Comparative comparison of music and architecture (case study: Frank Lloyd Wright falling water and Frederic Chopin Prelude No. 15)

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ABSTRACT: Human being, in his life, has always expressed his emotions, feelings, and sorrows with movements and words, which can be seen in music and architecture. The performed studies in the field of architecture and music have revealed that, from a long time ago, there has always been a conceptual relationship between these two arts and both of them have represented unique concepts. The present study has a functional purpose and its method is qualitative. The data has been collected through documentary and library studies and field observations, in such a way that while introducing a preliminary knowledge of an architectural work inspired by romantic movement and a piece of music from the same time, it has been searched to discover the conceptual relationship between these two works by comparing them in order to find their similarities. The study seeks to answer the question: What is the link between the two works of music and architecture? The results suggest that there are many similarities between the two works which shows the fact that from past to today, there has always been a conceptual relationship between music and architecture, and the two arts have represented unique concepts in all periods of time. In other words, human's emotions and spirit are the sources of the arts of architecture and music, and both, in different ways, seek to convey the concept of beauty to their audience, and this common desire has led to create the link between them.

Keywords: Art. Music. Architecture. Link. Sharing.

INTRODUCTION

The study of the relationship between the space of music and architecture in the past and today has been one of the permanent discussions in the arts field. The problem of the study is the introduction of the most significant and important linkages between the two arts which are studied into three categories of expression format, expression manner and expression mode. The purpose of the research is to deeper study the shared concepts between the two arts that both of them are created under the influence of Romantic Movement.

LITERATURE REVIEW

The first people who suggested some hypotheses to prove the internal relationship between mathematics, geometry, music and architecture included Pythagoras and Aristotle. They reached rhythmic and cosmic ratios. From the mentioned contemporary researches in this field, the results of a digital design project by Chris Tenson are
considered. He has designed parametric software containing numbers and ratios in order to generate 48 virtual forms on the basis of the preview of Johann Sebastian Bach’s first book. The latest contemporary research has been performed by Martin Wattenberg. He used arc graphs to interpret the most famous art works as a graph. He, in this study, argued that the relations existing in pre-modern periods are in contrast to the ones in the post-modern periods, and include many backgrounds. It is also compared to the conventional charts from some of the most famous modern pieces (Sohangir, 2012: 34-35).

The Romanticism Movement, the Intellectual Foundation of Organic Architecture

Romanticism is a literary and artistic philosophical movement which has spread to the northwest of Europe and the United states in the late eighteenth and nineteenth centuries. This movement was a reaction to the rationalism of modern reason. Geuthe (1749-1832) and Schiller (1759-1805), two famous German poets, used Romantic word versus Classic for the first time (Ghobadian, 2012: 63). The Romantics like the followers of Classic thinking believed in the mind of human. But, they focused on the feelings and emotions, and most of their philosophers were poets and they celebrated nature, emotions, and imaginations. Therefore, in classic literary and artistic works, they can be observed clarity, non-ambiguity, order, symmetry, proportionality; but, in romantic works, stimulating feelings and excitement, creating ambiguity and delusions, and natural spectacular views are considered. The Classics seek to dominate nature, while the Romantics look for admiring the nature. Friedrich Wilhelm Schilling (1775-1854), who is considered as one the important founders of romantic philosophy, believed that nature was a part of human himself and there is no separation between man and nature (ibid, 2012: 64). Organic architecture is rooted in the Romanticism Philosophy; it can be argued that the ideas of the leaders of the Romanticism Movement and their hypotheses about the nature rules led to form the organic architecture in nineteenth century by Frank Franz and Louis Sullivan. In the early half of the 20th century, the Romanticism Philosophy as one of the main elements of organic architecture is the fixed part of Frank Lloyd Wright’s architecture. Hence, in his designs, we can observe the combination of rigid and harsh elements in an artistic form which Wright himself calls it “elegance of the design”. Wright believed in organic architecture and was so interested in Japanese architecture. The influence importance of external surfaces and internal spaces was one of the features of his architecture, and he always emphasized on the maintenance of harmony between man and nature. The most important aspect of his architecture was the proper use of space. From his viewpoint, man is integrated with the environment and always has a continuous connection with it. According to Wright’s belief, technology is a means to achieve a higher-level architecture that, on the basis of his view, is the same as organic architecture (ibid, 2012: 67). He was one of the first people who oppose the prevailing traditional and classic thinking in architecture field and can create a new era in architecture of the world by his new ideas and thoughts.
Romantic Music

