A model of technological enhancement of consumer behavior analysis using the push pull mooring approach in dual-channel apparel retailer

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Abstract. The concept of dual channel supply chain (DCSC) allows retailers to sell their products broadly. Channel collaboration, offline and online, helps companies to survive amid the competition through increasing profits. Nonetheless a review of previous studies in DCSC provided no explicit model addressing consumer behavior to shift channel preference in two directions, offline to online as well as online to offline. This study proposes an analog model to elicit the factors that influence consumer preferences for switching channels from offline to online and from online to offline by using push pull mooring (PPM) approach. Such approach may identify the variables involved in consumer channel switching-intention. The selected object is apparel retailer under dual-channel structure. Furthermore the data is collected by means of questionnaires. Structural equation modelling (SEM) used to identify variables that have a significant effect on consumer switching intention. The results of this study may be used as reference for researchers and apparel retailer managers under DCSC structure to create their operational plans in conducting their business.

1. Introduction

Electronic commerce or e-commerce is the trading of goods or services through electronic media. E-commerce is an electronic business that focuses on business transactions with the internet as a transaction medium between two institutions [1]. The use of e-commerce is clearly seen in the Business to Customer (B2C) model. In the B2C business model, producers distribute their products to consumers not only conventionally (offline channel) but also through online media to be more effective and efficient. One of the implementations is the concept of Dual Channel Supply Chain (DCSC) which is a combination of online and offline channels to distribute a product [2].

Various studies that discuss DCSC are then emerging, including discussing consumer behavior in choosing shopping channels in this DCSC structure [3-6]. Based on a literature study conducted on consumer behavior in DCSC especially for retail products, studies that have been carried out in general, have not taken into account the product category in analyzing consumer preferences in switching shopping channels. Consumer’s behavior in shopping are also influenced by the types of products sold [7-8]. This study focuses on the object of retail research on apparel products. In addition, previous studies generally discussed consumer preferences for switching shopping channels in the
DCSC structure in one direction only, namely offline to online channels. Whereas in everyday experience, sometimes consumers will also choose to buy apparel products through a physical store (offline channel) after previously buying through an online store. This paper aims to discuss the factors that influence consumer preferences for switching channels from offline to online and from online to offline used the push pull mooring (PPM) approach. By knowing consumer preferences in DCSC structure, the company expected to be able to increase trust, satisfaction, and customer loyalty. In addition, the company also does not have to sacrifice one of the online channels or offline channels owned. So that the company can maximize profits, help formulate strategies, and assist in making strategic decisions.

2. Literature Review
The conceptual model is based on the theoretical foundation of research on DCSC, and PPM.

2.1. Dual Channel Supply Chain (DCSC)
The concept of DCSC was introduced in 2000. The store works with offline suppliers to meet consumer demand. Then by utilizing internet store technology and suppliers meet consumer demand through offline and online dual channels. Both of these channels meet consumer demand simultaneously. In addition to being able to increase sales by an average of 20%, DCSC's utilization is also able to help companies reach new markets [2].

2.2. Push-Pull Mooring (PPM)
The PPM model consists of three parts, namely push factor, pull factor, and mooring factor. Push factors are the factors that motivate customers to leave the origin, which in this study is the original shopping channel. Pull factor is a positive factor that attracts consumers or potential consumers at a destination. While the mooring effect is a factor that facilitates or inhibits the occurrence of displacement or migration. Mooring factor is defined as a cultural and spatial element that provides a psychological experience [6].

3. Research Model and Hypotheses
This study evaluates the factors that influence consumers to switch apparel shopping channels from offline to online channels and from online to offline channels. Therefore, the two models were built. Model 1 is the offline-online switching intention model and model 2 is online-offline switching intention model.

3.1. Offline-Online

| Table 1. Operational definition of latent variables offline-online model |
|-------------------------------------------------|
| Variables                        | Definition                                                                 |
| Perceived benefit of search (PBS) | The benefits that are felt as a result of information seeking before consumers make a purchase decision [7] |
| Perceived cost of search (PCS)    | Costs incurred by consumers to obtain information either in the form of financial or effort [7] |
| Information searching behavior (ISB) | Consumers will try to find information about something that is faced and find a way out [8] |
| Cost saving (CS)                  | Cost savings that consumers feel because they don't have to visit physical store to buy, compare prices, and look for information [9] |
| Time saving (TS)                  | The time savings that consumers feel because they don't have to visit a |

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physical store to buy, compare prices, and look for information [9]

| Variable                          | Description                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------|
| Variety and range of product (VP) | Product variations that allow consumers to have more choices [10]           |
| Perceived value (PV)              | Consumer perceived value (quality, benefit, utility) which is the exchange of what the consumer has sacrificed (price, effort) [7] |
| Mobile characteristics (MC)       | The main characteristics of mobile devices are the advantages of online channels [11] |
| Perceived quality of mobile store (PQM) | Consumer assessment of the advantages of a product or service [12]                  |
| Attractiveness of mobile store (AMS) | Consumer perceptions about the possibility of satisfaction available between the various alternatives available [13] |
| Internet experience (IE)          | Consumer’s experience in using the internet, and shopping online [10]          |
| Switching intention (SI)          | Intention of consumers switching is a negative consequence for the origin shopping channel [14] |

The variable and indicators identification refer to several studies including [4,7,9,15], and [16]. The existing variables are then adjusted to the PPM (Push-Pull Mooring) approach to analyze consumer preferences in switching shopping channels. The following are hypotheses that are built based on the variables involved.

