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Identifying consumer's last-mile logistics beliefs in omni-channel environment

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guidance and assistance for practitioners to develop proper strategies for facilitating consumer's shopping journey, and ultimately, improving consumer's satisfaction.

Keywords: Last-mile logistics consumer's shopping behaviour delivery and return theory of planned behaviour salient beliefs multi-channel shopper

1. Introduction

The establishment of e-commerce as a real alternative to stores -in 2014 online sales grew globally more than 20%, meaning up to almost \$840 billion (Ben-Shabat et al., 2015) has contributed to two contrary movements for retailers. On the one hand, physical retailers have felt the pressure to include the online channel in their retailing strategy, offering their consumers a broader selection of shopping options (Cammiss, 2015). On the other hand, pure online retailers have decided to do the opposite: opening physical stores or cooperating with other retailers to include physical channels to the offer to let consumers be able to touch and feel the products before the purchase (Mehra, 2013).

During the early years of offering multiple channels, retailers operated those channels separately. By time, an evolution of consumer experience et al. As a consequence, simple (complicated) stores, many retail environments

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retailers perspective (Wollenburg et al., [2018](#)). However, these research endeavours are not able to address an effective and efficient last-mile logistics, specifically, from the consumer's point of view in omni-channel environment.

Given the lack of prior research, the challenge, is to understand what motives consumers to select different last-mile options. To do so, Theory of Planned Behaviour (TPB) is an appropriate theory for studying consumers' behaviour since TPB is known as an adequate explainer of human behaviour (Ajzen, [1991](#)). Moreover, TPB is versatile in the sense that various constructs can be added to the model to improve its' predictive utility in a given behavioural context (Ajzen, [2015](#)). Due to this fact, several studies have used TPB in order to show consumer's behaviour in multi-channel environment (Keen et al., [2004](#); Pookulangara et al., [2011](#)). Thus, this study bases on the concept of salient beliefs from TPB to do an exploratory study and compare the results with previous studies using TPB basis in multi-channel contexts. By relying exclusively on factors from only previous studies, this study may fail to identify all factors in the Omni-channel phenomenon. Moreover, certain influences that were major driving factors in consumer's shopping behaviour in the past might have lost their potency with time.

For this, the study proposes the following framework. [Section 2](#) provides a comprehensive review of the existing literature on consumers' shopping behaviour. [Section 3](#) describes the methodology and the samples. [Section 4](#) presents the results of the empirical studies. [Section 5](#) discusses the implications and limitations of the study.

2. Literature Review

According to the Theory of Planned Behaviour (TPB), consumers' behavioural intentions are determined by their attitudes towards the behaviour, their beliefs about the consequences of the behaviour, and their beliefs about the social norms. Based on the TPB, consumers' behavioural intentions are determined by three components: attitude towards the behaviour, beliefs about the consequences of the behaviour, and beliefs about the social norms. The evaluation of the behavioural intentions is based on the evaluation of the attitude towards the behaviour, the beliefs about the consequences of the behaviour, and the beliefs about the social norms. The evaluation of the behavioural intentions is based on the evaluation of the attitude towards the behaviour, the beliefs about the consequences of the behaviour, and the beliefs about the social norms.

Following the TPB, the behavioural intentions are determined by three components is



(AB) is set by attitudinal (behavioural) beliefs. Subjective norm (SN) is equated with normative beliefs. And perceived behavioural control (PBC) is formed by control beliefs (Francis et al., [2004](#)). Hence, the basis of the theory is based on beliefs that play a major role in predicting intentions. Thereby, identifying these beliefs, especially salient ones, it is necessary to understand consumer's shopping behaviour.

2.1. Attitudinal beliefs

Attitudinal beliefs are an individual's positive or negative assessments for performing a specified behaviour (Ajzen, [2005](#)). This assessment is a complex process and it is derived by consumer's motivation (Ajzen, [1991](#)). According to Premkumar et al. ([2008](#)), Lee ([2009](#)), Pookulangara et al. ([2011](#)) all motivations can be categorized into hedonic, utilitarian.