Romantic music refers to a periodical music from the Western classic music which has begun since the late eighteenth century. The music is related to the Romanticism Movement. For romantic composers, it was not just about portraying nature, but it was also considered a deep link between nature and inner lives of musicians which were the sources and inspirations of their art. Of the main features of romanticism is the transformation of some classic features including strict rules, order and balance, integrity and control. The clarity and non-ambiguity that were of the main aspects of the Classics were replaced by a type of deliberate ambiguity and symbolic expression for the Romantics. Focus on the emotional aspects of the artist, not following the constant and strict rules and following mental desires, the respect for human emotions and spiritual issues, using art as a means of stimulating emotions and freedom, are all of the features of this style.

The Concept of the Expression Format in Architecture and Music

Human being is a social creature and one of the most important needs of human is to communicate with his fellows and to create a relationship between realization and understanding, and language is the most important means of this relationship. Language is a set of contractual symbols which is used along a dimension (time) to convey messages. Also, in every original art, artists for expressing their inner selves require a system of contractual symbols to communicate with their audiences. The system, which in fact is the language of any artistic branch, is not a unique language, and in various arts appears in different forms.

In painting, sculpture and show, the expression format is as an object, and human is on that environment. Expression format in painting is a two-dimensional screen, in sculpture, a three-dimensional figure, and in show, the volume of the scene. It should be noted that space in itself is shapeless and is realized by its components. In the arts of architecture, music and cinema, the expression format is from space. The space surrounds human being (Keramati, 2016). To create each unit of space, there is a need to three key words of wall, ceiling, and floor. In other words, architecture art is to express the emotions of artist in a sample space, consisting of a rectangle, four walls, a ceiling and a floor (ibid). Music is an art with a completely symbolic language in the service of artist whose existential nature is abstract and subjective. The space genre which is the format of musical expression is audio space, and does not provide visual or eye images, but creates audio images to communicate with its audience. The required key words for these audio images are pitch, rate and section. Finally, in cinema, the space genre is audio-visual.

The Concept of Expression Manner in Architecture and Music

Expression manner in architecture is the same as style that different artists have different style for themselves. When an architect artist chooses some terms for collocating with wall, ceiling, and floor, he actually sets out his expression manner, and this is where the substantive form of a work begins to take shape. In music, there are also different manners for expressing a work,
and musician creates his work through its help and reaches the musical form of the work.

**The Concept of Expression Mode in Architecture and Music**

The chosen vocabulary by an architect artist, which are actually the natural or artificial material that he uses in the geometry of the built space to express a feeling (ibid), express the concept of mode in architecture. In music art, the selected vocabulary, which have audio genre, are also chosen by musician.

**The Introduction of Architecture Work**

Fallingwater or Kaufmann’s residence is one of the outstanding works of the famous architect, interior designer, and writer, Frank Lloyd Wright (1867-1959), which has been constructed in 69 km of the south-east of Pittsburg city, Pennsylvania state, and on the northern coast of Bear Run River in 1935. Fallingwater was quickly brought up all over the world because of its unique design and position. It was called the most beautiful architectural work of Frank Lloyd Wright by Time Magazine; and several months later, in the Smithsonian Journal, it was introduced as one of the 28 places that should be seen before death. Fallingwater was listed on the US National Historic Heritage List in 1966. Moreover, in the 2007 survey, AIA Institute ranked the work as the 29th most popular architectural work in the United States of America.

