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Traditions and experiments in contemporary jewelry art education

Abstract. The article examines the methodology for training future jewelry artists, which is based on artistic-technological experimental research activities. The relevance of the study is due to the need to combine traditional hand techniques of artistic metalworking with the experimental application of new materials, technologies and design-engineering solutions. The methodology is presented through the example of students developing a collection of jewelry based on the artistic heritage of the Maya civilization. The research-exploratory, design-experimental, practical and control stages of the work are revealed. The content of student activities and pedagogical support at each stage are characterized, including the study of cultural and historical sources, analysis of materials and technologies, replication of samples, development of sketches and mock-ups, execution of technological tests, creation of original pieces and evaluation of results. Research, compositional-artistic and technological criteria for evaluating student works are defined. The result of implementing the methodology was a collection of original jewelry pieces, which was presented at an international exhibition in Paris.

Keywords: professional training, jewelry artist, jewelry art, artistic and technological activity, experimental and research activity, jewelry design, artistic metalworking, Maya culture, original jewelry pieces.

The system of higher education in the field of jewelry art faces a complex task: to prepare a future jewelry artist capable of combining knowledge, skills and competencies in classical hand techniques of artistic metalworking with experimental work, including the use of new materials. Such training will enable students to realize original artistic concepts and will demonstrate a high level of professionalism and artistic-technical mastery.

The educational program of the Russian university of traditional art crafts is aimed at forming a complex of professional knowledge and skills in graduates, necessary for solving the following tasks:

- artistic and creative direction: mastering traditional hand techniques and methods of artistic metalworking. The study of historical samples of jewelry art from different eras and cultures helps students to see the interconnection between the form of an object, the technological possibilities of its manufacture, and its artistic content. At the same time, the study of traditional jewelry is not reduced to copying known samples, but involves their creative rethinking in the context of current artistic tasks. The role of the instructor is to teach future jewelry artists to work consciously with artistic heritage and to create original works based on it;

- the project-based direction involves the sequential development of a jewelry item: from the analysis of the theme and the formation of an artistic concept to its realization in material. Students study analogues of jewelry items, develop exploratory sketches, develop the composition and structure, determine the purpose of the item and select materials and manufacturing technologies. During the design process, students learn to correlate the artistic concept with technological possibilities, while taking into account the requirements of ergonomics, functionality and ease of use. The instructor's task is to teach future jewelry artists to justify design decisions, verify them using mock-ups and models, and, if necessary, adjust the concept while preserving its artistic integrity;

- the research-oriented direction involves developing students' ability to apply scientific methods when studying historical and contemporary works of jewelry art, developing artistic-creative projects and creating experimental pieces using new materials and modern equipment. Students master methods of collecting, systematizing and analyzing scientific sources, investigating the characteristics of artistic styles, traditional techniques, materials and metalworking technologies. The results obtained become the theoretical and practical basis for developing an artistic-creative project and its subsequent realization in material. The instructor's task is to develop research thinking in future jewelry artists, the ability to formulate a problem and propose a hypothesis, justify the choice of artistic-technological solutions, carry out experimental-research activities and objectively evaluate the results obtained.

The training of jewelry artists at the Russian university of traditional art crafts includes the study of general composition, drawing, plastic anatomy, color theory, art history and the theory and history of traditional art crafts. Significant attention is given to materials science and the mastery of classical techniques of artistic metalworking: soldering, forging, chasing, engraving, filigree, casting, stone setting, enameling and surface treatment. In the learning process, students not only master these techniques but also learn to apply them in accordance with the artistic concept and the structural features of the piece.

The content of the working programs contributes to the formation of basic professional competencies necessary for creating works of jewelry art. The learning outcomes are reflected in the students' semester and final qualifying works, which are presented at domestic and international exhibitions. In particular, the Russian university of traditional art crafts annually presents student works at exhibition venues in Paris, including the Russian house of science and culture and the UNESCO Headquarters.

