

Evaluating Entrepreneurial Opportunities in the University Second-Hand Trading Market

Han Dong^{1,a,*}, Shipeng Du², Yunxuan Fang³, Shuhui Wang⁴ and Taihua Xing⁵

¹ Adam Smith Business School, The University of Glasgow Glasgow, G12 8QQ, UK

² The Donald Bren School of Information and Computer Sciences, University of California, Irvine, CA 92697, U.S.A

³ School of International Education, Beijing Institute of Technology, Beijing, 100081, China

⁴ Shanghai SMIC Private School, Shanghai, 201203, China

⁵ Hongwen School, Qingdao, 266001, China

a. 448526450@qq.com

*corresponding author

Abstract: The main purpose of this study is to detect and evaluate the entrepreneurial opportunities in the university second-hand trading market. Previous researches have noted that when people deal with used goods, the majority of them will choose to resale or donate these items. Moreover, online shopping platforms greatly promote the trading of second-hand goods, because people can obtain information of products conveniently and receive more perfect after-sales service. Despite the existence of prior studies, it is still unclear whether the segments of Chinese international students have a demand for second-hand trading websites. Our studies started with the business idea targeting Chinese international students, which we have branded as “Stuff”. In order to investigate this market segment, we conducted a questionnaire survey and analyzed the collected data. The results indicate that Chinese international students do have potential demand for second-hand trading platforms and they were willing to try our new website. After that, we tested the feasibility of our website. Finally, we also discuss the limitations of this study and the subsequent "go-to-market" strategy.

Keywords: second-hand goods, online transactions, entrepreneurial opportunities, sustainability, business model.

1. Introduction

With the spread of the concept of circular economy and the popularity of social media in the world, there has been an increased growth in the global supply and consumer demand for second-hand products. More specifically, sales of used clothes, shoes and accessories are expected to grow from \$24 billion in 2018 to \$51 billion in 2023. On top of that, the resale of phones was \$19 billion in 2017 and is expected to rise to \$44 billion by 2026 [1]. For the segment of international students, the demand for second-hand goods is more obvious, because they move around usually and are often constrained by their budgets. Therefore, there is a potential market for second-hand trading website.

At present, there are a number of existing solutions which attempt to allow for the sale of second-hand goods across the globe. However, the current second-hand trading websites are aimed at the general population, with little attention paid to the niche group of international students. International

students often need to spend a long time to find the products they need. Besides, due to the influence of region, language and culture, it is difficult for Chinese international students to fully trust the sellers on the existing website. Given these issues within the second-hand goods market, in this study we look to explore entrepreneurial opportunities which might be developed to overcome those issues. Our studies started with the business idea targeting Chinese international students, which we have branded as “Stuff”. In order to examine these opportunities, we conducted a random survey across North American colleges and analyzed the collected data. Therefore, our study thus helps address gaps in our existing understanding of this market and offers a potential solution for addressing challenges within that market.

2. Literature Review

According to the research by Tansel [2], 99% of natural resources are turned into waste within forty-two days. In addition, a large proportion of discarded items cannot be recovered, and there are few mechanisms to recycle or reuse these discarded items. Thus environmental, social, and economic problems will arise when it is difficult to produce more products with limited resources. As consequence, many researchers suggested moving closer to a “circular economy” [3-6], which aims at "recapturing [the] value of post-consumption products, resources, and packaging by swapping linear material and energy flows with circularity through closed-loop production and consumption systems" [7].

In a sense, the circular economy is related to resource redistribution. When consumers are faced with redistributing products, they may donate, exchange, lend, sale or throw them away [8]. In general, Redistribution behaviors can be divided into four major categories, namely donating, reselling, exchange, and lending/ renting (excluding reservation activities and scrap products), namely free and fee-using behavior. According to Kijiji's [9, 10] several years of empirical research on consumer behavior, the most popular Redistribution behaviors are donating and reselling, while exchanges and ending/ renting are relatively less likely.

