-slanting lines. Circles, groups of dots.	Time Signature: 4/4 Tempo: 105 Key: C Major
TM8	Children's Song		Slanted and broken lines, groups of dots, letter (C), and zigzag lines.	Time Signature: 4/4 Tempo: 120 Ritardando Key: D Major
TM9	Children's Song		Horizontal, zigzag, and slanting line groups, wavy line, circle, number (7), letter (C), letter (W), reversed V. *Note: A dot is present at the beginning of all symbols.*	Time Signature: 4/4 Tempo: 100 Key: F Major
TM10	Classical Western Music		Horizontal and vertical lines, zigzag lines, broken and dotted lines, spiral.	Time Signature: 4/4 Tempo: 60 Key: C Major

In the analysis of Table 3, it is observed that Turkish musicograms primarily favor the selection of children's songs (such as "Küçük Kurbağa" and "Ali Babanın Çiftliği") when considering the formal features of the musicograms. Relatively fewer musicograms are oriented towards classical Western music. Among the examined musicograms, there is a diversity of symbols such as lines, shapes, letters, numbers, zigzag lines, and so forth. Upon inspecting the notations within the musicograms, it is found that the time signatures used are mainly 2/4, 4/4, and 6/8, and their tempos vary within the range of 60 BPM to 120 BPM. Furthermore, it is evident that predominantly major keys (C, D, F, A) are utilized, except for one musicogram, which employs the D minor key. Regarding the employed musical expression techniques in Turkish musicograms, it is noted that only two musicograms incorporate such techniques. In the musicogram labeled TM2, the pitch variations in the sound are symbolized by continuous vertical zigzag lines for low pitch and vibrational vertical lines for high pitch. In the case of musicogram TM9, it is identified that the initiation points of beats are denoted by dots.

Table 4. *Formal Content Analysis of Musicograms in Different Languages*

Different Language Musicogram	Genre	Used Musicogram	Used Symbols	Music Notation
FLM1	Jazz		Horizontal Lines, Vertical Lines, Spiral with Tail Question Mark, Circular Spiral, Dots, Zigzag Line.	Time Signature:4/4 Tempo: 115-120 Key: E Minor
FLM2	Unknown		Horizontal and Vertical Lines, Triangles, Letter (W), Small and Large Dots.	Time Signature: 4/4 Tempo: 81 Key: C Major
FLM3	Cartoon Music		Letter (V), Vertical Lines, Inverted U, Dots, Spiral.	Time Signature: 4/4 Tempo: 120 Key: B-flat Major
FLM4	Classical Western Music		Vertical Lines, Dotted and Undotted Spiral.	Time Signature: 2/4 Tempo: 80-83 Key: A Major
FLM5	Children's Song		Dots, Inverted V, Vertical Lines, Wavy Ribbon-like Line.	Time Signature: 4/4 Tempo: 35, 65,110-125 Key: G Major

FLM6	Classical Western Music		Vertical Lines, Dotted and Undotted Spirals.	Time Signature: 4/4 Tempo: 88 Key: A Major
FLM7	Classical Western Music		Dots, Long and Short Dotted Vertical Lines, Spirals.	Time Signature: 4/4 Tempo: 120-125 Key: A Minor
FLM8	Classical Western Music		Curved/Wavy Line, Straight Line, Unnamed Continuous Line (resembling "e" in cursive handwriting), Vertical Parallel Lines, Cursive "e".	Time Signature: 6/8 Tempo: 143-147 Key: D Major
FLM9	Classical Western Music		Vertical Lines, Horizontal and Dotted Lines, Dots, Jagged Horizontal Lines, Wavy Lines, Horizontal Arrow Symbol.	Time Signature: 2/4 Tempo: 131 Key: A Major
FLM10	Children's Song		Vertical Lines, Zigzag Lines, Square, Letter (Z), Curved Lines, Circles.	Time Signature: 4/4 Tempo: 80 Key: D Major

When Table 4 is examined, it can be observed that classical Western music is predominantly chosen as the music genre in different language musicograms based on their formal features. This is followed by children's songs, jazz, and cartoon music. Across all the analyzed musicograms, various symbolic representations were identified, including lines, shapes, letters, numbers, zigzags, wavy lines, and geometric shapes. Regarding the musical notations in the musicograms, it was found that time signatures of 2/4, 4/4, and 6/8 were used. The tempos varied between 35 BPM and 147 BPM. In addition, there was a predominant usage of major keys (C, D, A, G, B-flat), with only two musicograms using A and E minor keys. Upon examining the use of musical expression techniques in different language musicograms, it was observed that only two musicograms incorporated such techniques. In the FLM2 musicogram, the symbols representing the thicker and thinner octaves were used as thick and thin dots, respectively. In the FLM9 musicogram, symbols were employed to represent repetitions (x2), legato (undulating lines in section B), staccato (dotted lines), and crescendo (upward arrow in section B).