When consumers feel that their efforts to find information (perceived cost) in offline store is bigger than in online store they will tend to move to online store. If they feel that they can get more information (perceived benefit) in online store, consumers will continue their searching [7].

H1 : Perceived benefits on mobile devices have a positive effect on information searching behavior.
H2 : Perceived cost on offline store has a positive effect on information searching behavior. In addition to visiting physical stores, consumers also use online media to find information about products. This will encourage consumers to buy products through online channels because positive information related to a product is easily available online [7].
H3 : Information search behavior has a positive effect on switching intention.

One of the main benefits that consumers feel from using online media is that it saves time and costs that are usually spent visiting one physical store at a time to compare prices [7].

H4 : Cost saving in online stores has a positive effect on perceived value.
H5 : Time-saving in online stores has a positive effect on perceived value.

Consumers can easily find various kinds of products online, this is one of the supporting factors for online store success [17]. More variety and coverage of products available at online stores are considered as an advantage that online channels have.

H6: Variety and range of products in online stores have a positive effect on perceived value.

Online stores offer various benefits including cost and effort saving [9] as well as varied products [10] who are more concerned with comfort and convenience will tend to shop through online channels. Therefore, in this study, the benefits are considered to influence consumers to choose online channels.

H7: Perceived value has a positive effect on switching intention.
Characteristics of online stores that are not limited to space and time (searchability), activities to find information or buy products are faster to do (immediacy), as well as online devices that can be taken everywhere (mobility), encouraging a greater attraction of online stores compared to physical stores (offline channel) [7]. Perceived quality of mobile store is a service quality in online stores, such as call center services, and product returns provided by online stores.

H8 : Mobile characteristic has a positive effect on the attractiveness of the mobile store.
H9 : Perceived quality of mobile has a positive effect on the attractiveness of the mobile store.
H10 : Attractiveness of mobile store has a positive effect on switching intention.

The use of search engines increases with increasing consumer experience using the internet [18]. Thus, the more experience consumers have in using the internet will improve information searching behavior that will affect consumers to move to online stores.

H11 : Internet experience provides a moderating effect on the relationship of information searching behavior and switching intention.

3.2. Online-Offline

Table 2. Operational definition of latent variables online-offline model.

| Variables                | Definition                                                                 |
|--------------------------|-----------------------------------------------------------------------------|
| Financial risk (FR)      | Risk of loss that related to finance [19]                                  |
| Performance risk (PerR)  | The risk of the product being purchased is not functioning properly or is not durable [19] |
| Psychological risk (PsyR)| The risk of consumers receiving products that are not in accordance with their expectations [20] |
| Perceived risk (PR)      | The risks faced by consumers due to uncertainty and unwanted consequences when buying [20] |
| Environment quality (EQ) | Consumer perceptions of tangible features found in physical stores [4]      |
| Service quality (SQ)     | Consumer perceptions of service quality in physical stores [4]              |
| Need for touch (NFT)     | Consumer needs to obtain information directly through touch [21]           |
| Internet experience (IE) | Consumer’s experience in using the internet, and conducting online transactions [10] |
| Switching intention (SI) | Intention of consumers switching is a negative consequence for the origin shopping channel [14] |

Risks can occur due to uncertainty during the purchasing process [22], be it financial risk, product performance, or psychological risk. The greater the financial, performance, and psychological risks will make perceived risk also greater, which in turn will affect the intention to switch consumers.
H1: Financial risk has a positive effect on perceived risk.
H2: Performance risk has a positive effect on perceived risk.
H3: Psychological risk has a positive effect on perceived risk.
H4: Perceived risk has a positive effect on switching intention.

Environment quality and service quality are qualities possessed by physical stores [4]. Environment quality includes tangible things in physical stores, while service quality is the quality of intangible features in physical stores. Consumers who are more concerned with shopping experience will tend to choose physical stores than online stores, while fast service quality from physical stores will also affect consumer's intention to switch.

H5: Environment quality has a positive effect on switching intention.
H6: Service quality has a positive effect on switching intention.

In relation to fashion apparel products, consumers will find it easier to make choices if they have directly reviewed the product they want [23]. Consumer needs for this can only be met by physical stores so that the greater need for touch that consumers feel will further encourage these consumers to switch to physical stores.

H7: Need for touch has a positive effect on switching intention.

The high internet experience will make consumers build trust in online stores so that their desire to come directly to the physical store to directly review the products they want will decrease. Conversely, consumers with low internet experience tend to have high NFT (need for touch).

H8: Internet experience provides a moderating effect on the relationship of need for touch and switching intention.
Figure 1. Conceptual model offline-online
4. Conclusion
Each shopping channel has different push factors and pull factors, the reason is that of the advantages and disadvantages of each shopping channel are also different. Such difference makes the factors that are the main attraction (pull factor) and negative factors (push factors) are also different for each channel shopping. The PPM approach is used to identify the variables involved in the model. This approach makes it possible to identify the positive and negative variables from the channel itself and
the other factors such as psychological experiences that can indirectly influence consumer behavior called the mooring factor. Based on the conceptual model and hypotheses that have been developed from previous theories, there are indications that apparel consumers will switch shopping channels that are affected by the variables in the model. In the next study, the testing will be conducted using multivariate statistics, namely the structural equation modeling (SEM) to determine the relationship between each variable.

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