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Integration of Parametric Design and Augmented Reality to Enhance Creative Thinking in presenting jewellery design

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Abstract:

This research represents an in-depth exploration of the integration between parametric design and augmented reality technologies, and how they can together improve creative thinking and develop innovative ways to display jewelry and jewelry designs. The jewelry and jewelry industry has witnessed significant development thanks to the adoption of these modern technologies, as they have contributed to enabling designers to innovate and expand their artistic horizons in an unprecedented way in designs. Through parametric design, designers can change the properties of jewelry pieces instantly and provide a great deal of freedom in experimentation and iteration. It also enables the designer to change the main elements of the design such as size, angles, and curves easily. This type of flexibility opens the way for new ideas that can be tested and implemented more quickly compared to traditional design, which may require a great deal of time and effort in modifying prototypes. Augmented reality technology is one of the most powerful tools that has radically changed the way jewelry and jewelry designs are displayed to users. By using augmented reality applications and platforms, designers can display jewelry and ornaments in an interactive 3D environment, where the customer can see the designs as if they were real, with the ability to control their size and angle of appearance, as well as simulate wearing them virtually, enlarge them, and even try them on virtually. It also contributes to accelerating the decision-making process by providing a more comprehensive display experience. When parametric design is combined with augmented reality technology, a qualitative shift is achieved in the field of creative design of jewelry and ornaments. The integration between these two technologies provides a wide range of advantages, including (increasing flexibility in creativity - reducing the gap between design and implementation - stimulating innovation through instant visualization - improving communication between the designer and the user). A survey was also conducted between the traditional method of design that relies on manual creativity, and parametric design that provides innovative and fast solutions. It was also analyzed how augmented reality affects enhancing the display experience and stimulating creative thinking among designers and users.

Statement of the Problem: The problem of the current study is the effect of parametric design in developing creative thinking skills for jewelry and ornaments, and displaying them using augmented reality technology. Therefore, this study aims to address this problem by answering the following question: To what extent will the use of parametric design and augmented reality lead to developing creativity and developing jewelry and ornament designs?

Significance of the research: It combines the three variables: augmented reality, creative thinking, and parametric design for jewelry and ornaments. It contributes to encouraging those in charge of developing jewelry and ornament design to create new designs using parametric design and displaying them using augmented reality technology to facilitate the display process.

Research Objectives: To come up with creative designs for jewelry and ornaments using parametric design, using augmented reality technology to display them.

Research Hypothesis: This study seeks to verify the validity of the following hypothesis:
The use of parametric design in designing jewelry and ornaments and displaying them using augmented reality will lead to the designer coming up with creative designs.
Research Methodology: The research follows: -The descriptive and analytical approach for the theoretical aspect -The inductive approach. Research tools: A survey was conducted and a questionnaire was created between the traditional method of design and the parametric design for jewelry and ornaments. How Augmented Reality can enhance the display experience and stimulate creative thinking among designers and users
Results: 1- Parametric design of jewelry and ornaments provides greater ability to generate variable and complex designs in less time and effort compared to traditional design, which enhances productivity and allows unlimited creative possibilities. 2- Augmented reality has improved the display experience of jewelry and ornaments, as it has allowed users to see and interact with 3D designs before production, which has increased their confidence and satisfaction. 3- The integration between parametric design and augmented reality has improved creative thinking, as designers provide more unique and flexible designs, with the possibility of displaying them in innovative ways that help test the final shape before manufacturing. 4- Users interacted with designs by imagining the details of the designer and the user, which has improved purchasing decisions. 5- Parametric design techniques have reduced repetition in designs and increased diversity and creativity.
Recommendations: 1. Increase reliance on parametric design in the jewelry industry to enhance creative capabilities and achieve greater diversity in designs by generating complex and unique geometric shapes. 2. Integrate augmented reality extensively into display processes, as it should become an essential part of the user experience, enhancing the level of interaction and facilitating their making informed purchasing decisions. 3. Develop specialized training platforms to qualify designers in the field of parametric design and augmented reality technology, to ensure maximum benefit from the available creative and technological capabilities. 4. Involve users in the design process using augmented reality, which enhances their interaction with the designer and contributes to achieving a shared vision for designing the pieces

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