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Utilization of Six Sigma Analysis to Evaluate Upcycled Denim towards Sustainability

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Abstract:
Six wastes denim fabrics redesign using different decoration technique creating a new trendy wearable accessory, eco fashion, focusing on sustainability and upcycling from point of view and customer satisfaction and problem solving from other point of view. Physico-Mechanical properties of new and waste denim fabrics were evaluated to determine the shelf life of the redesigned products. Function and aesthetic aspect, elements, principles and upcycling properties of the products were examined. The results were evaluated and statistically analyzed using six sigma evaluating tool. The product No. (4) which represents a multipurpose shoulder bag for girls and women is considered the best ranked product as it is the first rank with sigma level (5.74) which it meets customer satisfaction and acceptability.
Objective: The aim of this research is to upcycle wastes denim fabrics via redesign strategies to create a new trendy wearable accessory, evaluated with Six Sigma analysis focusing on customer satisfaction and problem solving.
Experimental work: New fashionable trendy accessories were created via using denim waste (old used child's trouser and a man's short). Six new products were created and decorated using different accessories.
Materials: old used denim, sewing threads, trims, zippers, crochet threads, canvas threads, metal rings, wooden beads, and colored beads.
Techniques: different sewing technique, embroidery, stitching, threads, and hand printing.

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