One of the most significant events of the university's international exhibition activity in 2026 was participation in the exhibition dedicated to the Maya civilization at the Russian house of science and culture in Paris. Bachelor's degree students – future jewelry artists – created a collection of jewelry inspired by the history, culture and artistic traditions of the Maya civilization. The work on the collection necessitated the intensification of experimental research activities, which are structured by stages.

Research and exploratory stage was aimed at fostering students' conscious interest in the upcoming experimental artistic and technological activities, ensuring

their understanding of the task content and determining the initial direction of the design search. At this stage, the research goal and objectives were defined, the general artistic concept was formulated and the types of jewelry for subsequent study were selected.

In the process of working with cultural and historical sources, students became acquainted with works of jewelry and decorative applied arts of the Maya (Figs. 1⁵⁵, 2), jewelry techniques, exhibition catalogs, archival and ethnographic materials and scientific publications.

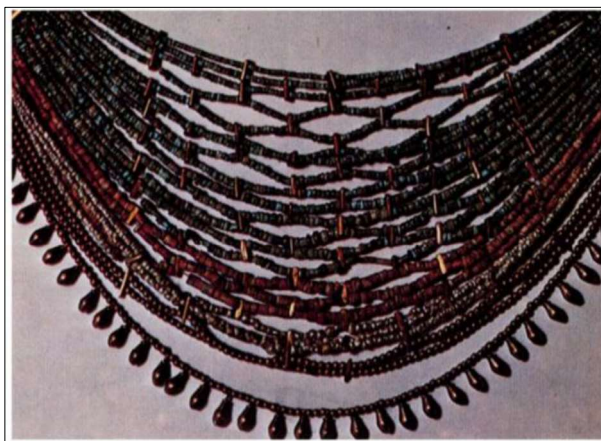


Fig. 1. Necklace of red jade: several concentric strands of geometric beads and teardrop-shaped pendants, National museum of anthropology, Mexico City, Mexico



Fig. 2. Gold disk with mosaic inlays, Chichén Itzá, Mexico

Particular attention is paid to the function of the jewelry, its symbolism, as well as stylistic (including compositional) features, characteristic motifs, forms, materials, manufacturing technologies and methods of decoration. Based on the conducted analysis, the students identified the artistic, structural and technological features of the Maya jewelry.

Thus, for instance, it was determined that the following materials were used for the creation of jewelry and decorative items: gold, tumbaga (a gold-copper alloy), copper, gilded copper, jade, shells, tortoiseshell, turquoise, lapis lazuli, hardwood, bone, coral, obsidian and other materials. Many of these objects held symbolic and ritual significance, reflecting the Maya worldview and spiritual concepts [1; 3].

To process the materials, Maya artisans employed tools made of wood, obsidian (volcanic glass) and bone – specifically, hammers, knives and drills. For sawing wood, they used cords made of henequen fibers (a type of agave plant). Using these tools, materials for jewelry production were split, cut, engraved and drilled. Surfaces were sanded with sand and powder of hard minerals; if necessary, the

⁵⁵ Figs. 1, 2. Pus A. The Maya People / A. Rus ; translated from Spanish with abridgements by E.G. Alexandrenkov ; Scientific editor and author of the foreword: V.I. Gulyaev. – Moscow : Mysl', 1986. – P. 227, 107 – Text : Direct.

abrasive was fixed to the tool with plant-based glue. Fine lines of engraving and low relief were applied using obsidian tools, while the final polishing of the items was performed with burnishers made of hard materials (jade and bone) [2].

Jewelry was an integral part of the attire of the nobility, including diadems with disc-shaped elements, hair ornaments, composite earrings, hair ornaments, nose and lip ornaments, necklaces, bracelets, rings, as well as pendants in the shape of flowers and fruits. Among the decorative objects, mosaic masks and anthropomorphic figurines stood out [1]. The artistic decoration utilized geometric and floral (plant-based) ornaments, as well as images of animals (snakes, jaguars, turtles and birds) and human figures [4].

