



## Competing in the Digital Age: Understanding the Customer Experience of Department Stores through Mobile App Reviews

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The emergence and increasing deployment of Internet, mobile device and social media has changed customers' shopping experiences dramatically. According to Statista (2021), nearly 80% of U.S. consumers already have at least one retailer app on their smartphones. Mobile apps bridge the gap between online and offline channel and transform the consumers' buying process and experiences. In fashion field, there has been an increasing awareness of the need to develop efficient mobile marketing strategies (Lee & Kim, 2019). Many fashion department stores have launched their mobile apps. Unlike the e-commerce giants like Amazon, the department stores have numerous brick-mortar stores, which make it possible to integrate physical and online channel to provide the best of both worlds for shoppers. It is necessary to explore how customers utilize department store mobile apps to achieve convenient and comfortable shopping experiences. However, there are still limited studies that investigate customer evaluation and satisfaction towards mobile app shopping. This research utilizes a novel dataset of mobile app reviews to understand department store customers' experiences in the age of omni-channel retailing. Specifically, we aim to reveal the motivations and obstacles that customer might face when adopting mobile apps for fashion shopping.

According to the customer value theory (Boksberger & Melsen, 2011), customer value is considered as a trade-off between benefit and cost. Customers imply the benefit in mobile app shopping in their praise of the product, the service, the app design, etc. They also mention the cost of the experience in their negative comments. The benefit gained by customers would

Table 1. The list of Department stores and overall ratings

Department Store App	Average review rating
Macy's	4.53
Net-a-Porter	4.27
Saks Fifth Avenue	3.86
Nordstrom	3.47
Bloomingdale's	3.17
Nordstrom Rack	2.91
JCPenney	2.78
TJ-Maxx	1.26

motivate customers to reuse this retailing channel while cost would prevent customer continuing shopping through mobile apps. Researchers have utilized customer value theory to explore the benefit/cost in fashion online retail experience and found that customers place different values on different rental stores based on their competitive advantages (Lang et al., 2020). In Apple iOS system, app developers tend to request customers to rate and review apps at appropriate time throughout the using experience, such as when customers have completed an action or task (Developer, 2021). For customers who buy products via mobile apps, their reviews reflect their app usage experience as well as consumption experience.

To achieve our research goal, 8 iOS apps for fashion department stores were chosen. These apps are all developed for the well-known fashion department stores and have been available online for at least two years. All of the apps have received massive reviews. In this research, to get the evaluation of the app experience from the current app version, 500 latest iOS app reviews were crawled from each app in March 2021. In total, 4,000 app reviews were collected and analyzed. The department stores and the average ratings of the latest 500 reviews are listed in Table 1. Reviews with ratings of 1 or 2 are classified as “negative”, while reviews with ratings of 4 or 5 are considered as “positive”. Before data analysis, all of the reviews are tokenized to their smallest element—word. Then all of the capital cases were converted to lower case. All of the punctuations, numbers, pronouns and articles were removed since they are not related to the key topics. Latent Dirichlet Allocation algorithm (Blei et al., 2003), a widely used topic modelling method that generate topics based on word frequency and word possibility from a set of documents, has been utilized to extract the topics from the preprocessed text dataset.

Table 2 reveals 15 topics by providing the top eight keywords of each topic. The first five positive topics and the first three negative topics, containing department store names in keywords, indicate the most important benefit or cost that customers gain from the particular store. For example, customers using Macy’s app provide positive feedback for easy and quick shopping service, while TJ-Maxx app users are annoyed by the login process and the crash screen. This result keeps consistent with the ratings in Table 1. The rest topics show the general comment for experience in department store mobile apps. In positive reviews, customers are satisfied with the search function, wish list, consistency across channels, and seamless checkout process. For instance, some comments mentioned “I like how my Bloomies credit card and loyalist rewards are accessible through the app”. Customers also feel convenient when the Wishlist in apps could save their old products. In negative topics, app users feel frustrated with the payment process and request the app developers to fix issues, and complain about the customer service. For example, some complaints are “Your app makes it difficult by not allowing to copy promo code when checkout,” “please fix Apple Pay,” and “Horrible customer service. I have been on hold 3 different times (38 min, 43 minutes, and 68 minutes) with no resolution.”

Table 2. Keywords of the topics extracted from reviews

<b>Positive</b>	bloomingsdales, shopping, online, password, experience, reset, convenient, sites
	saks, quality, price, sales, products, selection, recommend, beautiful
	macy’s, easy, shop, update, excellent, quick, crashes, makes
	netporter, like, app, best, every, terrible, open, save
	nordstrom, deals, great, love, find, easy, use, improve
<b>Negative</b>	new, way, back, wish, search, page, old, list, product
	use, card, app, credit, pay, rewards, log, access, bill
	maxx, using, try, login, click, annoying, screen, useless
	nordstrom, rack, many, sale, purchase, items, many, sold, stock, disappointed
	jcp, shipping, return, things, slow, free, delivery, receive
	account, frustrating, let, users, payment, friendly, sign, keep
	cart, checkout, place, address, add, code, different, put
	order, back, money, purchase, horrible, went, today, hours,
app, please, fix, navigate, issues, merchandise, fast, extremely, service, customer, anything, company, help, worst, minutes, called	

This study explored the customers’ motivations and barriers in adopting mobile app shopping based on customer value theory, through text-mining analysis of customer reviews from eight well-known fashion department store mobile apps. Most heavily mentioned motivations to use

department store mobile app is the ease of use as well as financial value. The barriers include technology issues, slow delivery/return, financial risks, and poor customer service. These findings could help department stores to improve their mobile app usage experience by strengthening the motivations and eliminating the barriers. For example, customers mentioned “hours” and “minutes” in negative topics related to payment and customer service. This implies that mobile app customers need their problems to be solved in hours or even minutes. Mobile app users place much value on convenience under omnichannel context. Therefore, quick-response customer service would be necessary to satisfy customers’ needs. Meanwhile, understanding customers’ benefit and cost would help retailers to enhance their competitive advantages. For instance, customers feel disappointed for the out-of-stock items in Nordstrom Rack sales. This complaints indicate that Nordstrom Rack are expected to provide more sales activities and keep enough stock. For future studies, more data from fashion brand apps would be collected to further investigate customers’ evaluation towards channel integration and customers’ holistic experience in the omnichannel setting.

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