**The Analysis of the Work in the area of Expression Format**

- The constituted space
- The integration of building size with the natural environment
- Placing on the waterfall
- All around with glass screwed horizontally instead of wall
- A few walls and transparency in space
- Integration with considering the generalized and total details to secondary and partial details
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- Consoling the roof and its horizontal position parallel to the ground
- Beams of terraces being almost like cliffs
- Eroded rocks for building the roof of the house

The Analysis of the Work in the area of Expression Manner

Fallingwater has been built in the style of organic architecture which is rooted in romanticism philosophy. The features of this
building are:

- Parapet with eaves and network-like windows to enhance horizontal and vertical uniformities
- Cantilever concrete plates
- Its horizontal layers, free from apparent retaining, come up the waterfalls and brook’s basins
- The influence importance of external surfaces and internal spaces
- Along with the stairs from the living room to the creek down the house

- Natural manifestations of composition (undressed stones) and manifestations
- Constant display of materials from inside to outside of the building
- Horizontal expansion in all central directions

Picture 7: fallingwater
Source: www.designrulz.com

Picture 8: display of materials
Source: www.pinterest.com

- Placing the house on the rock, at least interfering with the natural architecture
- Proper use of spaces

Picture 8: placing the house on the rock
Source: www.archdaily.com

Picture 8: display of materials
Source: www.fallingwater.org
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Picture 9: second floor plan
Source: www.archdaily.com

Picture 10: third floor plan
Source: www.archdaily.com

Picture 11: first plan of guest floor
Source: www.archdaily.com

Picture 12: second plan of guest floor
Source: www.archdaily.com

Picture 13: main vertical and horizontal lines
Source: www.wright-house
The Analysis of Work in the area of Expression Mode

- Main vertical and horizontal lines of the distinct sections
- Conformity and harmony
- Bright red ground soil for concrete section
- A special red color (called Cherokee) for steel sections
- Natural factors like rocks, trees, plants and flowers are grown in the nature
- The display of materials the same as they are, whether they are rocks, wood or bricks
- Beautiful moving of waterfall under the house

Introduction of Music Work

Fredrick Francois Chopin was one of the most influential Polish musicians and the outstanding pianist in the Romantic era (1810-1849). His most important innovations were in the forms like Piano Sonata, Waltz, Nocturne, Etude, Prelude, Polonez.

Prelude 15 from opus 28 of Chopin is his longest and most beautiful prelude works. Chopin sang this prelude during his stay in his friend’s house, George Sand, in one of the Spain’s islands named Mallorca Valldemossa.

Chopin with Sand went to the island to escape the cold winters of Paris and improve his lungs. George Sand when heard this piece for the first time called it the drops of rain. The reason of naming this piece as the drops of rain is due to the repetition of AB note (Lampl) all round this prelude that is reminiscent of rain drops. Chopin was not so satisfied with the names that others put on his pieces, but the name of rain drops remained on this piece from that time.

The Analysis of the Work in the area of Expression Format

- Expression format: audio space
- Similarities of A&B
- Similar Tempo
- Similar Bar measurer
- Scale: Rambel Major
- Bar: 4 beats
- Piece form: independent Prelude
- Musical and structural form: three-part returnable

<table>
<thead>
<tr>
<th>Bars</th>
<th>Scale</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Rambel major</td>
<td>A</td>
</tr>
<tr>
<td>20</td>
<td>c-sharp minor</td>
<td>B</td>
</tr>
<tr>
<td>8</td>
<td>Rambel major</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>Rambel major</td>
<td>coda</td>
</tr>
</tbody>
</table>