2.1.1. Utilitarian motivations

Utilitarian motivation defines as 'mission-critical, rational, decision effective, and goal-oriented' (To et al., [2007](#)). Utilitarian motivation shows that the shopping process is initiated by a mission and perceiving benefit relies on whether or not this mission is completed efficiently (Doong et al., [2012](#)). In fact, consumers tend to seek instrumental value which it can be inferred that consumers form their attitude based on non-

Monetary economic values such as

2.1.1.1.

Convenience such as time, effort, costs involved in shopping, effort-saving, an alternative product, traveling, consumers tend to eliminate alternatives and ease of purchase (Frasquet et al., [2008](#)) time consumers (Frasquet et al., [2008](#))



consumers concern the possibility of losing sensitive information, such as usernames, passwords and credit card details while purchasing online. Hence, consumers are more likely to change their behaviour and look for a way to avoid this risk (Oomen & Leenes, [2008](#)).

2.1.1.3. Economic goals

Unlike convenience and perceived risk, economic goals are those monetary costs which are perceived by consumers in the shopping journey. Consumers tend to balance very carefully the trade-off between costs and benefits of every decision. They achieve either by maximizing net benefits or minimizing the total costs derived from the shopping process (Balasubramanian et al., [2005](#)). In the consumer's shopping journey, this trade-off of costs and benefits might be useful, unless consumer prefers to have exposure to sensory elements (Vilppula, [2016](#)). Since in Omni-channel product's prices are equal in every channel; hence, economic goals are apart from product's price and it is more close to transaction costs such as transportation costs (Chintagunta et al., [2012](#)). According to Chatterjee ([2010](#)), transportation costs play an important key factor in the consumer's shopping decision.

2.1.2. Hedonic motivations

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the ng attitudes ([2010](#)) state tion g process' ng attitude. t that the sumers or tility of

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context, prior studies clearly demonstrate the importance of these social influences such as friends, family, advertising, and Internet in determining a behaviour. However, the most frequently reported normative influences in marketing, has been friends and family (Priebe & Spink, [2011](#)).

2.3. Perceived control beliefs

Ajzen ([1991](#)) proposes perceived control beliefs in the TPB to represent non-volitional actions. Control beliefs derive from perceiving the probability of the existence of certain facilitating or constraining conditions in which the behaviour may be effected, along with the perceived power over resources, skills, and opportunities for making the performance of the behaviour difficult or easy (Ajzen, [1991](#)). Taylor and Todd ([1995](#)) decompose perceived control beliefs into facilitating conditions and self-efficacy.

2.3.1. Facilitating conditions

Facilitating conditions, which refer to 'the availability of resources needed to engage in a behaviour' represent passages or barriers of a consumer's behaviour (Taylor & Todd, [1995](#)). In other words, facilitating conditions highlight the importance of the external resources needed, usually objective and independent of the person (Viswanath et al., [2003](#)). In a marketing context, studies clearly show some of these external resources:

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includes travel time, shopping time at the physical store, and waiting time in a queue in the case of in-store shopping (Chintagunta et al., [2012](#)).

2.3.2. Self-efficacy

Self-efficacy refers to ‘individual judgments of a person’s capabilities to perform a behaviour’ (Pookulangara et al., [2011](#)). In a more simplified way, self-efficacy is about what an individual believes they can achieve by using their skills in certain circumstances. According to Monsuwé et al. ([2004](#)), consumers with a low self-efficacy level tend to act differently due to uncertain and uncomfortable feelings. In fact, low self-efficacy consumers show to be less likely to do complex tasks and prefer to go through a simple procedure that requires little knowledge (Monsuwé et al., [2004](#)). On the other hand, higher self-efficacy consumers tend to be more confident in their ability to perform a behaviour (Dabholkar & Bagozzi, [2002](#)), and they are more likely to engage in free-riding behaviour in different stages of consumer’s journey (Chiu et al., [2011](#)).

