Design of Modern Jewelry Using Unconventional Materials

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Abstract. The article discusses the use of new technologies or the use of non-traditional materials in the manufacture of jewelry. Due to the increased relevance of the use of non-traditional materials in jewelry, it became difficult to identify such objects in a certain category of jewelry. Now this area has been little studied and is of scientific interest in the field of jewelry design and arts and crafts.

1. Introduction
Contemporary arts and crafts does not stand still, and along with traditional materials, many new ones appear that easily become public and gain popularity among consumers. An increase in the number of materials broadens and enriches the range of creative searches for designers, designers, craftsmen, jewelers [1].

In our dynamically developing century, it is very difficult to surprise and interest consumers with their products. With the development of new technologies, new opportunities appear, thanks to which the range of development of unknown materials expands, new ones are created.

The issue of classifying jewelry using unconventional materials is complex, since no such research has been conducted in the jewelry industry to date.

2. Relevance
The relevance of studying this area is determined by the following positions:
1. lack of practice in the production of jewelry using non-traditional materials;
2. weak connection between the theory and practice of designing and manufacturing jewelry using non-traditional materials;
3. contradictions in the existing conceptual apparatus in the field of jewelry;
4. detection of discrepancies between the need for practice and the proposed approaches to solving the problem.

In the scientific literature on our stated problem, there are much more sources that describe the technological capabilities of decorating unconventional materials. [2] In the scientific research of the author, Galanina S.I., on the basis of the work done, conclusions are drawn that in various electrolytes
under different electrolysis modes, a wide range of colored decorative coatings on titanium can be obtained. Permyakova L.P. described the properties and advantages of the materials used: organic glass and artificial stone (acrylic stone) over traditional materials in jewelry. Klevtsova R.S. together with Timofeeva V.L. investigated the geometric representation of the process of visual perception of the textured surface. Yu.O. Kallas in her work described the development of a project of a female bracelet in the style of minimalism, made in a private workshop using an unconventional material for jewelry production - acrylic glass. Varyukhina E.A. considered polymer clay as a material of the author's jewelry art [3]

The issues of development trends in shaping depending on style and fashion are practically not discussed, the question of public consciousness is practically not addressed.

3. Theoretical part
Jewelry at all times was the way in which it was possible to demonstrate the worldview to other people. For example, the high cost of jewelry speaks of economic superiority, status and freedom. In modern culture, jewelry has incorporated all the meanings, semantics, technologies created by mankind over the thousand-year history of its existence. [4]

Jewelry art is a special kind of activity that combines art and technology of machine and manual production. Today, jewelers boldly use unconventional materials to embody their ideas, allowing them to expand the decorative opportunities sector, combine traditional jewelry craftsmanship and innovative design technologies [5].

In connection with the appearance on the market of new materials and technologies, a new concept of “non-traditional” materials appears, which to this day does not have an exact definition. The classification of materials for the manufacture of jewelry is complicated, since it has not yet been precisely established which types of materials are included in the traditional group and which are non-traditional. After analyzing the scientific and art history literature, we can conclude that there is insufficient theoretical elaboration and a weak connection between the theory and practice of designing and manufacturing jewelry using non-traditional materials. [6,7]

In order to formulate a definition of “non-traditional” material for jewelry, it is necessary to analyze the conceptual apparatus of traditional materials. According to the explanatory dictionary T.F. Efremova “Tradition is that which has developed historically and is passed down from generation to generation through traditions, verbally or in writing (ideas, knowledge, views, mode of action, etc.), an entrenched order”. [8]. Thus, the traditional materials for the manufacture of jewelry are considered to be precious metals in combination with precious stones, as well as base metals: copper, bronze, nickel silver, brass, nickel silver, aluminum, tin.

However, modern jewelry does not stand still, and along with the traditional ones, many new ones appear that easily become public and gain popularity among consumers. According to the explanatory dictionary S.A. Kuznetsova “unconventional - not being traditional; associated with retreat, abandonment of traditions; fresh; innovative”. The use of non-standard materials should transform the material so that it becomes something other than the novelty of the material itself.