The Analysis of the Work in the area of Expression Manner

- Start with a smooth and calm theme in
the part A with the right hand (Sol key)
• Start the theme in the part A in contradiction with the part B and restart the theme A
• Final part: theme repeating in shortening and extending the tonic
• the rhythm with few tracks and clear expression
• At the same time as starting the start theme in the right hand, the repeatable note (Lampl) in the left hand is appeared being the reminiscent of rain drops.
• Using the main theme in the method of thematic variations
• The presence of the repeatable Lampl note to the end of the part A
• Sol key (red flash)
• Fa key (blue flash)
• Lampl (purple flash)

• In the part B, the repeatable Lampl note is replaced by G-sharp note (red flash).
• This has a significant role in the continuity and unity of the piece.
• Exquisite movements in the harmonic cycle
• Increasing the dramatic aspect of the piece due to the use of the harmonic joints with extremely abnormal solu-

![Picture 1: piece analysis](image1)

Source: the author

![Picture 2: piece analysis](image2)

Source: the author

![Picture 3: the piece form (source: the author)](image3)

Source: the author

- Homophonic texture
- Tonal harmony
- Creating dramatic space due to the contrast of the parts A and B
- Distance as well as unity
- Using temporary exits and numerous modulations
- Cuts
Table 2: the comparison of the two artistic works (source: the author)

<table>
<thead>
<tr>
<th>Expression Format</th>
<th>Expression Manner</th>
<th>Expression Mode</th>
<th>The Selected Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fallingwater</td>
<td>Organic (inspired by Romanism Philosophy)</td>
<td>Conformity and harmony</td>
<td>Consolidating with natural environment — blending of spaces—plain surfaces—vertical and horizontal lines</td>
</tr>
<tr>
<td>Space</td>
<td>Few walls and clarity in space</td>
<td>Main vertical and horizontal lines of the distinct sections</td>
<td>Using just two special colors</td>
</tr>
<tr>
<td>Audio Space</td>
<td>Repetition and cycling of glasses all around the building</td>
<td>The presence of natural factors like rocks, trees, plants and flowers, and the display of material in the same way as they are</td>
<td>Homophonic Texture</td>
</tr>
<tr>
<td></td>
<td>Trimmed volumes from concrete as smooth and polished and boulders for constructing the roof of the house</td>
<td>Using the bright red ground soil for the concrete section and a special red color (named Cherokee) for steel sections</td>
<td>Tonal Harmony Modulation</td>
</tr>
<tr>
<td></td>
<td>The conformity of the applied materials for floors, entrance, and terraces Natural and artificial manifestations together</td>
<td>The beautiful moving of the waterfall under the house</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Romantic Rhythm with few tracks and very clear expression</td>
<td>Tonal harmony Creating the dramatic space due to the contrast of the parts A and B</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The presence of the repeatable Lamp note to the end of the part A</td>
<td>Homophonic Texture Using the temporary exits and numerous modulations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The presence of exquisite movements in harmonic cycles</td>
<td>Smooth and calm theme in the part A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continuity and unity and conformity of the piece</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Using the harmonic joints with abnormal solutions</td>
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</tbody>
</table>
|                   | CONCLUSION

From long time ago, there has always been a conceptual relationship between the two arts of architecture and music, and both have introduced unique concepts. In the comparison of fallingwater with Chopin’s rain drops, it seems that the two works share many similarities and represent shared concepts to the audience.

In fallingwater, the maintenance of the calmness of the forest, river and the rock was so significant, and all of these as well as the structure of the house and its consistency with the surrounding nature invite you to calmness and listening to soft sounds: the music of water and waterfall. In contrast, the most important features of Chopin’s piece are also unity and consistency all over the piece; the unity with attracts you to listen to the end of the piece.

The type of the material and the house’s texture from external view are not from the nature’s type, but it has been hidden in the nature in such a way that you are attracted. This difference is also felt in Chopin’s rain piece. The change of modulation, the shift of contrast and dynamic are enough to make you excited.

It seems that increasing the dramatic aspect of the piece due to the use of the harmonic joints with numerous abnormal solutions that have been happened in this piece and have made you to listen carefully has the same courage that Wright used in pre-prepared consoles in fallingwater.

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