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“Optimizing Innovation in Knowledge, Education and Design”

EXTENDED ABSTRACT



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Assalamualaikum warahmatullahi wabarakatuh,



First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services. By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality. I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said
RECTOR
UiTM KEDAH BRANCH



WELCOME MESSAGE (i-SPIKE 2023 CHAIR)



We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPIKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPIKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Ismail

Chair

3rd International Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023)

BDPQ INTEGRATED: CONTEMPORARY JEWELLERY INSPIRED BY TANGRAM

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ABSTRACT

This research paper explores the concept of "BDPQ Integrated: Contemporary Jewellery Inspired by Tangram." The objective of this study is to examine the intersection of tangram puzzles and contemporary jewellery design, investigating how tangram serves as a source of inspiration for creating unique and aesthetically appealing jewellery pieces. The paper begins with an introduction to tangram's historical significance and its components, emphasizing its cultural relevance. It then delves into contemporary jewellery design, highlighting trends and influences shaping the field. The problem statement focuses on the lack of comprehensive exploration of tangram's impact on jewellery design, particularly in the contemporary context. To address this, the research methodology involves analyzing case studies of jewellery pieces inspired by tangram, examining their design techniques, materials, and concepts. The findings reveal the creative ways in which tangram elements, symbolism, and aesthetics are incorporated into contemporary jewellery, resulting in visually captivating and thought-provoking pieces. The commercialization potential of tangram-inspired jewellery is also discussed, exploring the reception among consumers and collectors. The conclusion summarizes the research, emphasizing the unique blend of tradition and innovation in tangram-inspired jewellery, and highlighting the cultural and artistic significance of this creative fusion. Overall, this study contributes to the understanding of the relationship between tangram and contemporary jewellery design, providing insights into the design process, findings, and commercial possibilities, while showcasing the enduring appeal of tangram as a source of inspiration in the jewellery industry.

Keywords: Integrated, Contemporary, Jewellery, Tangram

INTRODUCTION

The field of contemporary jewellery design continuously seeks innovation, drawing inspiration from various sources to create unique and expressive pieces. One such source is the tangram puzzle, which originated in China and gained global popularity (Gebhardt, 2003). While tangram is recognized for its recreational and educational value (Nyberg, 2019), its potential influence on contemporary jewellery design remains unexplored. The 'BDPQ' character is generated through the combination of tangram shapes with both vertical and horizontal flips (Coles, 2013), thereby rendering it easier for designers to create a variety of designs for contemporary jewellery products. This research aims to fill this gap by examining "BDPQ Integrated: Contemporary Jewellery Inspired by Tangram." By exploring tangram-inspired jewellery, we uncover the creative possibilities when tangram's aesthetics and symbolism merge with contemporary designs. The problem statement revolves around the limited exploration of tangram in jewellery, and addressing this gap will shed light on its potential impact (Olver, 2017). The methodology involves analyzing case studies to understand design techniques, materials, and concepts in tangram integration. Evaluating the reception and commercialization potential completes the investigation. This research contributes to understanding the fusion of tradition and innovation in jewellery design and highlights tangram-inspired jewellery's cultural and artistic significance.

OBJECTIVES

This research encompasses three objectives: firstly, to explore the historical and cultural significance of tangram as a puzzle and artistic expression, establishing its foundation for inspiring contemporary jewellery design. Secondly, it aims to analyze the design techniques, materials, and concepts employed in tangram-inspired contemporary jewellery through case studies and examples. This objective seeks to understand the creative processes involved, including material selection, manipulation of geometric forms, and incorporation of tangram symbolism. Lastly, the research aims to evaluate the reception and commercialization potential of tangram-inspired jewellery by examining consumer and collector perspectives. This objective seeks to gauge the appeal and desirability of these jewellery pieces, and to identify potential target markets, pricing dynamics, and marketing strategies. Ultimately, this research provides valuable insights into tangram's influence on contemporary jewellery, guides design techniques, and assesses its market viability for industry professionals.

METHODOLOGY

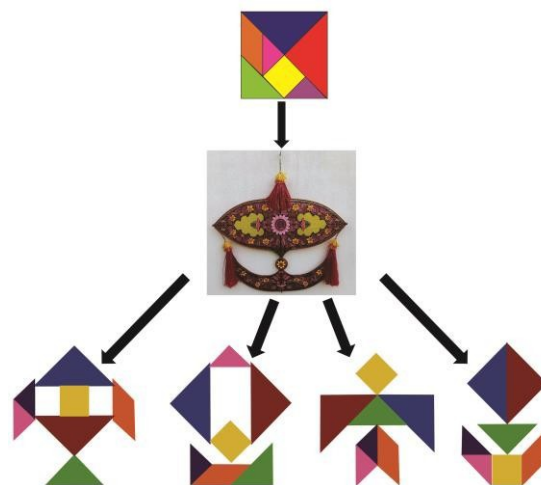
This research employs a multi-faceted methodology to investigate the subject of "BDPQ Integrated: Contemporary Jewellery Inspired by Tangram." The methodology encompasses several key stages, including design ideation, development of the idea, selection of the final design, and the establishment of evaluation criteria based on a survey.

The design ideation stage begins with an extensive literature review, encompassing the study of existing tangram-inspired jewellery designs, relevant sources on contemporary jewellery, and in-depth exploration of tangram puzzles. This comprehensive review serves as a foundation for generating design ideas that effectively integrate tangram elements in innovative and aesthetically appealing ways (Skinner, 2013).