Based on the results of studying the culture and jewelry art of the Maya, as well as the analysis of collected illustrative materials, the works of the Mexican jeweler E. Sabati were chosen as the source for the experimental research work on the replication of jewelry items [6]. The album dedicated to his work presents visual, textual and design-engineering materials that sequentially reveal the process of creating jewelry: from the execution of initial sketches and the selection of materials to the development of the jewelry item's structure.

Particular attention was paid to the author's technique of dense mosaic inlay. Its distinctive feature is the harmonious combination of heterogeneous natural materials, including turquoise, lapis lazuli, coral, serpentine, bone and wood. Mastering this technique during the educational and research activities enabled the students to reproduce the characteristic artistic and technological finishing techniques close to the traditions of Maya art.

For the purpose of replication, rigid bracelets, rings, earrings, necklaces and brooches were selected. During their manufacture and decorative finishing, the following materials were used: ornamental stones, hardwoods (amaranth and ebony), tortoiseshell, as well as walrus bone and cattle bone. The choice of materials was based on the results of preliminary research, which took into account their physical properties, decorative and textural qualities, and technological properties for reproducing the artistic features of the reference samples.

The design and experimental stage is aimed at transforming the initial artistic concept into a substantiated compositional, structural and technological solution for a jewelry item. At this stage, the students determined its artistic composition, developed sketch variants and selected materials, manufacturing techniques and methods of decorative finishing. The students experimented with new techniques, technologies and types of artistic and technological work, evaluating the possibilities of their application in the process of creating a jewelry item. The experimental work was aimed at mastering non-traditional methods of material processing, combining various techniques and searching for original methods of form-building, connecting structural elements and decorative surface finishing. The results obtained were compared with the initial artistic concept and taken into account when choosing the optimal variant for the final artwork's production.

In developing the artistic composition of a jewelry item, the students determined:

- the type and functional purpose of the item;

- the compositional organization and plasticity of the form;
- proportions, scale and rhythm of the elements;
- a mock-up of the jewelry item with the color and ornamental solution;
- the nature of the interaction between the material, structure and decoration;
- the degree of artistic expressiveness and originality;
- ergonomics and ease of use.

In accordance with the artistic concept, a specific experimental task was set for the students and the anticipated artistic or technological result was determined.

The experiment was aimed at reproducing a specific texture, identifying the decorative properties of the material, searching for methods of joining dissimilar materials, applying unconventional materials, adapting a historical ornament, or testing a chosen surface treatment method.

During the experiments, one or several technological parameters could be altered: choice of metal, thickness of the workpiece, heating temperature and duration, type of solder, depth of engraving, texture pattern, or type of finishing treatment. This allowed for an objective comparison of the experimental samples and the determination of the most effective artistic-technological solution.

The results of the experimental samples were evaluated according to pre-established criteria: compliance with the artistic concept, expressiveness of form and texture, quality of joints, manufacturing efficiency, durability, safety and ergonomics of the item. Based on a comparative analysis of the results obtained, the students selected the optimal variant, refined the sketch and created mock-ups of the jewelry item's structure (Figs. 3⁵⁶, 4).



Figs. 3, 4. Paper mock-up of a jewelry bracelet with a developed color and ornamental solution. 2025.

Russian university of traditional art crafts

The design and experimental stage ensured a substantiated transition from the artistic composition sketch to the practical realization of the jewelry item. Upon completion of this stage, the following deliverables were prepared: an approved sketch, a developed structural solution, a set of experimental samples, a

⁵⁶ Figs. 3-21. Photo by the author of the article.

technological process chart, a substantiated choice of the final artwork's manufacturing option.

The practical stage is dedicated to verifying the proposed artistic and technological hypotheses and materializing the developed artistic composition in material. Its aim was to determine the optimal materials, technological techniques and processing parameters that ensure the achievement of the planned artistic and technical characteristics of the jewelry item.

At this stage, the students performed technological tests and experimental samples, fabricated individual structural and decorative elements, applied the chosen material processing methods and subsequently created the final jewelry item in accordance with the approved sketch.