According to Williams and Paddock [11], second-hand goods are products that are purchased by some users and then handed over to other customers. Second-hand goods are characterized by differences in performance, shape, etc. compared with the original purchase before being resold to current users [12]. Despite this difference, the product that is being re-sold can still be accepted and utilized by the next customer, thus the degree of depreciation of the product needs to be controlled within a certain range, and the price is often lower than the new product which is sold in the market [13, 14]. This has led to the current surge in second-hand market business, as most of these products are touted as affordable, ready to use, and available in a wide variety of goods [15]. Used retailers are mostly made up of physical stores, such as vintage stores/boutiques, consignment shops, charity shops, etc. [16]. More recently, the second-hand market has been seen as a favorable market in developing parts of the world [17].

The fact is that in today's world, whether in developed or developing countries, it has been recognized that the second-hand commodity trading market has become an integral part of the calculation of the Gross Domestic Product of most countries in the world [18]. For example, in 2015, Canada's second-hand commodity market contributed \$36 billion to the market economy, accounting for 2.2% of Canada's annual Gross Domestic Product [19]. Similarly, in the United States, the annual sales volume of the second-hand commodity market in 2007 was 9 billion US dollars, an increase of 20% over 2002 [13].

Concerning online shopping, the fact is that consumers are more likely to enjoy many forms of convenience when shopping on the Internet, such as less manual labor, more choices, more direct after-sales service, and so forth. So many shopping websites are user-friendly [20]. There is no denying that convenience is one of the most important criteria by which customers measure their

shopping experience [21]. In addition, online shopping platforms tend to offer greater discounts and have a comment share mechanism, which makes the site itself and existing customers constantly attract new customers to visit such a website [22]. The extent and speed with which consumers are keen to shop online have been measured in previous studies. The level of consumer enthusiasm for online shopping stems from the fact that from the first time a consumer makes an online purchase on a platform, he or she is more likely to return to that shopping site in the next three months to browse or choose to purchase again [23].

At the same time, with the rise of eBay in the United Kingdom and the United States, the market size of second-hand goods has been expanding rapidly. Some online platforms, such as Vintage (in the United Kingdom), Babybundle, and Amazon, provide consumers with a large online platform to sell or buy second-hand goods. There is a variety of product types, such as books, daily necessities, electronic products, and even cars [24]. For many consumers, these platforms are particularly useful, especially in the period of economic downturn, when many people are still struggling with high spending. And these platforms can provide affordable commodity prices, although they are second-hand products [25]. Moreover, such platforms also provide convenient sales or purchase operations. For example, Vintage's application has a convenient option. Consumers can upload pictures of clothes they are ready to sell. If other consumers like these clothes, they will buy them on this platform. At the same time, this application also allows consumers to view the discounts offered by other sellers so that they can buy the desired and cheaper products through comparison [26].

According to Domadiya and Rao's research [27], regional attributes have a relatively large impact on online shopping, such a phenomenon is usually due to trust. Such trust not only refers to the security of the website but also refers to the customer groups of websites. The study found that customers tend to consume with shopping platforms which are belonging to their own countries [28]. This finding proves the truth that nowadays although Amazon is one of the largest online shopping websites in the world, the customer number of Taobao obviously exceeds that of Amazon. Such a reality does not indicate that Chinese consumers do not trust Amazon, but more out of the cultural attributes which contribute to a sense of belonging.

To sum up, by citing these data and literature, we can infer that the emergence of e-commerce platforms provides a medium for the sale of second-hand goods. In fact, online platform sales have indeed caused a surge in the consumption of second-hand goods. This stems from the fact that consumers can make multiple comparisons on the Internet and come up with the best choice, with almost no cost involved. There have been a lot of research and data to explain the market situation of online second-hand market transactions. However, for the market segment of Chinese students, there is not enough research to show whether the demand for second-hand commodity trading websites by this customer group is valid. This article aims to evaluate whether there are Entrepreneurial Opportunities in the University Second-Hand Trading Market.

3. Methodology

To explore entrepreneurial opportunities of the university-focused second-hand trading market, we surfaced several hypotheses related to a newly proposed business model. Then we tested these hypotheses using Data distribution, Blue Ocean Strategy Canvas, and Business Model Innovation Canvas.

3.1. Hypothesis

Hypothesis 1: Desirability: International students have the demand for secondhand items information platform.

Hypothesis 2: Feasibility: Chinese International students are interested in using a platform which specifically caters to their community.

Hypothesis 3: Viability: It will be possible to produce a competitive profit margin by introducing a new digital platform, customized to the Chinese International Student market.

