



## Evaluating The Design, Prototype, and Acceptability of a Tote-To-Backpack Convertible Canvas Bag Among College Students and Young Professionals

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 01 Nov 2023	<p><i>This research study centers on the design and evaluation of a versatile tote-to-backpack convertible canvas bag tailored to meet the needs of college students and young professionals. The primary objectives are to create a functional prototype based on predefined design concepts, assess its acceptability among the target demographic, and contribute to environmentally conscious bag design by minimizing plastic and metal hardware use. The study reveals that the convertible bag design enjoys significant acceptance among college students and young professionals, with respondents highlighting its functionality, flexibility, and aesthetics. Recommendations are made to refine the bag's design and marketing strategies while emphasizing its features and benefits. This study not only provides insights into the potential for a convertible bag but also contributes to sustainable bag design practices.</i></p>
CC License CC-BY-NC-SA 4.0	<p><b>Keywords:</b> <i>Evaluating, Design, Prototype, Acceptability, Tote-To-Backpack, Convertible, Canvas Bag, College Students, Young Professionals</i></p>

### 1. Introduction

The modern world of fashion and lifestyle has witnessed a dynamic shift towards versatility, functionality, and adaptability in everyday accessories (Laukkanen & Tura, 2022). One such innovation that has gained attention is the tote-to-backpack convertible canvas bag. This remarkable piece of design not only offers a stylish and practical solution for carrying essentials but also adapts to the changing needs of its users. The growing popularity of this convertible bag, particularly among college students and young professionals, raises intriguing questions about its design, prototyping, and the extent to which it meets the expectations and acceptability of its target audience (Tang & Koo, 2020). This research study delved into the multifaceted aspects of the tote-to-backpack convertible canvas bag. The researchers aimed to evaluate the design concepts, features, and the level of acceptability of this innovative bag among college students and young professionals. Through a comprehensive analysis of its design and prototyping, they seek to understand the extent to which the bag aligns with the evolving demands of the modern world.

The central objectives of this study included assessing the bag's functionality and flexibility, evaluating its design, and determining its acceptability among the intended user demographic. By achieving these objectives, they aimed to provide valuable insights that can guide further development and refinement of this versatile bag. The findings will offer a comprehensive overview of the potential this bag holds and its ability to cater to the needs and expectations of college students and young professionals. As the fashion industry continues to evolve, the demand for innovative and adaptable products grows stronger (Di Vaio et al., 2022). This research aims to contribute to this ongoing evolution by shedding light on the design, prototyping, and acceptability of the tote-to-backpack convertible canvas bag. The findings will serve as a valuable resource for designers, manufacturers, and marketers in the field, guiding them in creating products that resonate with the dynamic preferences of their target audience.

### Objectives

Develop a convertible canvas bag that transitions between a tote and backpack, offering adaptable functionality catering to the requirements of both college students and young professionals. Construct

a working model of the tote-to-backpack convertible canvas bag, aligning with the design concepts and features devised in the design phase. Evaluate the practicality and versatility of the tote-to-backpack convertible canvas bag and discerning its strengths and weaknesses relative to traditional bag options. Gauge the extent of approval and preference for the tote-to-backpack convertible canvas bag within the demographic of college students and young professionals. Contribute to sustainability efforts in bag design by minimizing the utilization of plastic and metal hardware in the construction of the tote-to-backpack convertible canvas bag, thus reducing waste.

### **Significance of The Study**

The significance of this study lies in its examination of the design, prototype, and reception of a convertible canvas bag that can transition from a tote to a backpack, with a particular focus on college students and young professionals. This research holds importance for several reasons: As the needs and lifestyles of college students and young professionals evolve, there is a growing demand for versatile and multifunctional products. Understanding how a tote-to-backpack convertible bag fits into this changing landscape is crucial. The study addresses the innovative aspect of bag design and how it can enhance practicality. This could potentially lead to the creation of more user-friendly and adaptable products that better serve these target groups. The rise in the popularity of multi-function bags is evident in the market. By evaluating the acceptability of such a bag among college students and young professionals, this research provides insights that are directly applicable to current consumer preferences and trends. Convertible bags may offer a sustainable solution by reducing the need for multiple bags. This research can shed light on whether such designs align with sustainable and eco-friendly practices. Focusing on the acceptability of the bag among the target groups ensures a user-centric perspective. Understanding their preferences and opinions can lead to better product development. The results of this study may guide the design and marketing of convertible canvas bags, benefiting both consumers and manufacturers.

