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Research Article

Jewellery Design Course For Young People Integrating STEAM Education: An Innovative Combination Of Traditional Craftsmanship And Modern Educational Methods

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ABSTRACT

With the continuous development and improvement of China's academic and educational system, we have a deeper understanding of the close connection between craft culture and social life. Jewelry has gone beyond the simple function of decoration and has become a carrier of traditional culture. This paper presents an innovative educational approach that combines jewelry design courses for teenagers with modern STEAM educational concepts. Creative STEAM learning activities are designed using China's deep traditional crafts and cultural resources. These activities aim to cultivate students' engineering thinking and technical literacy, while also focusing on enhancing their artistic creation and aesthetic abilities. The course design covers multiple aspects of visual art, including appreciation, drawing and design, and encourages students to draw artistic inspiration from daily life to stimulate their creativity and imagination. It should be made clear, however, that the goal is not to cultivate professional artisans, but to enhance the social interaction among students through design expression, so as to comprehensively improve their artistic cultivation and comprehensive quality.

Key words: STEAM education, youth, jewelry design, traditional craft, innovation

I. Introduction

As China's academic and education systems are undergoing significant changes, this is driven by the society's urgent need for diverse and innovative talents. In this process, the field of craft culture has attracted much attention, because it is not only closely related to People's Daily life, but also presents the appeal of traditional culture and the infinite potential of innovation and creativity (Huang Ning, 2022)[1]. Especially in the field of jewelry design, as a field that integrates various elements such as art, history, and technology, it is receiving more and more attention and attention.

In today's society, the revival of novice craftsmanship and traditional handcraft is highly sought after and closely linked with fashion trends, suggesting a revolution in the education sector. Teenagers are regarded as the main force of the future society, and their unique insights and creativity on jewelry design will profoundly influence the future direction of the entire industry. However, there are obvious shortcomings in the field of jewelry design education for teenagers in China, including unfair distribution of educational resources and outdated educational methods. These problems have seriously restricted the development of young people's innovative ability and potential in the field of jewelry design. Therefore, it is urgent to reform the existing education system to meet the needs of youth jewelry design education in the new era, and thus promote the continuous innovation and development of the entire industry.

At the same time, the popularity of STEAM education concept has been widely praised worldwide. STEAM stands for Science, Technology, Engineering, Art and Mathematics, advocating interdisciplinary learning and

encouraging students to integrate knowledge from various disciplines in solving practical problems. To improve their overall literacy (Bertrand M G, Namukasa I K, 2023)[2]. Jewelry design requires innovative thinking and artistic sense, involves hands-on making and design completion, and involves not only knowledge of art and design, but also knowledge of areas such as material science and process technology. STEAM education emphasizes interdisciplinary learning, which helps improve students' ability to innovate and practical applications, while jewelry design, as a combination of art and engineering, is an ideal component of STEAM education. Therefore, the research on the integration of youth jewelry design courses and its practical effects based on the STEAM education concept is of great significance and foresight.

In the field of education, the integration of STEAM education concepts into jewelry design courses has become a new trend that has attracted much attention, marking the innovation of teaching methods. This approach integrates knowledge from science, technology, engineering, art and mathematics across disciplines and aims to develop students' aesthetic sense, creativity and deepen their understanding of materials, structures and design principles (Leavy A, Dick L et al., 2023)[3]. In such a course, students will not only be able to think more fully about issues such as material selection, structural design and aesthetic expression, but will also be able to actively apply their acquired knowledge and skills in practice (Ba Shi aran M, Erol M, 2023)[4]. This interdisciplinary integration not only enriches the course content, but also elevates students' learning interest and creativity level. However, at present, there is relatively little specialized literature on the course of creative jewelry for teenagers, which restricts the further development of theory and practice in this field to A certain extent (Erol A, Erol M et al., 2023)[5].

This study focuses on the integration and practical effectiveness of youth jewelry design courses with STEAM education concept as the core. It is unique in that it not only focuses on improving jewelry design education itself, but also provides a useful reference for the educational reform of other disciplines. By widely promoting this educational concept and practice model, it is expected to promote the wave of innovation and progress in the field of education. Key questions studied include:

(1) How to effectively implement jewelry design courses under the STEAM education framework?