3.2. Sampling and Data Collection

This study uses a questionnaire as the data collection tool which contains 20 questions in total. Such questionnaires enable us to know better about the Chinese students' reception degree of second-hand trading websites and trading preferences, to help us find new entrepreneurial opportunities.

The main group is American international students, but because the scope of this group is too large, this study specifically adopts probability sampling technology. The questionnaires are mainly distributed among Chinese students in North America. Since September 14, 2022, questionnaires have been distributed to 5 schools, including the University of California, the University of California Los Angeles, etc. From freshman to senior year, 40 people are randomly selected each year for a sample survey. Up to now, the data collection stage has lasted about one month, and a total of 160 questionnaires have been collected, among which 120 are valid.

3.3. Data Analysis

Blue Ocean Strategy Canvas Blue Ocean Strategy Canvas is a strategic tool through which we can understand the product value of all companies in a particular market, and we can add new entrepreneurial companies into it. All the information mentioned above can be represented in a single graph, which allows us to clearly understand the difference in strategic profile between the market and the new proposed company. In the blue ocean market, a company's goal is to reduce risk and increase profits. The goal of the Blue Ocean Strategy canvas is to help organizations find and develop "blue oceans" (evolving markets) while avoiding the "Red Sea" (overdeveloped, saturated markets).

Blue Ocean Strategy Canvas is a line chart, the X-axis represents competitive factors, namely the typical characteristics of a market. The Y-axis represents the degree, we need to evaluate the level of each attribute on the X-axis and give the corresponding score, the higher score indicates the better performance of a company. Blue Ocean Strategy Canvas can also be used to explain how companies should change to differentiate themselves from their competitors.

Business Model Innovation Canvas Business Model Innovation Canvas is a tool that helps entrepreneurs generate ideas, reduce guesswork, and ensure that they find the right target customers and solve problems reasonably. Business Model Innovation Canvas diagrams not only provide more flexible and changeable plans, but also can easily meet the needs of users, and more importantly, it can standardize the elements in the business model and emphasize the interaction between the elements.

Revenue Model To determine the viability risk of our operating model, we calculated the income statement by making some assumptions about the available data and analyzing the revenue model.

a. Revenue

Our revenue approach consists of three parts, the first part is advertising revenue, the second part is the back-to-school season campaign revenue for international students from June to September, and the third part is about the difference we earn with Temu during the three major holidays (Independence Day, Halloween, Christmas).

Assumptions:

1) We place six ads on the platform quarterly, four as scrolling ads and two as vertical ads at \$100 per ad, for revenue of \$2,400 per year.

2) Back to school season campaign we sold \$3,000 in merchandise revenue.

3) Regarding the three major holidays (Independence Day, Halloween, and Christmas) we work with Temu to earn an intermediate fee. Take Halloween for example, according to NRF statistics, about 67% of people are willing to buy costumes on Halloween in 2022; using UCI as the experimental object, the school has a total of 33,467 students, of which 20% are people using our platform, the costume revenue during Halloween is \$11,211.445.

Total annual income is \$40,634.335.

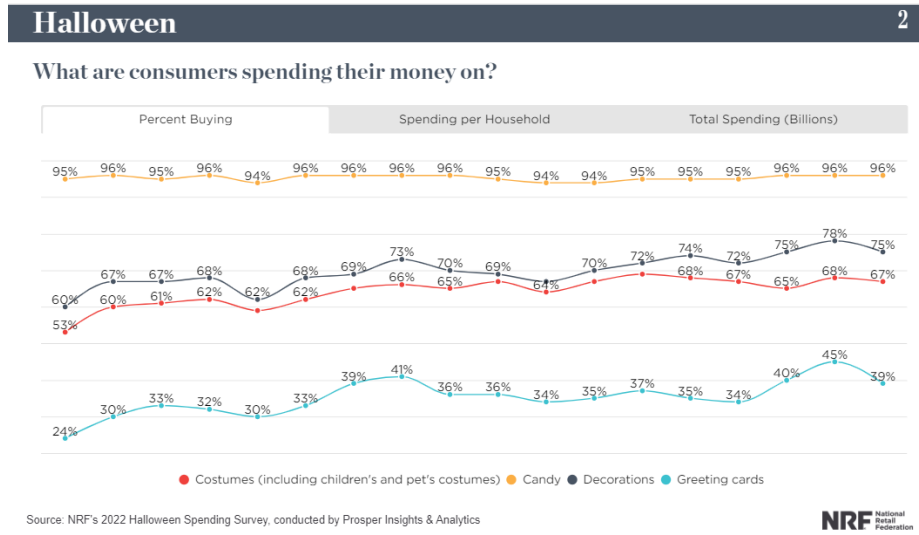


Figure 1: Halloween 2022 U.S. Consumer Spending Directions.

