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The Evolution of the Violin from Classical to Electric Form

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Abstract

This research consists of four chapters. The first chapter identifies the research problem, as modern technology has become an integral part of our daily lives in contemporary societies. Its indispensable nature lies in the numerous and easily accessible opportunities it provides us, aiming to achieve the best results. Among these modern technologies, contemporary electronic instrument manufacturing has prominently emerged in various musical instrument families, such as the violin, oud, qanun, and electronic guitar. In this study, we will discuss the classical (acoustic) violin and its contemporary electronic counterpart, explaining the differences in manufacturing and performance capabilities between the two instruments.

The researcher then established the objectives of the study, which aim to explore the evolution of the violin from its classical form to its electronic form. Furthermore, the researcher set the boundaries of the study.

In the second chapter, the researcher discusses the classical violin, its form, and performance specifications.

The third chapter delves into the research methodology, research community, research sample, research instrument, and the analysis focused on the electric violin, its form, specifications, and performance capabilities. The fourth chapter presents the researcher's findings, conclusions, recommendations, and proposals.

The research concludes with a list of sources and references.

Keywords: Classical violin, electronic violin, musical instruments, electronic instruments, electric violin

Chapter one

Research Problem:

Modern technology has become a significant part of our daily lives in contemporary societies, and it has become indispensable due to the numerous and easily accessible opportunities it provides us for achieving

optimal results. Among these modern technologies, contemporary electronic instrument manufacturing has quickly gained a prominent place among various musical instrument families, such as the violin, oud, qanun, and electronic guitar. The violin is arguably one of the most important string instruments, not only due to its historical significance but also because it is the only musical instrument that has penetrated cultural and artistic life worldwide to the extent that its external appearance has become a historical challenge for artists. This raises the question of its significance in the context of music history (André Morat, 1996, p. 96). The violin plays a fundamental role in musical ensembles, ranging from symphony orchestras to duets, from Gypsy music to folk music, and from its discovery, it has inspired important works by most composers, including in jazz, rock, and contemporary music.

In this study, we will discuss the classical violin and its contemporary electronic counterpart, explaining the differences in manufacturing and performance capabilities between the two instruments.

Significance of the Research:

• The research is beneficial to experts in playing the violin, whether classical or electric.

• It serves as an additional resource for the Iraqi library.

• It benefits researchers and students studying in this field.

Research Objective:

The objective of this research is to explore the evolution of the violin from its classical form to its electronic form.

Scope of the Research:

• Objective limitation: The violin in both its classical and electric types.

• Temporal limitation: From the emergence of the electric violin in 1990 until its introduction in Iraq in 2000.

• Spatial limitation: The countries that manufacture electric violins, including the United States, Italy, Germany, Japan, and China.

Chapter Two

Classic violin:

The classical violin is a four-stringed instrument made of metal. It produces the highest pitch among its family members. It is played using a curved bow made of Brazilian pernambuco wood, which is tightened with horsehair strings. There are also synthetic string options available, and the horsehair is coated with rosin, a resin made from the sap of the

almond tree, to ensure smooth and easy sliding on the strings (ELECTRIC Violin - ACOUSTIC Violin Differences & Review_low).

The vocal range of the violin is wide, spanning approximately four octaves. The violin is crafted from spruce wood, and the wood is stored before the manufacturing process to ensure complete drying, preventing subsequent changes in its dimensional proportions that could result in a loss of sound characteristics. Precise evaluation of the appropriate measurements is carefully considered when selecting the components that make up the instrument. The head, neck, back, sides, and tailpiece are made of maple wood, while the top and back are made of resin wood. The internal column is made of spruce, and the nut and tuning pegs are made of ebony wood (ELECTRIC Violin - ACOUSTIC Violin Differences & Review_low). All the violin's pieces are glued together, and no metal screws are used. The instrument produces a suitable audible volume without the need for musical pickups. When played, the vibrations resonate within the soundbox, resulting in clear sound projection.

To reduce the volume of the instrument, a wooden or plastic mute can be used, which is placed on the bridge to dampen the sound of the strings. The violin is lightweight, making it easy to carry and suitable for beginners to learn. The price of the violin depends on the quality of the wood used, and its weight is approximately 500 grams.