3.3 Findings Regarding the Formal Analysis of Musicograms' Visual Notations

In the formal analysis of musicograms' visual notations, the accuracy of meter, pitch, and tempo was examined by comparing the symbolic representation in each musicogram to the notation of the piece in both Turkish and different languages. The processes for conducting the analysis were applied for each musicogram, as illustrated below through examples.

In the musicogram with the code TM1; accompanying the introductory music of the song was achieved by opening and closing the hands (clapping) in an eight-measure sequence. It can be observed that each line of the triangle symbols represents two eighth notes, the dashed lines represent quarter note values for the first two dashes, and half note value for the third dash.

Each circle and the first two vertical lines in the same row indicate quarter note duration, while the last vertical line corresponds to half note duration. The intermediate section (transition/interlude) located at the bottom row is represented by triangle groups throughout four measures. Despite the song having three verses, the musicogram does not employ any symbols to denote musical actions, such as returning to the beginning or repetition. To ensure the balance between the used music and the musicogram chart, the last horizontal line symbol in the first row should be used as a quarter note. Furthermore, an additional dashed horizontal line must be added next to it to complete the measure. Similarly, in the second row, the last vertical line symbol should be used as a quarter note, and to complete the measure, an additional vertical line needs to be added next to it.

In the musicogram labeled as FDM2, the symbols in the first and third rows are played in the lower octave, while the symbols in the second row are played one octave higher than the others. In the first row, the vertical lines of the first group and the inverted V symbols in the third group represent four beats of quarter-note duration, and in the same row, the three horizontal and three vertical line symbols in the second and fourth groups, respectively represent the quarter-note duration for the first two lines and the eighth-note duration for the last lines. On the other hand, it has been determined that the W symbols in the second row correspond to a duration of four beats, and the small dot groups in the second and fourth rows represent a quarter-note duration for the first two beats and a sixteenth-note duration for the last beat. The first symbol group in the third row, the large dot group, represents a duration of four beats, and it is represented in a larger manner compared to the dot group in the second row. The reason for this is that the melody corresponding to the third row is played one octave lower than the melody in the second row.

4. Discussion and Conclusion

When examining the descriptive characteristics of musicograms, it is observed that the target age group or period is not specified in both Turkish and different languages. The length of musicograms varies between 23 seconds and 3 minutes. In most musicograms, usage information is not provided. In the musicograms where usage information is provided, the explanation is limited to the work's title and the composer. Among the rich variety of orchestral music, it is recommended to offer short pieces of approximately one to three minutes in length to enhance children's concentration (Boal-Palheiros, 2015). In line with the research findings, it can be stated that the length of all musicograms in both Turkish and different languages is structured to maintain children's attention spans. However, it is observed that there is insufficient explanatory information about the active use of musicograms as a tool for active music listening, and the age of use is not specified. Musicograms are most effectively used from late childhood onwards. However, the initial stage of the active music listening system, which involves learning music through performance (such as moving, singing, playing, or dancing), is also adaptable to early childhood, as it supports early literacy skills (Boal-Palheiros, 2015). When examining the descriptions provided for musicograms, it is determined that they are primarily used for purposes other than being an active music listening tool, such as supporting alternative skills like line and finger exercises that enhance early literacy skills, rather than focusing on introducing the piece and composer. However, the primary purpose of using a musicogram as an active listening tool is to include explanations about which age group it will be used for, how children will be informed before starting, and which symbols correspond to which musical expressions. Wuytack (1971) suggests listening to music at least three times to grasp its entirety: Children first form a general impression, then become familiar with the musical materials, and finally understand and enjoy the music. Such an explanation is considered important for the effective and qualitative use of musicograms. However, according to Wuytack's concept, using two musicograms is necessary. One of these is a large musicogram that can be seen by the entire class, and, where necessary, explanations can be made, while the other is a small musicogram given to each child individually to work on. Nowadays, this feature has practically disappeared, and it is preferred for children's attention to be focused on a single point. Therefore, the musicogram is projected onto a digital board or screen. In this way, the progress allows the attention to be directed towards tasks related to the musicogram, dancing, and interpreting with instruments (Delegido & Villodre, 2019:4).