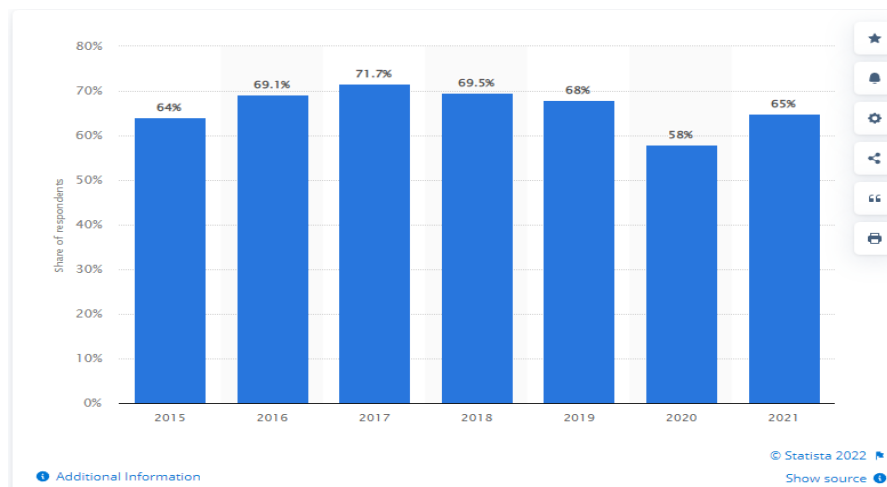


Figure 2: Number of people attending Halloween events in the United States, 2015-2021.

Source: Participation in Halloween activities in the United States 2015-2021 Published by Statista Research Department, Apr 22, 2022

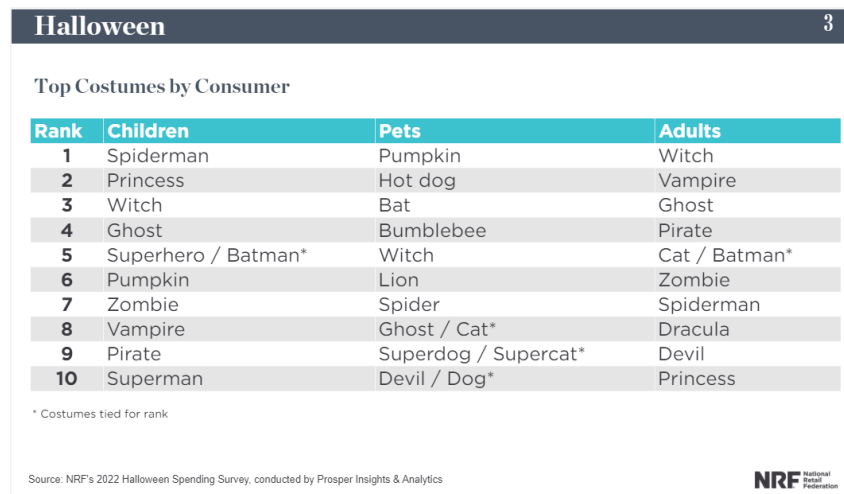


Figure 3: Costume Choices of U.S. Consumers for Halloween 2022.



Figure 4: Halloween 2022 U.S. Consumer Shopping Channels.

b. Cost

Our costs include customer service employee costs (real people, Robo-callers, postal call companies), website operation and maintenance costs, promotional costs (school federations, ad placements, forum bots), merchandise purchase costs, and warehouse rental costs. The total annual cost is \$9424.22.