(2) The positive impact of the course on students?

And (3) how are the practical effects assessed?

It is expected that through this innovative education method, young people's interest and enthusiasm in jewelry design can be stimulated, their comprehensive literacy can be improved, and more talents with innovative thinking and practical ability can be cultivated for the jewelry design industry in the future.

2. STEAM education and jewelry design education

2.1STEAM education theory

STEAM education is leading the way in education by integrating science, technology, engineering, art and mathematics to create a new teaching concept (Inomjonovna I, 2023). [6]This educational approach originated in the United States, where the original STEM concept was proposed by the National Science Council in 1986, and later art elements were incorporated to enrich the educational content (Belbase S et al., 2022). [7]In 2006, the Bush administration made[8] it clear that cultivating talents with STEAM literacy ability was the goal of education in the era of knowledge economy, and extended the STEAM education concept to primary and secondary schools (Xu Min, 2024).

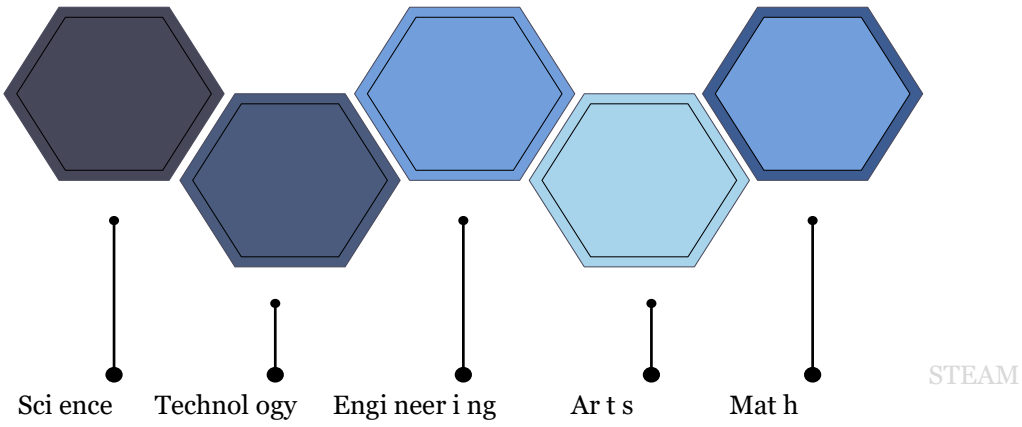

Figure 2-1 Subjects represented by STEAM

The rise of STEAM education has had a profound impact on arts education, bringing art and science together as a key component of teaching. Many pioneers in education believe that integrating art with fields such as technology, science and humanities is the most effective way to achieve STEAM education (Hou Lili, Wang Jing, 2022)[9]. In this context, jewelry creative design courses as a branch of art education can not only

continuously stimulate creativity, but also integrate jewelry creativity more closely with science, technology, engineering, mathematics and other fields (Marin-Marin JA et al., 2021)[10].