Violin with a mute parts of the machine the bow

Chapter Three

Research Method: Descriptive Method

Research Topic: Types of Classical and Electric Violins

Research Sample: Electric Violin

Research Instrument: Questionnaire

Analysis:

Electric Violin:

The electric violin is an instrument equipped with an electronic sound output for manipulating sound amplification or adding electrical effects to it. The player can connect it to a speaker system through a designated

cable. The instrument consists of four to nine strings, for example (A, D, G, C), and the sound travels from the microphone to the amplifier. In some cases, the sound does not resonate back to the instrument due to the absence of a soundbox. However, certain instruments may have a soundbox depending on the material they are made of. Additionally, we can control the volume or mute the sound using buttons on the instrument. We can also change the tone of the instrument to resemble another instrument, regardless of its nature.

Furthermore, we can increase the volume or enhance the thickness of the sound according to the occasion, performance, and venue. Without amplification, the sound produced by the instrument is very weak, reaching only a few meters. We can connect headphones to hear the sound coming from the instrument. The instrument can be connected either through an electric cable (adapter) or can have a battery for power. There is a bridge with a transducer that transfers the sound from the bridge to the equalizer and then to the speakers. The price of the electric violin depends on the type of pickup and equalizer used.

The chin rest is made of plastic and contains 4-9 pickups, with one pickup under each string. There is a company called BTS based in New York that produces chin rests with various pickups under each string. Once the chin rest is attached to the pickup, the violin becomes electric. The strings are made of perlon and aluminum, and the weight is approximately 1500 grams. There is a type of chin rest that includes a strap attached to the back for ease of handling.

There is a violin with two openings: one for headphones and the other, called the aux, for connecting it to a phone to play music while performing. There is also a device called the Zoom that allows for playing with different playing techniques, such as playing on a specific pitch (e.g., A, D, or C), to accompany a singer's voice.

The electric violin emerged in the early 1990s with the aim of changing and diversifying the sound, adding new tones that blend with the stringed instrument's timbre, resembling the sounds of guitars, saxophones, and clarinets. The main purpose was to produce a high and elevated sound. It entered Iraq in 2000, but the easier and simpler types were more prevalent. The appearance of the electric violin was driven by experimentation and a desire to change the traditional sound, as well as for commercial purposes. This instrument comes in various shapes, sounds, and manufacturing methods, with each country having its own unique style of production. Among the types are the electric, MIDI, and acoustic.

The MIDI type has multiple audio branchouts, utilizing a toothed cable that connects to the amplifier device. This type is commonly used in studios for sound clarity. On the other hand, the electric type has a single plug and is used for performances. The shape of the bow is larger

and thicker than that of the classical violin bow, and it uses the same type of horsehair as the classical bow.

As for the instrument strings, they are usually made of steel, stronger, rust-resistant, and have a longer lifespan. A sound device called the Zoom, Roland, or Yamaha is attached to the violin. It produces various types of sounds for all other instruments and can be programmed according to the player's preference to adjust a specific tone. It is connected with a cable. The famous types of these devices are the American Zeta, the Italian CANTINI, and the German Fender. There are no specific manufacturers of these devices in Iraq because they require special molds with luxurious specifications and features.

The introduction of the instrument to Iraq was due to musicians' need to enhance their musical performance, seeking a distinctive and higher sound. They aimed to obtain diverse tonal colors. The sound is extracted through a pickup under the bridge of the violin, with each string having its own pickup. This allows the sound to directly emanate from the string without the need for a soundbox. However, the classical instrument still retains its uniqueness in performance that cannot be replicated literally.

The instrument emerged in Iraq to keep up with technological advancements and the influence of Western music on Iraqi society during that period, including jazz, rock, and Beatles bands that relied on electronic instruments in their music. The instrument is made of wood, solid plastic, fiberglass, or even unbreakable glass.

The violin is primarily used in jazz bands, folk bands, and public concerts, excluding symphony orchestras and traditional music. The use of the electric violin in these contexts is due to its ability to produce a high sound when connected to a sound system or amplifier, without the need for high-precision sound engineering like wind instruments.