Assumption:

- 1) The number of workers employed is 3 and the salary of the employees is \$5040 per year.
- 2) The technical cost of network operation and maintenance is \$1384.22 a year.
- 3) The promotional fee includes \$500 for CSSA, \$300 for CU, \$50 for campus ad placement, and \$150 for forum bots, for a total of \$1,000 per year.
- 4) Warehouse rent is \$250 per quarter, \$1000 per year.
- 5) Spend \$1,000 on low-priced items for back-to-school season.

c. Net Income

After calculation, our net income is \$31,210.115 per year.

4. Result

4.1. Result 1

Based on collected data and surveys, the result of this analysis was able to support our desirability hypothesis that Chinese international students have demands for secondhand items trading platforms.

To be more specific, as for purchasing demand, Freshmen demand higher. Demand curve arranged as n shape. Freshman to junior year purchasing demand for used goods overall raised, but senior year students' demand fell. This is potential because a significant portion of students graduated, so their demand for used goods shifted to the sale side.

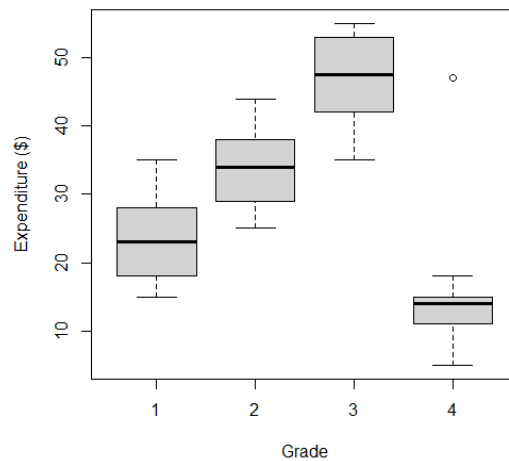


Figure 5: Boxplot of Grade & Expenditure.

There are 86% of students have needs on purchasing secondhand items during a quarter (10 Weeks). There are special situations that some outliers such as zero-dollar expenditure during one quarter in freshmen year and higher purchasing amount during a quarter in the senior year. Based on trace back interview those students either live their relative's home or purchasing some expensive secondhand textbook and so on. Overall, the trend for purchasing used goods is still increasing then decreasing.

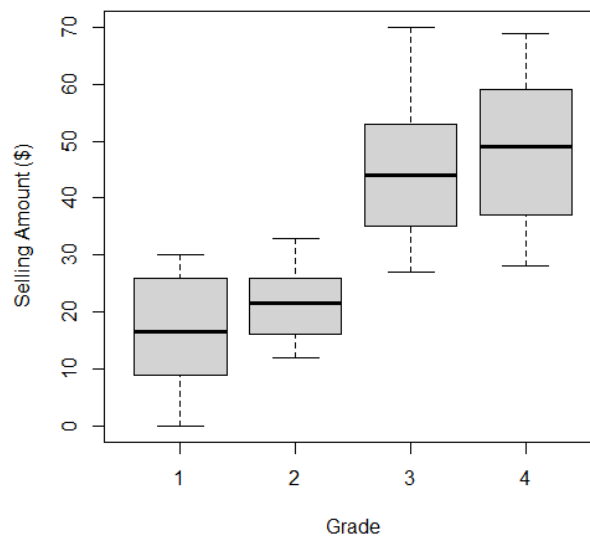


Figure 6: Boxplot of Grade & Selling Amount.

There are 76% students have selling demand in period of a quarter. The rest of students' situation reflected on outliers. Based on tracing back random interview for first- and second-year students, their selling demand is main around on selling their academic English books (Once used in English class for international students). This random selected sample based on UCI, UCLA, UCSD student is able to support that student do have needs on deal with their used items.

Based on those findings, we see evidence in support of hypothesis 1, reflecting student demand for consuming used items and there may be a potential market for second-hand products business.

4.2. Result 2

The survey data, Umiuni website data, and CSSA's event client retention rate, those facts, supported the second hypothesis. International students are willing to sell their second-hand goods via our platform continuously, and there will be an increasing amount of listing items and demands on the website.