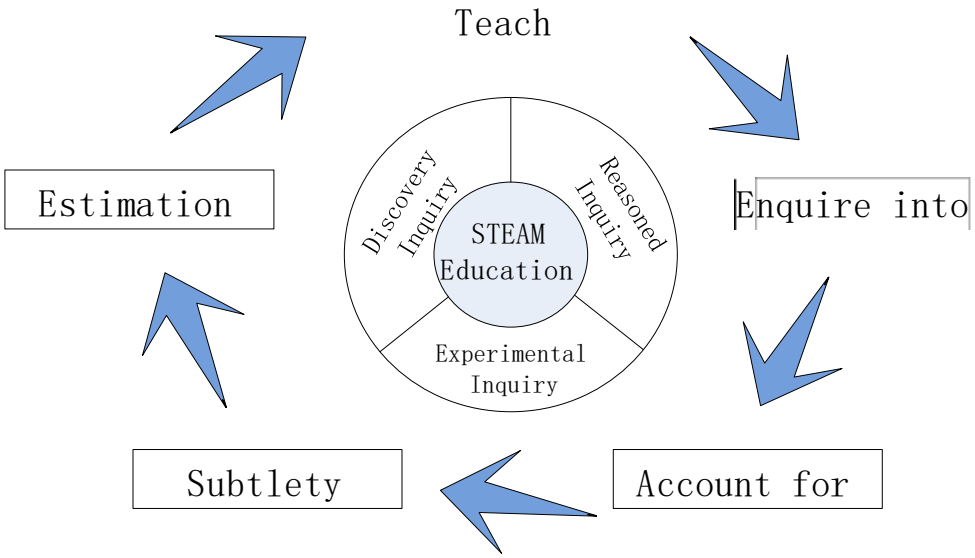

Figure 2-2STEAM structure and the relationship between them

STEAM education transcends traditional disciplinary boundaries and encourages students to cross disciplinary boundaries and apply diverse thinking to solve practical challenges (Wu C H et al., 2022)[11]. Its philosophy incorporates research findings from constructivism and cognitive science, and explores problems and projects with science, technology, engineering, art and mathematics as cornerstones (Erol A, Erol M, Bashi aran M, 2023)[12]. This comprehensive model of education gives STEAM education a significant interdisciplinary character.

2.2 Youth jewelry design education and characteristics

Jewelry design education is a comprehensive discipline that integrates art, craft, technology and design theory to develop students' creativity, skills and aesthetic taste (Perales F J et al., 2024)[13]. It focuses on the innovation, practicality and cultural value of jewellery design, and students create aesthetically functional works through the study of history, materials science, technology and market trends, with A focus on environmental and social responsibility (Alghamdi A A, 2023)[14].

The key points regarding youth jewelry design include creativity, practicality, cultural heritage and fashion, and personalized expression. During their teenage years, their creativity and imagination are at their peak, and jewelry design education helps to cultivate this ability. The design process requires them to be hands-on, with their actual participation in every step from material selection to production, which highlights the practical nature of design education (Wang Shuo, 2020)[15]. As a carrier of cultural inheritance and fashion expression, jewelry design education enables teenagers not only to understand traditional culture, but also to keep up with fashion trends and create works with both cultural connotations and a sense of fashion. The most important thing is that displaying individuality and identity through jewelry is an important way for teenagers, and design education helps them realize this kind of personalized expression.

2.3 The integration value of STEAM education and jewelry design

Combining STEAM education concepts with youth jewelry design courses can effectively cultivate students' innovative thinking and practical ability, while promoting the inheritance and development of traditional crafts (Wan Zhuqing, 2024)[16]. This combination is present in various stages of the curriculum: In the enlightenment stage, students are inspired to be creative by guiding them to feel life and experience emotions, so that they can find happiness and satisfaction in artistic creation; The entry stage focuses on interdisciplinary creative experience, integrating traditional jewelry design with multidisciplinary knowledge, which not only stimulates students' interest in traditional culture, but also cultivates their creativity and aesthetic ability. The introduction of maker culture enables students to make design innovations independently (Wu Z, 2022)[17]; Entering the basic stage, the jewelry creative experience course further covers painting, design, production and other aspects, during which students can actually apply physical and chemical knowledge to jewelry making, deepening their understanding of book knowledge; In the advanced stage, the jewelry creative course not only expands the students' artistic cognitive vision, but also further cultivates their aesthetic taste and creativity by integrating jewelry design, fashion culture and other elements. The course design is more student-centered. Flexible learning paths help students develop in an all-round way (Silva-Hormazabal M, Alsina A, 2023)[18]; Finally, in the maker stage, jewelry creative experience course not only teaches technology and skills, but also focuses on developing students' independent thinking ability and artistic practice ability. Through cross-border

cooperation of STEAM education, students can comprehensively apply multidisciplinary knowledge to achieve complete expression of creativity (Salmi H S et al., 2023)[19]. Such course design, from enlightenment to maker, develops the students' comprehensive quality in A comprehensive and in-depth way (Ng A et al., 2022)[20].