The work at this stage was carried out sequentially and included:

- preparation of the workspace, tools, equipment and materials;
- refinement of the technological sequence for item manufacturing [5];
- mastering new equipment for cutting and processing natural and ornamental materials (Figs. 5, 6);



Figs. 5, 6. Mastering specialized equipment for cutting and processing natural and ornamental materials. 2025. Russian university of traditional art crafts

- execution of technological tests and experimental samples;
- coloristic selection of materials (metal, gemstone inserts) (Figs. 7, 8);
- fabrication of individual parts and decorative elements (Figs. 9, 10);
- shaping, assembly and joining of structural elements;
- fitting and setting of decorative inserts into the jewelry item (Figs. 11, 12);
- application of the selected decorative treatment methods (Figs. 13, 14);
- execution of final surface finishing.



Figs. 7, 8. Selection of the metal base and decorative jewelry inserts, taking into account their color and tonal compatibility. 2025. Russian university of traditional art crafts



Figs. 9, 10. Fabrication of individual parts and decorative elements of jewelry items. 2025. Russian university of traditional art crafts



Figs. 11, 12. Fitting and setting of decorative inserts into the jewelry item. 2025. Russian university of traditional art crafts

During the practical experimental work, systematic intermediate control was of great importance. It was aimed at the timely identification of defects and the determination of their causes. Thus, the material processing parameters, the sequence of technological operations and the experimental methodology were refined. All changes, observations and intermediate data were recorded in the

experimental work documentation, as these records served as the basis for the subsequent comparative analysis of the samples, evaluation of the applied technologies' efficiency and justification of the chosen artistic-technological solution.

The instructor provided consultations to students regarding material processing and equipment usage, ensured compliance with artistic and technological processes and established evaluation criteria for the experimental samples. At the same time, the instructor did not offer ready-made solutions but guided the students' independent search, thereby fostering the development of their observational skills, technical thinking and artistic thinking. Such an approach shapes students' ability to: analyze the obtained results, identify the correlation between technological process parameters and the qualitative characteristics of the item, argue for the selection of optimal working methods, make well-founded artistic and technological decisions.



Figs. 13, 14. Application of texturing and embossing techniques in the decorative treatment of jewelry bracelets. 2025. Russian university of traditional art crafts

The practical stage of the experimental work enabled the testing of materials, techniques and technological parameters, as well as the establishment of a correlation between the processing parameters and the artistic characteristics of the resulting artwork.

The control stage of the experimental work was aimed at a comprehensive evaluation of the students' results, determining the level of their professional skill formation and verifying the compliance of the produced jewelry items with the artistic composition. At this stage, a final review of student works was conducted, providing for their evaluation according to research, compositional-artistic and technological criteria.

Research criteria included: justification of the experimental task formulation, sequence of conducting technological tests, ability to compare experimental samples and make a well-reasoned choice of the optimal artistic-technological solution.

Compositional and artistic criteria provided for the evaluation of: compositional integrity, expressiveness and plasticity of form, proportionality of elements, coloristic and textural solution, originality of the artistic image, compliance of the chosen materials with the artistic concept.

The technological criteria covered the quality of form-building, the accuracy of part manufacturing and assembly, the reliability of joints, the quality of decorative

insert setting, the surface finish quality and adherence to the established sequence of operations.

Defect identification was carried out through visual inspection of the finished items and comparison of the final result with the replication and the approved sketches.

Such a comprehensive analysis allowed for establishing the causes of the detected defects and determining whether they were related to insufficient development of the artistic concept, errors in the structural solution, incorrect choice of materials, or violation of processing parameters.

The outcome of the students' artistic and technological experimental research activity was a collection of original artistic jewelry pieces created based on the art of the Maya civilization (Figs. 15-21).



Figs. 15-21. Jewelry pieces created by students and instructors of the Russian university of traditional art crafts, displayed at the Russian house of science and culture in Paris. 2026



Figs. 20, 21. Jewelry artworks presented at the Russian house of science and culture in Paris. 2026

The described comprehensive design and experimental activity contributed to the development of students' creative independence and the formation of the ability to find non-standard design and engineering solutions when creating works of jewelry art.

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