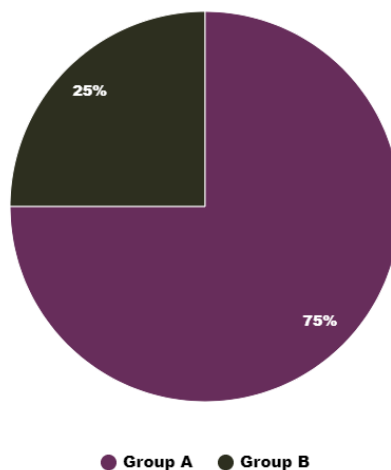


Figure 7: Pie Chart of Willingness for Using Secondhand Trading Website.

In the survey data, Fig.7, group A, 120 of 160 students have demands on secondhand items trading websites. This reflects that around 75% of students are willing to use a trading website to fulfill their needs.

The Umiuni and 5 Miles website data reflect that furniture and electronics are trendy. The average daily website traffic is relatively high. Based on Fig 8, Total daily website traffic is 1197, and based on Fig 9, the Number of Chinese students is 13846. About 8.65% ($1197/13846 = 8.65\%$) of Chinese International students at UCI, UCLA, and UCSD viewed at least one of those five categories used items. This supported that students are willing to use the secondhand trading website to sell their used items or purchase used items.

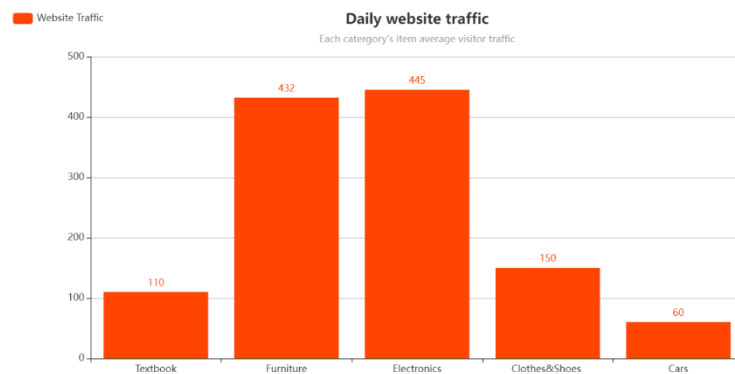


Figure 8: Daily Website Traffic for Umiuni and 5 Miles.

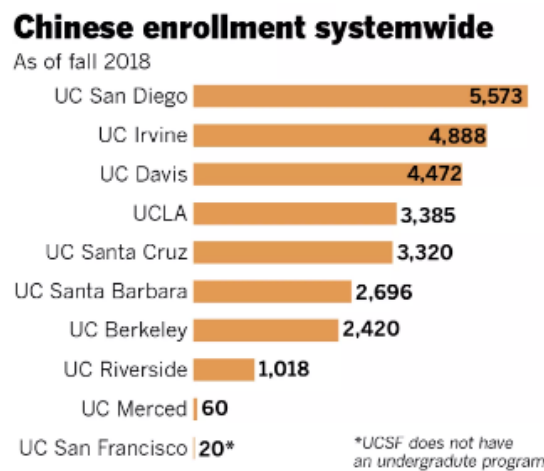


Figure 9: Chinese International Student Registration Data.

The CSSA is one of the most influential Chinese student associations in the U.S. Based on their previous business events and the Stuff survey's number of students who will use Stuff, the potential customer retention rate is about 93%.

Therefore, those evidence support that students have needs for secondhand items and have demands for using the website to help them trade their items, and 93% of students will become Stuff's customers. Those facts supported the second hypothesis: Chinese internationals are very likely to use Stuff, and there will be increasing listing items and demands on the website.

4.3. Result 3

Regarding the potential revenue generated by the three major festivals, we provide a specific analysis. Take Halloween as an example, we can see from Figure 2 that about 67% of people are willing to buy things on Halloween, and in Figure 1, according to NRF's survey on people's spending for Halloween in 2022, about 96% of them will buy candy, about 70% will buy decorations, about 65% will buy costumes, and about 40% will buy greeting cards. The survey shows that 96 percent of people will buy candy, 70 percent will buy decorations, 65 percent will buy costumes and 40 percent will buy greeting cards. It can be concluded that there are enough people will spend on Halloween, especially on the candy costume decoration, etc., will generate enough potential income.