Unconventional materials for jewelry are materials that have not been previously used in jewelry or used, but have not passed into the category of traditional (mother of pearl) due to certain circumstances. Non-traditional materials are divided into two groups:

• the first includes inorganic and synthetic materials created by man through the development of innovative technologies (plastic, nylon),

• in the second materials of organic origin (shells, plant petals, mollusk shells),

• non-traditional materials do not include precious metals (gold, silver, platinum and platinum group: ruthenium, rhodium, palladium, osmium, iridium) and base metals: copper, bronze, nickel silver, brass, cupronickel, aluminum, tin,

• do not belong to non-traditional materials of the group from the classification of stones.
4. Practical part
Jewelry fashion has its own development cycle, but not as active as fashion in clothes. At the moment, this sphere is characterized by complete freedom in choosing creative ideas and concepts, materials, technologies.

In modern jewelry, designers consider the main task to influence the emotions of the viewer. The concepts developed by them are always a kind of experiment, creative improvisation, which cause not sentimental feelings, but irony, sometimes they simply plunge into a state of shock [9].

![Figure 1. Brooch “Rose” by Esther Knobel](image)

Unusual and even shocking jewelry offers Julia De Ville. She demonstrated hat pins on which small-sized stuffed mice and exotic birds decorated with precious materials were strung. Creating these pieces of jewelry, Julie draws attention to the peculiarities of Eastern philosophy, in which death marks the beginning of a new life. Combining the theme of death and luxury in one piece, the author strives to encourage the viewer to respect the other world and value life.

Contemporary jewelry does not bypass the theme of global computerization of society, identifying the problems of this issue. The concept of the jeweler Max Wolf suggests that modern technical devices (mobile phones and laptops), as well as their owner, have the right to decoration. He decorates chargers with a magnificent fox tail and gold elements [10].

Thus, jewelry is a reflection of the designer’s thoughts on new conceptual ideas, through the prism of his own perception of the problems of modern society and the transfer of the emotional state of the era. Important are emotional experiences, the emotional state of a person, philosophical thoughts. Non-traditional jewelry materials express the idea in the best way: rubber, photo inserts, stuffed animals and birds, etc., paying attention to the non-standard conceptual solution. [eleven]

Due to the fact that fashion does not uniformly apply to the categories of jewelry, it is necessary to combine women's jewelry into classes according to similar characteristics such as the number of products manufactured, the principle of artistic design and the use of materials. Analysis of the jewelry market gives reason to highlight the following types of classes:

- exclusive, single jewelry;
- jewelry produced in limited editions;
- jewelry produced in bulk.

Contemporary jewelry has several directions, for each of which there are distinctive features (table 1).
Table 1. Trends in contemporary jewelry.

| Trend                  | Features                                                                                                                                 |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| High jewelry           | The products use rare, unique and very expensive gemstones. Manual labor prevails over automated labor both in the production process and in the design process. Traditional methods of design and production. This trend keeps a high culture. |
| New or current jewelry art | Characteristic is the desire to search for a concept using the language of forms and simeotics. The main task is to achieve maximum expression with minimal means. Mandatory work with non-standard material and innovative design methods. Experiments with material and compositional techniques. Built future products using computer programs. |
| "Fashionable" jewelry art | In products, preference is given to inexpensive materials, following fashion trends in a suit, as well as seasonality, a relatively quick change in the assortment range of jewelry. This direction is distinguished by shocking, as well as the borrowing of some forms and techniques from the developments above the described direction. |
| Traditional jewelry    | A dynamically developing direction, absorbing all the best from the above.                                                                |

Modern designer jewelry is distinguished by a conceptual approach to the artistic image, expressed through the use of non-traditional materials and innovative design methods. A distinctive feature of modern jewelry is aimed at finding the opposite forms in which compositional harmony is manifested. [12].

Currently, jeweler designers are continuing experiments using unconventional materials, new compositional techniques for modern jewelry, for example, using the experience of kinetic composition and developing volumetric composition (Figure 2).