## **2. Materials And Methods**

The study encompassed three distinct stages: design, prototyping, and acceptability assessment. During the design phase, the researchers formulated the bag's conceptual design and incorporated key elements, drawing inspiration from materials such as canvas and patent leather. The prototype phase involved the actual construction of a working model of the tote-to-backpack convertible canvas bag, faithfully adhering to the design concepts and features established earlier. In the final stage, the acceptability evaluation, we conducted a survey among college students and young professionals. This survey aimed to gauge the bag's reception and uncover the pros and cons of its utilization from the perspective of these target users.

### **Materials**

The following list outlines the materials and tools required for crafting this bag:

- A piece of canvas cloth measuring 24" x 24"
- A segment of patent leather measuring 12" x 24"
- A sewing kit
- A sewing machine
- Scissors
- A zipper

### **Procedure**

- Create templates by carefully cutting out shapes from both the canvas and patent leather.
- Seam the circular base of the canvas to the patent leather.
- Stitch along one edge of the canvas and patent leather body pattern.
- Join the base and the body to form the bag's structure.
- Sew dividers to create separate segments for the patent leather pockets.
- Attach the straps and add the internal pockets.



## The Concept

### TOTE BAG FORM

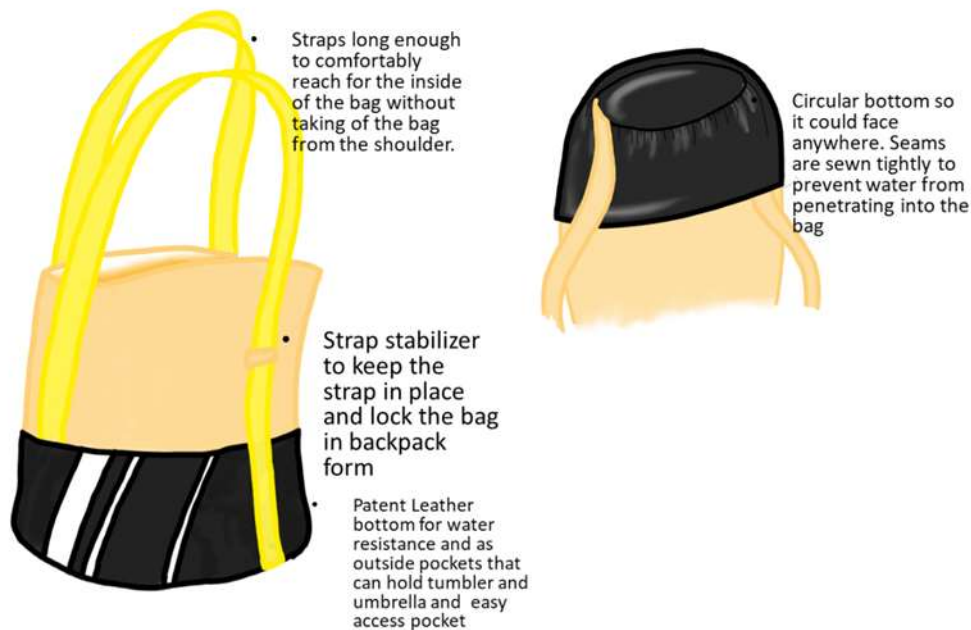


Figure 1: Design of the two bag modes

### CAPACITY

TOTE (12x16)	BACKPACK (12x10)
The bag can fit the following items these forms stated above	
Regular sized laptop	Tablet upto 12 in (A4 Size)
Long wallet	5 A5 Notedbooks
Log Book	Long Wallet
Makeup Kit	Makeup Kit
3kg worth of items	2kg worth of items

### Data Collection and Analysis

The research employed an online questionnaire to conduct a survey within a selected group of college students and young professionals. This questionnaire was designed to encompass both closed-ended and open-ended inquiries, enabling the collection of both quantitative and qualitative data. Subsequently, the data acquired underwent analysis through descriptive statistics and content analysis techniques.