3. Methodology

By relying on a theoretical framework, this study aims to understand which factors influence consumers’ channel choice behaviour. Hence, the Theory of Planned Behaviour (TPB) provides a theoretical framework to elicit all beliefs that influence channel choice behaviour. Hence, the study aims to understand which factors influence consumers’ channel choice behaviour. Hence, the study aims to understand which factors influence consumers’ channel choice behaviour. Hence, the study aims to understand which factors influence consumers’ channel choice behaviour.



behaviour. Similarly, for normative beliefs, the questions ask for the character who approves or disapproves of the behaviour. And lastly, according to Ajzen and Driver (1991), the questions capture control beliefs, the clue of identifying beliefs that makes behaviour to be easier or difficult. After determining the final questions, they were applied to three main delivery and return options proposed by Piotrowicz and Cuthbertson (2019) and four scenarios - delivery options when buying online, delivery options when buying offline, return options when buying online, and return options when buying offline.

After eliciting all consumers' beliefs, according to Ajzen (1991) selecting only those salient ones is vital. Therefore, Ajzen and Fishbein (1980) propose three rules for selecting salient ones. Francis et al. (2004) explicitly show that researchers only by using one of these three rules can identify 75% of salient beliefs. However, they state that by using all the three rules, non-salient beliefs might fall into the final result and produce an error. To avoid this error and thereby avoid biased or false predictions by the previous method, this study uses Herath (2010) method - Mean difference between cumulative (summing over the series of subordinate Mean beliefs) and foregone (subtracting cumulative Mean belief from the series of subordinate Mean belief) beliefs. This method can be 'strengthened by computing the product of the "belief strength" and "outcome evaluation" for each belief mentioned' (Herath, 2010). As a result of using

this approach, most significant beliefs fall into the Appendix presented in

3.1. Salient

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location delivery option, the main barriers were time risk for online shopping, and wasted time for offline purchases. Like the previous part, 12 participants answered some factors that depended on the channel instead of the delivery alternative.

Moreover, the result showed for location delivery consumers were manipulated more by attitudinal beliefs, making convenience as the main driver for this delivery option. However, time risk and wasted time emerged as two disadvantages that might force the shoppers to not choose home or work delivery. Regarding pick-ups and CDPs, shoppers, although they felt inconvenience due to effort, they preferred to try and feel the product in the store. [Table 2](#) summarized the final set of attitudinal beliefs for attitude measurement for 'advantage' and 'disadvantage' questions, and it showed the most important beliefs for the final TPB model.

Table 2. Final set of salient beliefs for attitude measurement % per respondent.



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4.2. Attitudinal beliefs in returns

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negative beliefs such as time risk and wasted time might stop consumers to select this alternative. In addition, the result showed that at the same time, the effort was the main inhibitor for returning either in-store or CDPs. [Table 3](#) summarized the final set of behavioural beliefs about returning alternatives.

Table 3. Final set of salient beliefs for attitude measurement % per respondent.



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4.3. Subjective norm beliefs

In this section, 'Approve' and 'disapprove' questions were used to measure subjective norm: the individual's perception of social pressure created by surrounded people. The results showed that only a minority of participants -7.14 percent per respondent- did not answer any salient beliefs, but a large majority of participants answered friends and family. The findings also showed that, on average, participants had positive subjective norms with respect to increasing offline purchasing.

4.4. Control beliefs in delivery

Regarding the final set of salient beliefs, the result showed that the effort was the main inhibitor for returning either in-store or CDPs. Information about the final set of salient beliefs per respondent is shown in [Table 3](#). The findings also showed that, on average, participants had positive subjective norms with respect to increasing offline purchasing.

More information about the final set of salient beliefs per respondent is shown in [Table 3](#). The findings also showed that, on average, participants had positive subjective norms with respect to increasing offline purchasing.

According to the findings, the easiest and



customer services for this location delivery option. Table 4 summarized the final set of control beliefs for delivery.

Table 4. Final set of salient beliefs for perceived behavioural control measurement % per respondent.



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4.5. Control beliefs in returns

In return, participants stated having access to facilities and enough time as the most influential factors on their control beliefs of selecting returns from home or returning points. In contrast, packaging for return and carry the items were the lowest percentage with only 1 respondent -0.43 percent per respondent. Similarly, 13 respondents could not be classified into any categories.

The following findings showed that the participants in the online channel and returning to CRPs had enough time. This was followed by online channel and returning at stores and offline channels in pick up at in-store and CRPs. Like other sections, there were 16 respondents who could not be classified into any categories.