![Figure 2. Design by P. Fabre. Pearl necklace "with a zipper." 2010s](image)

![Figure 3. Design by JAR. Bracelet. Oxidized titanium, silver, gold, sapphires, tourmalines, amethysts, tsavorites, diamonds. 1987](image)

Compared with the usual forms, many modern jewelry using unconventional materials are specially scaled in order to organically fit and complete the created image, to be part of the costume. Another characteristic feature is a fairly quick change of assortment in a number of jewelry. This is a consequence of the rapid development of the fashion industry and following its trends.

The use of non-traditional materials can significantly expand the range of products, setting new directions in the modern industry of high-class jewelry. This process has its own propensity for
development, associated more with fashionable popularity. Thus, it is possible for designers in the field of jewelry to declare the differences of contemporary art and create new values. One of the new trends in jewelry includes a fundamental change in the perception of extra-class jewelry, which will allow us to escape from restraint in terms of choice of materials. [13,14]

An example is the work of jewelry designer from New York, Anna Ruth Enriquez, who created the collection using raw natural materials in an eco-chic style. The colored jewelry presented at Couture was made with inserts of pieces of pyrite, which has a copper-yellow color and creates a contrast with 18 carat gold. An important role is played by the untreated surface of natural material.

K. Brunini Jewels' jewelry reflects a non-standard approach to the selection of materials such as carved antlers of moose, antelope and goat. For a harmonious combination of this unconventional material, polished horns are enclosed in a frame of gold and encrusted with diamonds (Figure 4).

![Figure 4. K. Brunini Jewels. Ring. Yellow gold, diamonds of a moose antler](image)

Among staunch adherents of gold jewelry, such as jeweler Roberto Coin, there is a tendency to get rid of conditional restrictions that are associated with the use of precious metals. The Italian jewelers' Capri Plus collection features products that use African ebony along with ruthenium-treated silver and cannon-bronze trim.

In a new collection of jewelry that is part of the Spiritism, Craft, and Waste series of projects, author August Sveinstdatyr explores the nature of dust transformation and decay. The dust collection is a reflection on material value. Designers wondered whether it is possible to create new objects from materials that are considered to be nothing more than useless dirt [15]. In the jewelry collection of this author, dust is not perceived as a nuisance, but turns into a precious coating, which makes it something of value. The concept is time, destroying the structure of a thing, turning it into dust, which makes a person think and enjoy every moment of his life (Figure 5).

![Figure 5. August Sveinstdatyr. Ring. Yellow and white metal, dust. 2014 year.](image)

The new Jewelry Designer Joanna Souflia Collection called “ADIEU” includes pink gold and Greek marble with loose diamonds. The main idea of its creation was the architecture of the urban environment of megacities. Each piece of jewelry visually documents the interaction of a person with a city. Following the distinctive sculptural aesthetics of her previous collections, the author
deconstructs the volume, designs drawings of jewelry using clear contours, preserving the sculptural identity of her work [16], embracing a variety of materials in her jewelry, demonstrates the elegance of minimalism, the softness of organic beauty and the dominant presence of architectural elements (figure 6).

Figure 6. Joanna Souflia. Ring. Rose gold, Imperial Bardillo marble, gray diamonds. 2016 year.

Thus, the value of the created jewelry does not depend on the price of the source material, but to the beauty of the jewelry in the internal subjective perception of the viewer, this corresponds to the phrase. You can also argue about the active use of non-traditional materials in the modern jewelry industry in connection with the new fashion trends that are observed in the jewelry market. The use of alternative materials in products allows jewelry designers to expand their creative capabilities by boldly experimenting to create new conceptual lines. [17]

After analyzing jewelry using non-traditional materials of modern designers, we can conclude that a new kind of art is being created, combining many creative directions, including not only types of fine art. Jewelry becomes a reflection of the author’s thoughts on new conceptual ideas through the prism of his own perception of the problems of modern society and the transfer of the emotional state of the era. Important are emotional experiences, the emotional state of a person, philosophical thoughts. In the best way, the idea is expressed by modern materials that are not traditional for jewelry: rubber, photo inserts, stuffed animals and birds, etc., paying attention to the non-standard imaginative solution.