Additionally, other devices are sometimes added to the electric violin. These devices are placed near the player's foot and are connected between the violin's sound output and the sound amplifier device. Through these devices, the player can press on them with their foot to change the sound from the violin's sound to the sound of other instruments such as flute, saxophone, clarinet, cello, or even a combination of multiple violins in the same electric instrument. Moreover, the player can also adjust the musical layer's volume, either raising or lowering it, without the need to visually read the musical scales for different degrees.

With battery soboxboard electric pickup mic

Pickups sound output with a string under each pickup to control the strings

To output the sound at the required level, the sound output cables are in place of the cables

There is also a classical violin that can be converted into an electric violin by adding cables, microphone, speakers, and a sensitive soundboard. The soundboard, which is placed under the bridge, captures the vibrations and transmits the sound to the jack, then to the speakers and equalizer. This is achieved by adding a pickup connected to an electronic circuit for amplifying the sound and altering its tone.

Electric instrument without soundbiard, electric instrument with soundboard, classical instrument

The names of the electronic parts and their functions are in the pictures below.

1. The pickup is located under the bridge of the violin.

2. The circular component on the face of the violin next to the tailpiece is the equalizer.

3. The piece on the side close to the image is the audio output (output port).

4. The electronic component is located inside the instrument.

1. The instrument here is a classical one that has only a sound pickup device, which then directly outputs to the amplifier or speakers.

2. The pickup is placed under the bridge.

3. The output socket and volume control are located on the body of the instrument externally, and they do not include any electronic components or an equalizer.

1. The pickup is also located under the bridge in this instrument.

2. The other components in this instrument include the output socket (OUT PUT) and the equalizer (EQUALIZR), all of which are placed at the back of the instrument.

3. This instrument is electronic, meaning it can produce sound without the need for a sound device or amplifier when played.

Chapter 4

Results and Conclusions

1) The instrument is equipped with an electronic sound output for manipulating sound amplification or adding electrical effects to it. The musician can connect it to a sound amplifier through a designated cable. This indicates that skilled craftsmen have benefited from modern electronic technologies in the manufacturing of musical instruments.

2) One of the reasons for its emergence is to change and diversify the sound and add new tones mixed with a stringed instrument-like blend of guitar, saxophone, and clarinet sounds. This aims to achieve more diversity and variety of sound for different instruments in one device.

3) Sound is extracted through a pickup located under the bridge and also a pickup under each string, allowing the sound to be directly emitted from the string without the need for a soundbox. As a result, the weight and shape of the instrument become lighter and different from the conventional form and playing technique.

4) The instrument is made from wood, durable plastic, fiberglass, and even unbreakable glass. This provides even more diversity in the sound character.

5) The musician can also adjust the musical layer up or down without the need to transpose scales to other keys. This facilitates the musician's playing and recording process.

6) There is a classical violin instrument that can be converted to an electric one by adding cables, a microphone, speakers, and a sensitive vibrating strip placed under the bridge. It transfers the sound to the jack and then to the speakers and equalizer. This allows the musician to benefit from the same instrument without the need to purchase an expensive electric violin.

Recommendations:

1. The need for musicians to have an electric violin with internal sound variations without the need to connect an external device, for example, to increase the sound layer or raise the volume level.

2. Addressing the issue of inconsistent intonation and responses due to variable pressure applied to the bow on the strings, which does not produce the same frequency.

3. Manufacturing violins using lightweight materials for ease of transportation, as some violins are heavy and may require a shoulder strap to alleviate their weight.

Suggestions:

Conducting further studies on modern electric instruments such as the oud and the qanun.

Bibliography

Murat, A., & de Palin, M. (1996). Our Children and Music (R. Charbel, Trans.). Tripoli, Lebanon: Gross Press.

Interviews:

Al-Bayati, Z. S. (2023). Interview with Ahmed Aref, diploma of the Institute of Musical Studies [Interview transcript]. Unpublished manuscript.

Al-Bayati, Z. S. (2023). Interview with Hussein Fajr, diploma of the Institute of Musical Studies [Interview transcript]. Unpublished manuscript.

Al-Bayati, Z. S. (2023). Interview with Laith Anwar, BA of the Faculty of Fine Arts [Interview transcript]. Unpublished manuscript.

Al-Bayati, Z. S. (2023). Interview with Sari Raad, BA from the Faculty of Fine Arts [Interview transcript]. Unpublished manuscript.