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5. Disc

This research aims to understand why consumers select different last-mile logistics options. To do so, it uses two approaches in order to capture all the information. Firstly, it uses previous studies in different contexts to detect some information and secondly, it uses a survey instrument from Theory of Planned Behaviour, to make sure this study covers all information.

Consistent with previous research, convenience in receiving and returning items is the most important salient attitudinal belief (e.g., Sarmah, [2015](#)). Besides this result, inconvenience due to extra effort and time risk are the two most negative salient attitudinal belief, in compliance with previous literature (e.g., Schröder & Zaharia, [2008](#); Xu et al., [2011](#)). Following these findings, there are some attitudinal beliefs that act as a double-edged sword at the same time. For instance, in pick up points, in-store or CDPs, either for collecting or returning items, consumers can feel convenience - due to having fewer problems and mental effort - while at the same time, they feel inconvenience - due to the extra effort for going to these points. The result also shows new beliefs such as 'Accessibility & Comparability of checking the order and other products', in determinant attitudinal belief for collecting items in the retailer's store. The elicitation of this factor might come from the specific product since apparel makes consumers feel the need for assessing the products at the store. On the other hand, the result also shows that, consumers do not select last-mile logistics due to their hedonic

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[2012](#)). Likewise, this study identified new salient control beliefs, 'Possibility of changing item' and 'Customer services' in the case of receiving at pick up points, which was not included by previous studies. Again, the elicitation of this factor might come from the specific product since apparel makes consumers feel the need for assessing the products at the store and their needs to the customer service.

These results bring interesting implications for managers. Since access to facilities shows to be one of the obstacles for consumers while choosing a delivery or return option, hence the first implication for managers is to use location planning for last-mile logistics and establish more collection points (e.g., In-store, CDPs). These collection points can be situated in areas within proximity to residences such as: post offices, public transport stations, convenience stores, schools, and workplaces. By doing so, consumers can choose to pick up their orders at the nearest and convenient place. According to Yuen et al. ([2019](#)), retailers also have to provide flexibility to consumers regarding the time of the day as well as a reasonable time to collect their orders. This action provides consumers an opportunity to reduce costs that are associated with waiting (Yuen et al., [2018](#)). The second implication is to explicit the implicit benefits to consumers that delivery and return charges are only nominal in the shopping process. For example, retailers can show the difficulties in carrying heavy items on a rainy day and emphasize the ease of having heavy items delivered to the house (Morganosky &

Cude, [2018](#)). These findings suggest that retailers should focus on providing convenient and innovative solutions to enhance consumer loyalty, satisfaction, and repeat purchases.