3. Integration of jewelry design and STEAM education

3.1 Teaching objectives and course design conception

3.1.1 Teaching objectives

This course closely combines the STEAM education concept with jewelry design, and is committed to cultivating diverse skills of young people. The focus is on shaping their innovative thinking and practical operation ability, forging their excellent handicraft skills and keen insight into spatial structure. The selection of themes close to students' daily life and the integration of ancient handicraftwork with cutting-edge technology not only train students' hands-on skills, but also lead them to discover and appreciate the beauty around them (Rahmawati Y et al., 2022)[21]. The ultimate goal of the course is to produce young people who can excel in the 21st century, to help them get rid of old thinking patterns and better face the challenges of the future. By blending ancient skills with modern tools, it is hoped to inspire students to their full potential, and to cultivate their self-driven learning attitude and pioneering spirit (Erol M, Erol A, 2023)[22].

The jewelry craft course will further stimulate students' design inspiration and innovative thinking, laying A solid foundation for their future innovative exploration and practical activities (Erol M, Erol A, 2022)[23].

The specific cultivation direction of this course covers multiple levels. At the technical level, it emphasizes that students can skillfully use various professional tools such as engraving machine and saw bow, and master the processing skills of different materials. Students need to learn to accurately select materials according to design concepts and functional requirements. In terms of engineering practice, students are required to master systematic methods and steps to solve problems, be able to create professional design drawings, and have the ability to evaluate the stability of simple structures. In addition, the training of mathematical application is also an important part, aiming at improving students' mathematical calculation ability and teaching them how to scientifically plan and manage the project process (Ozer Z, Demirbatir R E, 2023)[24]. For material cognition, students are expected to have a deep insight into the unique properties of metal materials, and be able to accurately select the most appropriate materials according to actual needs. Finally, in terms of physical principles, the course focuses on understanding the melting point of metals and their related physical properties, and understanding the malleability and plasticity of metals under different temperature conditions (Mahmudovna N M et al., 2022)[25]. Through the implementation of these specific cultivation directions, the course aims to comprehensively improve the students' professional literacy and practical ability.

(2) Course design

The course integrates the core concepts of STEAM education and is mainly divided into two modules: Metalworking jewelry design and Making and Jewelry handicraft Creative course.

The teenage years are a key period to develop students' artistic perception, scientific cognition and personal interest. The course of jewelry design, Making and appreciation is based on students' interests, and integrates gem knowledge, design skills, fashion trends and multi-cultural art into the teaching, so as to expand students' vision in the field of aesthetics from multiple angles.

In the "Gem Exploration" section, students are guided to recognize and identify various minerals and gemstones from the dual perspectives of natural science and artistic aesthetics. In the "Innovative Jewelry Design" session, students are encouraged to transform their aesthetic concepts into specific jewelry designs through brushes and materials through creative thinking, hand-drawn sketches and three-dimensional model construction, thus stimulating their creativity and artistic inspiration.

The jewelry Making Creativity course combines traditional crafts with STEAM education methods, aiming to train students' hands-on ability, innovation ability and product design ability through practical operation. In this process, students can not only excavate and cultivate their own artistic imagination and creativity from practice, but also expand their thinking in the process of hands-on operation, forming their own unique artistic aesthetic system, and finally realize the comprehensive absorption of knowledge, flexible application and free expression.

3.2 Teaching methods and resource support

In order to realize the effective combination of STEAM education concept and jewelry making creative courses, the existing teaching methods have been adjusted and expanded. Specifically, the teaching method is integrated with scientific inquiry. When teaching jewelry design and production knowledge, it not only introduces operation norms, but also deeply discusses the far-reaching impact of physical and chemical properties of materials on jewelry making, and encourages students to explore the unique performance of different materials in jewelry making and new processes through experiments. In addition, modern technologies such as virtual reality are made full use of to provide students with a simulated jewelry design and production environment to enhance their cognition of technology and engineering. In the teaching process, mathematical analysis such as proportion, symmetry and geometric form are also cleverly introduced, allowing students to gain a deeper understanding of the structure and beauty of jewelry design by observing and contrasting different design methods and production processes. At the same time, the close connection

between jewelry design and real life is emphasized, and students are encouraged to draw inspiration from daily life and create works with both practicality and artistic beauty. In order to further promote the improvement of students' comprehensive literacy, an interdisciplinary jewelry making project has been specially designed to allow students to solve problems from multiple perspectives of science, technology, engineering, art and mathematics in teamwork, so as to realize the goal of STEAM education more comprehensively.