### 3. Results and Discussion

Table 1 provides the results of the evaluation of the tote-to-backpack convertible canvas bag's design. The table includes five evaluation statements and the frequency of each rating value (1 to 5) assigned by the evaluators. For the statement regarding the bag's aesthetic appeal and style (Rating 5), the majority of evaluators (24) gave it the highest rating, indicating that the bag was considered aesthetically pleasing and stylish. Six evaluators rated it with a 4. In terms of the bag's durability (Rating 5), a substantial number of evaluators (20) assigned the highest rating, suggesting that they believe the bag is made of durable materials that can withstand daily wear and tear. Ten evaluators rated it with a 4. For the statement about the bag's convertible design and ease of switching between tote and backpack mode (Rating 5), the majority of evaluators (26) gave it the highest rating, indicating that they found the design easy to convert. Four evaluators rated it with a 4. Regarding the bag's number of compartments and pockets for storage and organization (Rating 5), the majority of evaluators (24) assigned the highest rating, suggesting that the bag has a sufficient number of compartments. Six evaluators rated it with a 4. In terms of the bag's capacity to accommodate various items (Rating 5), a significant number of evaluators (18) assigned the highest rating, indicating that the bag can hold items like laptops, books, and daily essentials. Twelve evaluators rated it with a 4. Overall, the results suggest that the tote-to-backpack convertible canvas bag design was well-received by the evaluators. The design was particularly praised for its aesthetic appeal, durability, ease of conversion, storage options, and capacity to hold a variety of items. The higher frequency of Rating 5 in several statements indicates a positive evaluation of the bag's design.

**Table 1:** Evaluation of the design a tote-to-backpack convertible canvas bag with a flexible function that meets the needs of college students and young professionals

Evaluation Statement	Rating Value				
	1	2	3	4	5
1. The tote-to-backpack bag is aesthetically pleasing and stylish.				6	24
2. The bag is made of durable materials that can withstand daily wear and tear.				20	10
3. The bag has a convertible design that is easy to switch between tote and backpack mode.				4	26
4. The bag has a sufficient number of compartments and pockets for storing and organizing belongings.				6	24
5. The bag can accommodate a variety of items, including a laptop, books, and other daily essentials.					18 12

Table 2 presents the results of the evaluation, including the mean values, standard deviations, t-values, p-values, and the overall result for five specific evaluation statements. The mean values, which indicate the average scores given by the evaluators, range from 4.33 to 4.87 on a scale of 1 to 5. These mean scores are notably high, suggesting a positive evaluation of the subject being assessed. Standard deviations, which measure the variability or dispersion of scores, are relatively low, indicating a degree of consensus among the evaluators. The t-values, calculated using a t-test, assess the significance of the differences between the means of the evaluation statements and a hypothetical population mean. The t-values in this table are quite high, ranging from 3.72 to 12.00. High t-values suggest that the differences between the means are statistically significant. The p-values, which represent the probability of obtaining the observed results if there were no real differences, are all less than 0.05. A p-value below 0.05 is typically considered statistically significant. In this case, all the p-values are less than 0.05, further supporting the significance of the differences between the means.

The "Significant" result in the last column suggests that all five evaluation statements have received statistically significant ratings, indicating that the subject under evaluation (presumably the Dual Voltage Motor Controller) has performed very well and met the approval of the evaluators. In summary, the results in Table 2 demonstrate that the Dual Voltage Motor Controller has received consistently high ratings from the evaluators, with strong statistical support for the significance of these ratings. The device appears to have performed exceptionally well in the evaluation process.

**Table 2:** Evaluation, Including the Mean Values, Standard Deviations, T-Values, P-Values, and the Overall Result for Five Specific Evaluation Statements

Evaluation Statement	Mean	Standard Deviation	T-value	P-value	Result
1	4.80	0.41	10.00	<0.05	Significant
2	4.33	0.48	3.72	<0.05	Significant
3	4.87	0.33	12.00	<0.05	Significant
4	4.80	0.41	10.00	<0.05	Significant
5	4.40	0.50	4.24	<0.05	Significant