In the process of designing and defining the concept, it is necessary to take into account the characteristics of certain groups for which jewelry is created. To understand the essence of consumer demand, a designer jeweler needs to be guided in the areas of jewelry, each of which is characterized by principles and techniques regarding the processes of artistic design [18, 19].

One of the new trends in jewelry includes a fundamental change in the perception of extra-class jewelry, which will allow you to escape from restraint in terms of choice of materials, which is limited to the use of gold, platinum and precious stones. Jewelry speaks a lot about who wears it. Jewelry in different ways reveals the character of the owner [20]. Jewelry can demonstrate the attitude to the surrounding society, reflect the state of mind, determine the way of communication with others and with oneself.

Jewelry is a combination of the interests of the consumer, manufacturer and designer of jewelry. For each of these categories, the world of jewelry opens up the possibility of using unconventional materials in different ways.

5. Conclusion
Today, the consumer first of all evaluates the visual attractiveness of the product, paying particular attention to its design and emotional impression. Only after this the buyer pays attention to the quality of jewelry, financial opportunities, the image of the manufacturer and fashion trends [21]. Also, over time, the function of jewelry has changed. For the modern consumer, it was especially important to
purchase jewelry as a spectacular part of an accessory that emphasizes style, and not as earlier, to demonstrate the social status of the owner in society.

In addition to the consumer in the jewelry market, a special place is occupied by the manufacturer, who sees the situation from the other side and solves certain problems for himself. The jewelry industry in this case is a system that includes factors that influence changes in sales results. Constantly developing product sales strategies capable of combining jewelry traditions, innovative technologies and materials, methods of studying consumer preferences [22].

Opportunities that open up for jewelry designers in the process of using non-traditional materials to create women’s jewelry allow expanding the creative self-realization of the master. Through the use of alternative non-traditional materials in jewelry industry jewelers create new values. The initial cost of the raw materials used is no longer so important as the value of the author’s conceptual solution, his experiment and a new vision for the development of jewelry. With the use of non-traditional materials, jewelers reflect modern fashion trends, affecting to a greater extent the emotional perception from the external perception of the product, which leads to philosophical reflection (table 2).

**Table 2. Possibilities of using non-traditional materials in jewelry**

| Types of groups involved in the process of creating and selling women's jewelry | Benefits of Using Unconventional Materials in Women's Jewelry |
|---|---|
| Jewelry consumer | • A way of expressing individuality; |
| | • accessory emphasizing style; |
| | • good gift; |
| | • Reducing the cost of goods; |
| | • expansion of the assortment; |
| Jewelry maker | • high demand; |
| | • high income. |
| | • Expansion of creative opportunities; |
| Jewelry designer | • creation of new values; |
| | • following modern fashion trends; |
| | • disclosure of a conceptual idea. |

Having found out what priorities a consumer, manufacturer and designer has, using non-traditional materials for the purchase and manufacture of women's jewelry, one can formulate jewelry criteria that take into account the interests of these three groups: creating a sample for comparison, which will include concepts: artistic image, material, technology, design methods.

The main requirements for jewelry using non-traditional materials are as follows: functional, psychological-ergonomic, aesthetic, cultural (table 3).

**Table 3. Evaluation criteria for jewelry using non-traditional materials and taking into account the interests of the consumer, manufacturer, artist-jeweler.**

| Functional requirements | Psycho-ergonomic requirements | Aesthetic requirements | Cultural requirements |
|---|---|---|---|
| fit for purpose | optimality of size | stylistic unity of artistic images | degree of uniqueness |
| technical aesthetics (quality) | optimality of visual perception | compliance with the laws of composition | modernity and relevance |
|  |  |  | value |

The value of designer jewelry does not depend on the price of the source material, since all the beauty of jewelry is in the internal subjective perception of the viewer. Today, jewelry allows you to
demonstrate your attitude to the world around you, and in particular to society, reflect your state of mind, determine the way you communicate with others and with yourself.

Thus, we can conclude that jewelry using non-traditional materials open up opportunities for the consumer, manufacturer and designer of jewelry in different ways. From the point of view of the designer, the process of designing and manufacturing an “ideal” product using unconventional materials expands creative possibilities, meets modern fashion trends and reveals a conceptual idea.

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