Designs available in the market: (a) Design by etsy.com, (b) Design by Oliver Bonas, (c) Design by Restlessrisa.com, and (d) Design by zialolabeads.

Following the design ideation phase, collaboration between jewellery designers and the researcher takes place to refine and develop the design concepts further. Through techniques such as sketching, prototyping, and digital renderings, multiple design iterations are created, exploring various approaches to incorporate tangram-inspired elements while considering contemporary aesthetics and ensuring practical wearability. The Wau Bulan was chosen as a subject matter because of the profound influence it holds on Malaysia's traditional culture, which is synonymous with the country (Portal Rasmi Jabatan Warisan Negara, 2021). The tangram was explored by flipping it horizontally and vertically, similar to the movements of 'BDPQ,' to create a variety of shapes for Wau Bulan based on the tangram puzzle.



Tangram ideation

The subsequent stage involves the selection of the final design from among the various iterations. This selection process entails a comprehensive evaluation based on predetermined criteria. Factors such as the degree of tangram integration, visual appeal, wearability, and market relevance are carefully assessed. Expert input from professionals in the fields of jewellery design and tangram aesthetics is sought to ensure a thorough and well-informed evaluation.

Furthermore, to establish comprehensive evaluation criteria, a survey is conducted among a target audience comprising jewellery enthusiasts, collectors, and potential consumers. The survey collects valuable feedback on aspects including visual appeal, symbolism, wearability, and perceived market demand for tangram-inspired jewellery. Through rigorous

analysis of the survey results, specific evaluation criteria are derived. These criteria serve as a guide in the final design selection process, ensuring the chosen design embodies the essence of tangram, satisfies contemporary jewellery aesthetics, and aligns with market preferences.

Overall, this research methodology employs a systematic and inclusive approach, facilitating the exploration and development of tangram-inspired jewellery designs. By combining design ideation, collaboration, survey feedback, and expert evaluation, the research aims to identify a final design that successfully integrates tangram elements, resonates with contemporary jewellery aesthetics, and possesses commercial viability.



Necklace inspired by Tangram.

COMMERCIALIZATION POTENTIAL, IMPACT TOWARDS THE SOCIO-ECONOMIC AND HUMANITY

The commercialization potential of tangram-inspired jewellery is significant due to its distinctiveness and appeal to a market seeking symbolic and meaningful pieces. It stimulates economic growth in the jewellery industry, creating business opportunities and generating employment for artisans.

The 'BDPQ' reversal pattern, serving as a mnemonic device for letter orientation, inspires jewellery designers to create distinctive pieces. Mirrored and inverted elements can be incorporated, adding playful aesthetics and a unique design language. This approach fosters innovative and captivating jewellery designs, setting the designer's work apart in the market.

Tangram-inspired jewellery also fosters cultural appreciation, promoting cross-cultural understanding and preserving cultural diversity. On a personal level, it evokes emotions, enhances individual well-being, and allows for personal expression. Moreover, it serves as a source of inspiration, conveying narratives that spark conversations and deepen appreciation for art and cultural heritage. Tangram-inspired jewellery has the potential to make a notable impact on socio-economic aspects and humanity, creating a unique market niche and offering jewellery pieces with both artistic and cultural significance.

In conclusion, the commercialization potential of tangram-inspired jewellery holds great promise in the jewellery industry. By offering unique and meaningful pieces, tangram-inspired jewellery resonates with consumers. Its impact on socio-economic aspects includes economic growth, job creation, and the preservation of cultural diversity. On a personal level, tangram-inspired jewellery evokes emotions, fosters cultural appreciation, and contributes to individual well-being. Recognizing and leveraging the commercialization potential of tangram-inspired jewellery allows us to embrace its positive impact on both industry and humanity.

NOVELTY

The novelty of tangram-inspired jewellery lies in its unique and innovative approach to design. By integrating tangram elements into contemporary jewellery, designers create pieces that stand out in the market and captivate the attention of consumers. The fusion of tangram's geometric shapes and symbolism with modern design aesthetics offers a fresh and unconventional perspective on jewellery creation.

The novelty also stems from the creative interpretations of tangrams. Designers go beyond traditional representations of the puzzle, exploring new ways to manipulate and transform tangram shapes. As a result, they produce jewellery pieces that exhibit asymmetry, dynamic arrangements, and unexpected compositions, pushing the boundaries of traditional jewellery design.

Furthermore, the novelty of tangram-inspired jewellery lies in its cultural and historical references. Tangram carries a rich heritage and serves as a tangible link to cultural traditions. By incorporating tangram elements into jewellery, designers infuse their creations with a unique narrative and meaning, adding depth and significance to each piece.

Overall, the novelty of tangram-inspired jewellery resides in its ability to combine geometric design, innovation, and cultural references, resulting in one-of-a-kind pieces that offer a fresh perspective on contemporary jewellery design. This novelty attracts consumers seeking unique and meaningful accessories that reflect their individuality and appreciation for artistry.

CONCLUSION

In conclusion, "BDPQ Integrated: Contemporary Jewellery Inspired by Tangram" exhibits significant potential in the jewellery industry. Successful tangram integration and innovative interpretations create captivating designs. Positive market reception reflects demand for unique, symbolic jewellery. Commercialization opportunities arise for designers and businesses, meeting consumer preferences. Socio-economic significance fosters industry growth, cultural appreciation, and personal expression. Bridging tradition with contemporary aesthetics appeals to those seeking meaningful accessories, blending artistry, cultural heritage, and commercial viability. The exploration of tangram-inspired jewellery leaves a lasting impact, offering distinctive and meaningful pieces for a niche market.

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