Jewelry creative courses, as an important part of STEAM education, have specific requirements for the classroom environment and equipment needs due to their high degree of professionalism. In a well-equipped classroom, professional equipment and tools will be equipped to provide students with rich practical opportunities.

In terms of equipment, six kinds of power tools have been carefully selected, covering multiple links such as melting, shaping, engraving, grinding and cleaning, aiming to provide students with a full range of practical experiences. Among them, the engraving machine, as the core tool of the jewelry metalworking course, has various functions such as engraving, grinding, basic polishing, and punching. By matching different drill bits or grinding wheels, it can play different roles in different stages to meet the diverse needs of students. In addition, a range of hand tools, including lithium knives and sandpaper, are provided to help students perfect their work and increase its practicality and appreciation. At the same time, the application of painting paint tools can add a bright color to students' works.

In terms of teachers, we are committed to training a professional team of jewelry creative teachers. These teachers are not only familiar with the process, technology and appraisal method of jewelry design and production, but also have a solid theoretical foundation and practical experience. A teaching grade qualification system has been formulated to grade teachers according to their knowledge, ability and comprehensive grasp of pedagogy and teaching psychology to ensure the quality of teaching. At the same time, it emphasizes that teachers should care for students, love the cause of education, and have good aesthetic sentiments to guide students to discover and create beauty.

3.3 Specific teaching cases

(1) Metalworking courses

Course 1: Elementary Pendant Structure - Basic geometry

Course overview: By making simple geometric pendants to make students familiar with the use of basic tools of metalworking, mainly in the carving process. Cutout is a kind of plane cutting process, through which the pattern can be obtained positive and negative shape. The main tools for engraving include saw bow and saw blade. In the course, students will learn to use tools such as rubber hammer, saw bow, square iron, lithium and sandpaper, and master the craft of sawing, lithium, grinding and polishing. In terms of consumables, you can choose silver plate or copper plate, but the saw blade is one of the essential tools.

Figure 3-1 Course one work intention diagram

Lesson 2: Elementary Welded molding jewelry

Course overview: Using metal colors for cutting and welding molding is a combination process, in which welding is the most challenging part. For beginners, welding the gaps in the ring is relatively easy, but the difficulty of welding will gradually increase as you learn more. This course is designed to provide a challenge of higher difficulty on top of basic ring welding. Welding techniques typically involve various forms such as point-to-point, wire-to-wire, wire-to-point, and face to face. Students will learn to use tools such as a gauge, metalwork hammer, glue hammer, ring iron, square iron, flame spray gun, and master the process of marking, welding, sawing, lithium work, grinding, and polishing. Consumables include silver, solder, and gas canisters.

Figure 3-2 Course Two Works intention drawing

Lesson 3: Elementary floral silk woven jewelry
Course Overview: Floral silk inlay, a national handicraft with a long history, also known as fine gold craft. Its creative process requires proficiency in a variety of silk and Mosaic techniques, including "pinch, fill, accumulate, weld, braid, weave, pile, base" and "filing, plating, punching, smothering, beating, collapsing, squeezing, inlaying." This course simplifies the traditional complex process and focuses on teaching the weaving technique, which is to make jewelry through the interweaving of wire and hook, knot and other methods. The tools required include silver wire, glue hammer, ring iron, flame spray gun, solder tile, lithium, and a variety of sandpaper and polishing boards. The process involves braiding, welding, sanding and polishing, and the required consumables include silver wire, solder and gas canisters.