When examining the formal features of musicograms, it is observed that classical Western music is predominantly used in musicograms in different languages, while in Turkish musicograms, in addition to classical Western music, digital music and widely used children's songs (such as "Küçük Kurbağa" and "Ali Babanın Çiftliği") are preferred. Children have

difficulties in listening carefully to the "classical" Western repertoire due to its musical complexity and their lack of familiarity with it (Boal-Palheiros & Hargreaves, 2001). Music unfolds over time, making it challenging to perceive its entirety. On the other hand, the visual perception of art occurs at a specific moment, thus facilitating the perception of its entirety (Boal-Palheiros, 2015). When active listening strategies are applied through musicograms, children better understand classical music and derive pleasure from it. Being actively engaged (participating through intentional and focused listening) enhances concentration on the music (Boal-Palheiros & Wuytack, 2006). Visual materials and bodily movements also contribute to enhancing musical appreciation (Geringer et al., 1997; Shiobara, 1994). In today's digital age, visual imagery plays a significant role in human life; visual imagery and the internet constitute essential elements of the digital world for children. When creating musicograms, it should be considered that visual elements could distract children's attention (Homone, 2020). A fundamental principle in the formal features of musicograms is that visual presentation should not suggest non-musical images to the listener. For instance, colors indicate the similarity and contrast of musical themes; a horizontal line represents a measure, and instruments are depicted with symbols (Wuytack & Boal-Palheiros, 2009). In all examined musicograms, various symbols, including lines, shapes, letters, and numbers, have been observed. Upon analyzing the notations in the musicograms, it has been determined that time signatures of 2/4, 4/4, and 6/8 are used. The tempos range from 35 BPM to 147 BPM. Moreover, both major (C, D, F, G, A, Bb) and minor (A, E, D) keys have been utilized. The distinction between major and minor keys is one of the factors that affect the quality of musical perception. Major keys are perceived as more stimulating, happier, positive, brighter, and less odd compared to minor keys. This emotional difference in tonality is also influenced by the direction of the pitch; ascending pitches are associated with positive emotions, whereas descending pitches are linked to negative emotions (Burnham, Long, & Zeide, 2021). Moreover, all major keys consist of 5 whole steps and 2 half steps within the scale, while this pattern does not apply to minor keys. Minor keys are classified into two groups, "harmonic minor" and "melodic minor," due to the alteration of the 6^{th} and 7^{th} scale degrees either by flattening or sharpening. Consequently, learning and performing major keys can be easier and more practical compared to minor keys. In this context, it can be stated that the predominant use of major keys is suitable for early childhood music repertoire and education.

When examining the visual notations of the musicograms, it has been determined that there is a lack of balance and errors in symbolization between the chosen pieces and the musicograms (TM1..-..TM10, FLM1-3-4-5-6-7-8-10). In most of the musicograms, the expressive elements (dynamics, width, depth, articulation, legato, staccato) present in the actual notation of the pieces are not represented; in the provided pieces (TM2, TM9, FLM2, FLM9), attempts have been made to reflect techniques such as pitch, legato, staccato, dynamics through variations in symbols. Only one of the examined musicograms (FLM9) utilizes a reminder symbol (x2, A, B) for repetitions. The absence of the important reminder element of repetition in music, along with the use of symbols that are not easily understandable or applicable, has led to errors, such as practitioners continuing from a lower line in some videos. Work done with musicograms created by individuals without professional music education, where the correct rhythmic and tonal structure of the intended piece is not adhered to, and symbols that are not clear or easily applicable are used, can result in the child's inability to perceive the entirety of music and instead conceptualize music as a template or structure followed solely through lines. It could also negatively impact the development of musical memory and the ability to follow melodies and rhythms. Considering that these videos are intended for early childhood use and are employed by non-professional music educators and young children, it is believed that they may lead to confusion in terms of music listening and musical perception. Given the high view counts of the examined pieces, this situation poses a risk for listening and developing musical

perception in early childhood. Furthermore, when selecting a music repertoire for musicograms, the most suitable choice is instrumental music with a regular meter and clear structure. When creating musicograms for children, the repertoire should include pieces that are either intended for children or about children (Boal-Palheiros, 2015). Considering the necessity of interactive collaboration between adults and children in the process of musical perception, a musical experience should be provided (Homone, 2020).

5. Recommendations

- Within the framework of these examinations and considering the growing interest in the use of musicograms in early childhood, the following implications can be drawn:
- Experts in the field should prepare musicograms to ensure that children can listen to quality music and acquire musical achievements.
- The prepared content should include both theoretical and practical information and explanations.
- In using musicograms, the scaffolded approach should be considered, involving adult-child interaction. Adults should engage in conversations with children about musicograms and actively support the child's participation in an active music listening through cognitive structuring.
- In early childhood, it would be suitable to begin using musicograms individually and gradually transition to group activities involving musicograms.
- Specifically for early childhood educators, it is recommended to provide pre-service and in-service training by experts in the field on preparing, implementing, and evaluating musicograms.

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