5.1. Conclusions

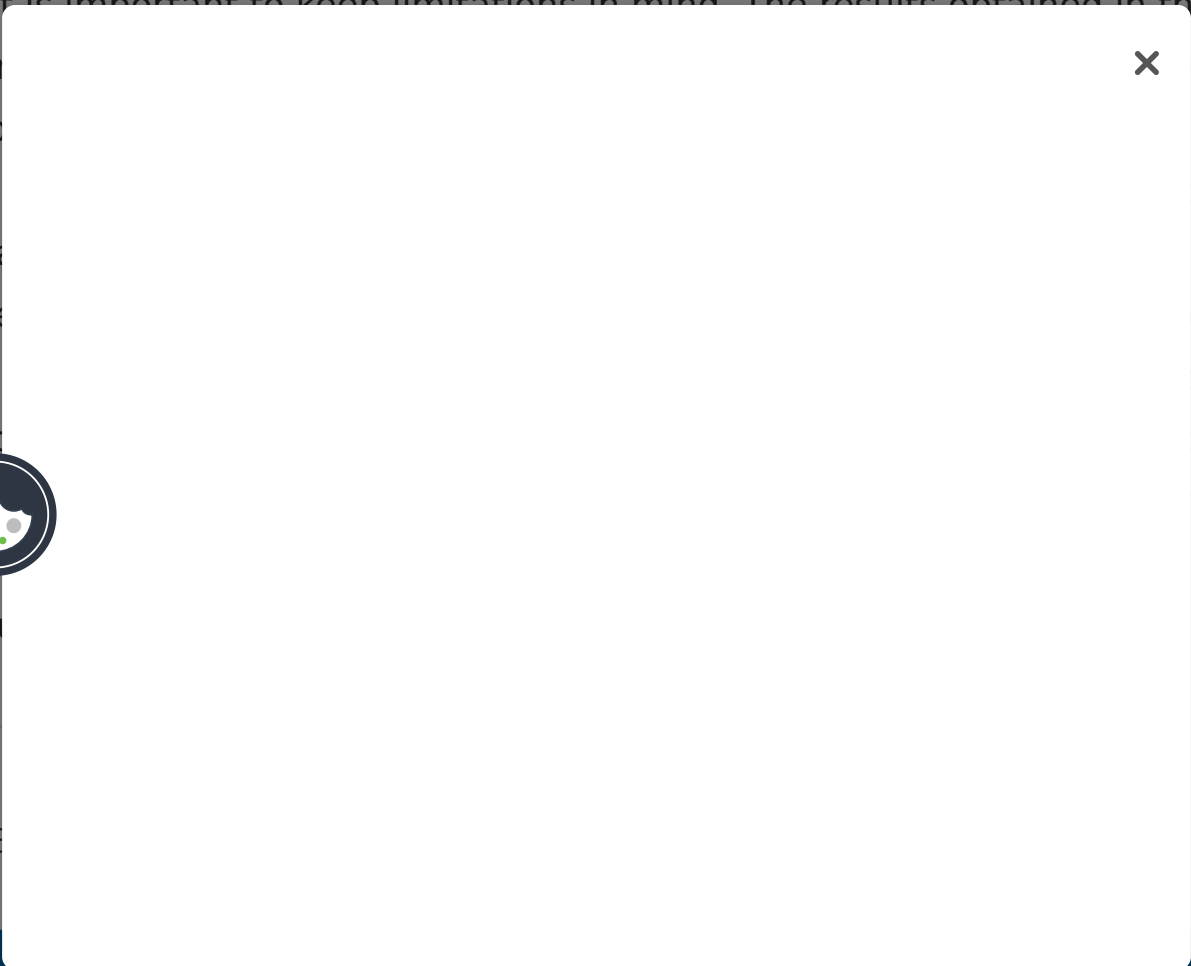
Eliciting consumer preferences through psychological experiments is a valuable tool for understanding their actual behavior in last-mile logistics. This study highlights the importance of step-by-step elicitation to overcome the errors associated with traditional approaches. The findings suggest that consumer behavior is influenced by various factors, and these factors are found to be most relevant in the context of last-mile logistics and delivery solutions.



facilities. Surprisingly, new beliefs such as 'Accessibility & Comparability of checking the order and other products', 'Possibility of changing item' and 'Customer services' are identified in the consumer's last-mile logistics behaviour.

Moreover, understanding and eliciting consumer's salient beliefs is not only an effective mechanism for predicting option-selection intention and behaviour for delivery and return, but also can assist practitioners in developing proper strategies for facilitating consumer's shopping journey, and ultimately, improving consumer's satisfaction. In addition, companies can meet consumer's specific needs, and encourage positive beliefs among low-active populations in different delivery and return options. In this case, managers may use these findings to design proper delivery and return options regarding their special populations that target these beliefs in order to justify their strategies and overcome the delivery and return challenges. For instance, managers are encouraged to emphasize the advantages of choosing different channel options (e.g., improving pick-up points and increasing the number of locations), while also developing strategies for assisting consumers to overcome their perceived obstacles (e.g., distance, cost, time and using consumer supportive activities). In sum, the current research gives practitioners a very useful guide to employing a suitable last-mile logistics strategy in Omni-channel environment.

Finally, it is important to keep limitations in mind. The results obtained in this study are based on... students. That is due to... and have higher e... ort study, individual... provide response... e this problem... cognition of repeated... that do not fall in... follow-up studies... or behaviour...



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Disclosure statement

No potential conflict of interest was reported by the author(s).

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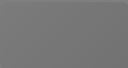
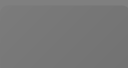
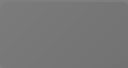

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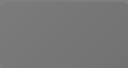
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