Figure 3-3 Course Three Works intention drawing (2) Jewelry making creative course

Lesson 1: Entering the World of Jewelry (Small Making)
Summary of Content: This lesson aims to explore the evolution of jewelry from ancient times to the present in terms of materials and forms of wear, and focuses on the use of comprehensive materials in modern jewelry. The second half of the course guides students through self-painting and creation using heat shrink pieces, culminating in the production of a small colored pendant. The design idea is to be the students' first jewelry creation class, to explore the development of jewelry from the Stone Age, to guide students to a comprehensive understanding of jewelry materials and wear forms, and to give play to their imagination. Through practice, students are allowed to draw and make small pendants by themselves, so as to strengthen their cognition and use of new materials. The implementation steps include introducing the origin of jewelry, introducing the characteristics and changes of jewelry, understanding the common wearing ways and materials of jewelry, focusing on the materials and characteristics commonly used in modern jewelry, and carrying out self-design and production with the theme of "My Zodiac". The knowledge system is based on the principle of thermal expansion and cold contraction in physics textbooks. The list of consumables and tools includes white heat shrinkable sheets, natural agates, pendant ropes, metal fittings as well as scissors, colored lead, hole punches, heat shrinkable guns, pliers, shot rods and sponges.
Lesson 2: Metal Secrets in Jewelry (Lab Lesson)
Summary of content: The objective of this lesson is to let students know some common jewelry marking symbols in order to distinguish the authenticity of metal jewelry in daily life, and to increase their alertness. In the class, brass was used as the material and a copper bookmark was made as an experiment. After the class, students will test their mother's metal jewelry materials and share what they have learned. The design concept

focuses on the identification of gold, silver, copper and other materials, as well as the common sales phenomena and signs in the market. By showing pictures and doing actual work, students can feel the differences between these materials for themselves. The course starts with some small experiments to teach students about the signs and properties of jewelry materials such as foot gold, k gold, clamp gold, silver and copper, and guides them to experience the properties of copper materials by making copper bookmarks. Implementation steps include reviewing relevant knowledge, introducing new questions, exploring the properties of precious metal materials, and making copper bookmarks. The knowledge framework focuses on the physical properties and chemical signatures of precious metals, as well as the symbols of gold, silver and copper in jewelry. The list of required materials and tools includes custom metal knowledge cards, copper bookmarks, glue mallets, hammers, rootstocks, wooden table stoppers, fine lithium knives, hairpins, cranes, and dental needles.

Iv. Study on the effect of youth jewelry design course based on STEAM education concept

4.1 Survey objects

In this study, adolescents of different age groups were selected as test subjects, including 12 boys and 18 girls aged 12-14, and 14 boys and 16 girls aged 15-17, to ensure that there were sufficient samples for each age group. Through the integration of STEAM education concept of jewelry design course, explore different age groups of teenagers on the acceptance of such courses, preferences and advantages and disadvantages in the course.

4.2 Reliability and validity test of questionnaire

After the completion of the experiment, in order to further verify the teaching effect and get the learning feedback of students, a questionnaire was designed according to the research content of this paper, and the experimental students were investigated and the data were analyzed. Reliability analysis was carried out by SPSS software, and it was found that Cronbach's Alpha coefficients of the questionnaires were all higher than 0.8, indicating high reliability quality of the research data.

Table 4-1KMO value and Bartlett sphericity test

KMO value		0.936
Bartlett sphericity test	Approximate Chi-square	3027.354
df		60
p value		< 0.05

The value of the KMO measure is 0.936, indicating a very high moderation of the sample. The approximate chi-square statistic value of the Bartlett sphericity test is 3027.354, the degree of freedom is 59, and the P-value is less than 0.05, which indicates that the correlation of the dataset is significant.