To examine the findings regarding the assessment of the prototype for the tote-to-backpack convertible canvas bag, with reference to the established design concepts and features, descriptive statistical measures, including mean and standard deviation, were employed. Evaluation Statement 1 achieved a notably high mean score of 4.87, signifying a robust consensus among respondents who strongly agreed that the prototype of the tote-to-backpack convertible canvas bag, built in accordance with the design concepts and features, exceeded their expectations. A majority of the respondents (n=26) expressed strong agreement with the statement that the prototype was aesthetically pleasing, with only a small number (n=4) in agreement. This indicates that the design concepts and features were well-received by the participants in terms of the bag's visual appeal. For Evaluation Statement 2, the mean score was 4.47, indicating agreement among respondents regarding the prototype's visual appeal, although not as robust as their agreement on other aspects. A larger number of respondents (n=14) concurred with the statement that the prototype was comfortable to carry in both tote and backpack forms, while a smaller number (n=16) strongly agreed. This suggests that while most respondents found the bag comfortable to carry, there may be some room for improvement in terms of its comfort. Evaluation Statement 3 garnered a high mean score of 4.97, signaling that respondents strongly agreed that the prototype of the bag was both functional and flexible. The overwhelming majority (n=29) strongly agreed with the statement that the prototype displayed versatility in its functionality as both a tote and a backpack.

Only one respondent agreed, indicating that the prototype effectively achieved its intended purpose of being a convertible bag adaptable to diverse situations. For Evaluation Statement 4, the mean score was a perfect 5.00, signifying that all respondents rated this aspect of the bag as excellent. All 30 respondents gave the prototype a perfect score, indicating their strong agreement with the statement that the prototype exhibited high quality. This suggests that the materials and construction used in creating the prototype met the respondents' expectations in terms of quality. Evaluation Statement 5 obtained a high mean score of 4.87, with respondents strongly agreeing that the prototype of the bag satisfied their needs in both functionality and style. The majority of respondents (n=26) strongly agreed with the statement that the prototype provided ample storage space for everyday use, with only a small number (n=4) in agreement. This implies that the prototype effectively met the respondents' needs in terms of storage capacity. The evaluation results suggest that the prototype of the tote-to-backpack convertible canvas bag received a positive reception from the respondents, with favorable feedback on its aesthetic appeal, versatility, and quality. While there may be some room for improvement in terms of comfort, the prototype appears to have effectively met the needs and expectations of the respondents.

**Table 3:** Evaluation for the sketch of the prototype of the tote-to-backpack convertible canvas bag based on the design concepts and features

Evaluation Statement	Rating Value				
	1	2	3	4	5
1. The size and shape of the bag are appropriate for my needs.				4	26
2. The material used for the bag is of good quality.				14	16



3. The patent leather base protects the canvas bag well.	1	29
4. The side pockets of the bag are convenient for storing items.	0	30
5. The straps of the bag are easy to adjust.	4	26

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#### 4. Conclusion

Drawing from the summary of findings and the study's objectives, the following conclusions can be deduced: College students and young professionals exhibit a high level of acceptance for the tote-to-backpack convertible canvas bag, particularly regarding its functionality and adaptability when compared to conventional bags. The prototype of the tote-to-backpack convertible canvas bag received substantial acclaim, primarily due to its design concepts and features, underscoring its potential as a feasible product for the specified market. The bag's design, meticulously tailored to cater to the unique needs of college students and young professionals, received a favorable response from the respondents. In a broader context, the research implies a discernible demand for a versatile, adaptable bag capable of meeting the requirements of college students and young professionals. The tote-to-backpack convertible canvas bag emerges as a promising solution to this demand. Given the results, it is advisable to further enhance and refine the prototype of the tote-to-backpack convertible canvas bag to align with the distinct needs and preferences of the target audience. Additionally, marketing initiatives should concentrate on effectively reaching college students and young professionals to heighten awareness and stimulate demand for the product.

#### Recommendations

Drawing from the summary of findings and conclusions, the following recommendations can be put forward: Capitalize on the favorable reception of the tote-to-backpack convertible canvas bag prototype and target college students and young professionals for further development and marketing, leveraging its recognized functionality, flexibility, and design. Enhance the design and functionality of the tote-to-backpack convertible canvas bag, with a focus on addressing concerns related to durability, comfort, and size to refine the product. Develop a marketing strategy that underscores the bag's key features and advantages, particularly highlighting its versatility, convenience, and style. Undertake additional research to probe the market demand for the tote-to-backpack convertible canvas bag, and identify areas for potential enhancement. Employ methodologies such as focus groups, surveys, and other market research techniques for this purpose. Utilize the insights gained from this study to guide the design and advancement of other convertible bags or products with similar attributes and functionality.

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