In Figure 4, we can see that 40 percent of consumers are willing to shop at discount stores. Combined with the fact that the top shopping options for children and adults in Figure 3 are a variety of costume decorations, we can conclude that the second-hand trading platform has a large enough

consumer base that we can make a high profit by partnering with Temu to buy and sell goods during Halloween. This is our specific analysis of Halloween among the three major holidays. Similarly, the other two holidays (Independence Day and Christmas) also have a large enough consumer market to provide sustainable profits for our platform.

Summarizing the above assumptions regarding cash flow, we can derive the following income statement.

Table 1: Income Statement.

Sales	
Advertising Revenue	\$4,000
Sell Goods	\$3,000
Festivals Sells	\$33,634.335
Total Sales	\$40,634.335
Expenses	
Wages	\$5,040.000
Website Maintenance	\$207.633
Website Operation	\$1,176.587
Promotion Fee	\$1,000.000
Purchase of Goods	\$1,000.000
Warehouse Leasing	\$1,000.000
Total Expenses	\$9,424.220
Net Income	\$31,210.115

This income statement demonstrates our revenue streams and profitability, and we are well-positioned for sustainable profitability.

5. Conclusion & Discussion

In our previous research, we detected the need for recycling used items, concerning various social, environmental, and economic social issues that arise from these discarded items. With the correctly evaluated depreciation value, resource redistribution in the way of reselling second-hand goods is one of the major ways to resolve the presented issues. Along with the rapid development of e-commerce, such as eBay and Amazon, the second-hand goods market has been well-established for consumers looking for trustworthy and low-cost products.

Our studies started with the business idea targeting Chinese international students, which we have branded as “Stuff”. The idea aimed to provide support and services for students in the disposition of used goods. To learn more about business opportunities in the international student community, we decided to examine and evaluate the potential markets by conducting three studies on desirability, feasibility, and viability.

Given the hypothesis that international students have a general demand for an information platform for second-hand items, we sent out surveys to determine the quantitative data for potential customers. Using the results from our subject, a random sample from UCI, UCLA, and UCSD students, combined with collected historic data, we confirmed our previous hypothesis, that there is demand in the potential market for second-hand products.

Our second study tested the hypotheses focusing on feasibility: Chinese International students are willing to use our website and there will be increasing demand. We tested the hypothesis using the results of our previous survey, the data collected from existing similar services, Umiumi, and 5 Miles,

and CSSA's event client retention rate. Through analyzing website data, including sales volume, the number of users, along with the most popular items, we managed to collect informative data for general demands as well as needs for specific items. The results provided valid evidence that most of the Chinese international students in the studied population will be our future customers, and we are safe to conclude that the supply side of this potential market would suffice in supporting our long-term operations and further developments.

The third study specified testing our hypotheses regarding viability risk. We established our assumptions in two aspects, revenue and cost. We hypothesized that our revenue will consist of three parts, advertising, a back-to-school season campaign, and the collaboration with Temu during three major holidays, Independence Day, Halloween, and Christmas. Quantitative analysis using data from NRF statistics and our survey provided a general view of the possible revenue streams and the cost structure.

For the revenue stream during three major holidays, we based our analysis on the assumption that three festivals will demonstrate a similar outcome. Then we conducted specific research for Halloween and focused on the international student group of the UCI. We estimated that the annual income will be \$31,210.115.

We conducted studies on cost structure assuming that our costs consist of five major components, including employee costs, platform operation, and maintenance costs, promotional costs, merchandise purchase costs, and warehouse rental costs. Using NRF statistics, our potential net income is expected to be \$31,210.115, which ensures our sustainable operation in the future.

During our research, we randomly select samples from the UC schools. Considering students' overall conditions might be different in public schools and private schools, our results might only apply to the corresponding population. This limitation could be taken into account for further study in the future. Moreover, demands might fluctuate during different quarters. Considering different schools would have different schedules, we would need specific data for each school year to conduct further study.

The business plan for this second-hand goods trading platform targeting Chinese international students includes further development after the business reaches maturity. Stuff would expand the service to include providing a warehouse for unsold second-hand goods. Further study would be required to learn more about the warehouse location and other details regarding inventory. We also had the plan of expanding our business to other regions with high Chinese international student density, such as Canada and Europe. We hope that this paper will form the basic structure for our business idea and future developments, which will help find sustainable solutions for the disposal of discarded goods and make it convenient for the international student community.

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