4.3 Curriculum implementation and analysis

(1) Test preparation stage

The purpose of this study is to deeply explore the acceptance degree, preference tendency and advantages and disadvantages of teenagers of different ages to the jewelry design course integrated with the STEAM education concept. Two teenagers of different age groups were selected as experiment objects: 12-14 years old and 15-17 years old, and 30 students were selected for each age group to ensure the diversity and representativeness of the sample. Prepare tools, materials and modern educational technology equipment related to jewelry design, etc. Contact and invite two traditional craft masters to ensure that they can provide professional guidance and support to students during the course.

Table 4-2 Distribution of subjects by age and sex

Age Group	Number of people	Gender (male/female)
12-14 years old	30	12/18
Ages 15-17	30	14/16

(2) **Teaching implementation and observation stage**

Introduce the basic concept of jewelry design, traditional craft and STEAM education concept to students, stimulate students' interest in learning, and clarify the course objectives and expected results. Under the guidance of teachers and traditional craft masters, students will practice jewelry design with their own hands, including drawing, material selection and production. Students are encouraged to combine their personal interests and use the knowledge and skills they have learned to design creative jewelry works. In the teaching process, teachers carefully observe and record the performance of students of different ages, including students' acceptance of the course, preferences and tendencies, as well as the strengths and weaknesses displayed in the design and production process.

Table 4-3 Students' initial responses to the curriculum

Age Groups	Very interested in classes	Interested in classes in general	Not interested in classes
Ages 12-14	21	7	2
Ages 15-17	24	5	1

Students' performance in practical operation and creative design: the average time for students aged 12-14 to complete works is 3 hours, and the average time for students aged 15-17 to complete works is 2.5 hours. Students at both ages showed a high level of creativity, and the design of students at 15-17 years old was more mature and sophisticated. (3) Results of data analysis

Table 4-4 Comparison of course acceptance:

Age Group	Full acceptance	Comparative acceptance	General	Less acceptable	Not at all acceptable
Ages 12-14	18	9	3	0	0
Ages 15-17	21	6	3	0	0

According to Table 4-3, there is a relatively high level of acceptance of the programme among both the 12-14 and 15-17 age groups, especially with the 15-17 age group being slightly higher than the 12-14 age group in terms of full acceptance.

Table 4-5 Analysis of students' performance in the jewelry design process:

Age Group	Innovative thinking (10 points)	Skill mastery (10 points)	Ability to work in a team (10 points)
Ages 12-14	7.2	8	9.2
Ages 15-17	8.5	8	8.6

From Table 4-4, it can be concluded that students aged 15-17 show more independent thinking and innovative elements in design than students aged 12-14. There is no significant difference in the mastery of skills between the two age groups, and students aged 12-14 are more active in teamwork.

Table 4-6 Curriculum feedback statistics

Content of Feedback	Very satisfied (%)	Satisfied (%)	Average (%)	Dissatisfied (%)
Content richness of the course	60	30	10	0
Hands-on operating opportunities	50	40	10	0
Teachers with guidance from traditional craft masters	70	25	5	0
Modern educational technology applications	40	40	15	5
Innovative design session	55	35	8	2

ighty-five percent of students expressed a desire to increase the number of hours of hands-on instruction, 70 percent expressed a desire to have more traditional craft masters for on-site instruction, and 50 percent of 15-17 year olds expressed an interest in increasing teaching content related to market needs and brand positioning.

Figure 4-1 Demonstration of finished products made by 12-14 year old students

Figure 4-2 Students aged 15-17 making a finished product display

5. Effect evaluation and discussion

5.1 Evaluation standards and methods

The study took full account of the age and gender distribution of students to ensure a diverse and representative sample. Through a jewelry design course that incorporates STEAM's educational philosophy, theoretical knowledge is combined with practical operation to enhance the interest and effectiveness of learning. It can be seen from the students' initial response to the course and the practical operation that most students have shown positive interest and engagement in the course, especially those in the 15-17 age group. This shows that the curriculum design can attract students' attention and stimulate their interest in learning.

Statistics and crosstabs were used to record the data of experimental students, and spss software was provided to analyze the data. Students of different ages show certain differences in innovative thinking, skill mastery and teamwork ability, which helps to better understand students' learning situation and needs, and provide targeted improvement programs for teaching.

Students gave positive feedback on the richness of the course content, practical operation opportunities, the guidance of teachers and traditional craft masters, the application of modern educational technology and innovative design links. These feedbacks provide important references for course improvement and optimization.

5.2 Analysis of evaluation results

This teaching experiment shows that jewelry design courses integrated with STEAM education are popular among teenagers of different ages. According to the actual needs and interests of students, more diversified course content and teaching activities are designed to improve students' learning motivation and participation. According to the collected data and feedback from students, it is suggested that future courses can be improved in the following aspects: increasing the number of hours of practical operation, inviting more traditional craft teachers to give on-site guidance, and increasing the teaching content related to market demand for students aged 15-17. The data and analysis will provide an important reference for the continuous optimization of the curriculum.

The jewelry Creative Experience course not only cultivates young people's imagination and creative thinking, but also allows them to pass on classic culture and art and enhance aesthetic quality in the process of appreciating and expressing beauty. Through the teaching of multi-disciplinary cultural knowledge and hand-made art forms, the course stimulates teenagers' desire for creativity and expression. At the same time, it closely combines the subject matter content of real life, so that young people can get all-round growth and development in art activities. Pay attention to the individual development of each youth, provide them with diversified development space, so that they feel endless pleasure in art activities.

5.3 Discussion and Reflection:

This study has successfully integrated STEAM education concepts into traditional jewelry design courses, and has observed obvious results. This result clearly shows that the integration of STEAM education with jewelry design courses plays an important role in stimulating students' interest in learning, creativity and mastery of skills. At the same time, some areas for improvement were also identified, which will provide valuable direction for further optimization of the course in the future.

First of all, it is crucial to increase the time spent on practical operation courses. Practical operation is the key link to improve students' skill mastery and innovation ability. Through more practice, students can understand and master the principles and skills of jewelry design more deeply, thus improving their design level.

Secondly, it is equally vital to invite more traditional craft masters to give on-site guidance. Their rich experience and superb skills can provide students with valuable inspiration and guidance to help them better

understand and master traditional crafts. At the same time, through exchanges and learning with traditional craft masters, students can also gain a deeper understanding of the cultural connotation and value of traditional crafts.

Finally, for students aged 15-17, it is necessary to increase teaching content related to market demand and brand positioning. Students in this age group already have a certain ability to think independently and innovate. By adding teaching content related to market demand and brand positioning, it can help them better translate their designs into actual products and boost their market competitiveness.

Although jewelry design courses that integrate STEAM education have achieved certain research results, there are still some problems and challenges. First, further research is needed on how to effectively integrate traditional crafts and modern education methods to maximize their utility. Secondly, how to evaluate students' learning outcomes and innovation ability is also an urgent problem that needs to be solved. Future research can focus on these aspects to provide more theoretical basis and practical experience for the reform and innovation of juvenile jewelry design courses.

6. Conclusion and Prospect

By combining elements of STEAM education, the Youth Jewelry Creativity course blends research, exploration and practice, exploring the innovative combination of traditional crafts and modern education. Such courses have comprehensive advantages in cultivating teenagers' artistic literacy, aesthetic education and practical ability. Based on this, the paper discusses the feasibility of the curriculum, the education model, the curriculum system and the teaching method. The main conclusions are as follows:

(1) The jewelry creativity course for teenagers focuses on the cultivation of comprehensive ability, combining jewelry creativity with traditional subjects through diversified course design, so as to enhance teenagers' aesthetic, imagination, creativity and exploration ability.

(2) Different from the traditional jewelry education, the youth jewelry creativity course emphasizes the creative expression of multiple materials, and pays more attention to the cultivation of comprehensive ability, rather than the simple pursuit of precious metals and jade.

(3) Jewelry is one of the most common artifacts in life. This paper combines youth jewelry design with modern STEAM education, and takes traditional Chinese crafts and culture as the starting point to design STEAM learning activities, which will help cultivate young people's engineering and technical thinking.

(4) In practice, it is found that teenagers have good feedback on the jewelry creativity course, so the course has high feasibility and broad prospects for future development.

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