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# Online shopping continuance after COVID-19: A comparison of Canada, Germany and the United States

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## ABSTRACT

The COVID-19 pandemic brought about an increase in online shopping because of government-imposed restrictions and consumer anxiety over the potential health risk associated with in-store shopping. By end of 2021, many health concerns had been alleviated through efforts such as vaccinations and reductions in hospitalizations in certain countries. Some governments started to relax their restrictions and consumers started to return to in-store shopping, creating the possibility that the volume of online shopping would decrease once stores reopened. However, consumers may continue to shop online more than they did prior to the pandemic because of their experience during the lockdown. This study seeks to understand the factors that explain the potential of online shopping continuance. A novel model is constructed by extending ES-QUAL, and adding hedonic motivation, social shopping and health susceptibility as mediators. Empirical data is collected from Canada, Germany and the US. We find that convenience and efficiency, as well as security for some females, are important factors contributing to online shopping's perceived usefulness and, ultimately, intentions to continue shopping online. In addition, creating an enjoyable online shopping experience adds to these continuance intentions.

## 1. Introduction

On March 11, 2020, the COVID-19 outbreak was declared a pandemic by the World Health Organization (Cucinotta and Vanelli, 2020). Governments followed this announcement by taking action to protect their populations. For instance, nonessential retail establishments were closed and essential retailers were limited in capacity to ensure social distancing was maintained within their stores, thereby forcing consumers to wait outside (Kim, 2020). With these barriers to in-store visits, many consumers turned to online shopping. This change in shopping resulted in global retail e-commerce increasing 26.4% to US \$4.248 trillion for 2020 (Cramer-Flood, 2022).

After two years, COVID-19 is still present as variants continue to emerge. Although restrictions are being lifted and shops are opening again in some countries, consumers appear to be satisfied with their online experience and are shopping online more than prior to the pandemic. To note, worldwide e-commerce was 17.9% of total retail sales in 2020, with estimates that it grew to 19.0% in 2021 and will grow to 20.3% in 2022 (Cramer-Flood, 2022). Because global numbers do not capture differences between countries, the United Nations Conference

on Trade and Development (UNCTAD) divided countries into four groups: high income, upper middle income, lower middle income and low income (Sirimanne, 2021).

Lockdowns were also being experienced worldwide by countries in these four groups. By the end of March 2020, there were over one hundred countries with partial or total lockdowns (Sirimanne, 2021) and since the beginning of the pandemic, online sales have grown globally for lower income countries too. For example, online sales as a percentage of retail sales increased 5.2% in China from 2019 to 2020. Similarly, Kazakhstan experienced 4.4% and Chile increased 11% from 2019 to 2020. During the pandemic, 81% of Nigerians increased their online shopping (Saleh, 2022) and Southeast Asia is expected to grow 295% from 2019 to 2025, reaching US\$150 billion (Sirimanne, 2021). In this study, our focus is on three high income countries: Canada, USA and Germany.

In Canada, at the beginning of the pandemic, curfews were imposed with some provinces curtailing in-store shopping (The Canadian Press, 2021). During this period, Canada's online sales grew by 75.0% from US \$35.3 billion in 2019 (6.9% of total retail sales) to \$61.8 billion in 2020 (12.7% of total retail sales) (eMarketer, 2021). Online shopping is not

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projected to slow down. More specifically, continued growth in online sales is forecast for 2021 and 2022, with estimated online sales being US \$69.2 billion and US\$76.8 billion, respectively (eMarketer, 2021).

In the USA, the Center for Disease Control published a communique in June 2020 to address the spread of COVID-19 by avoiding gatherings, practicing social distancing, washing hands and wearing masks (CDC, 2020). In the early months of the pandemic, many states mandated that only essential stores could be open (Repko and Thomas, 2020) creating a shift to shopping online. From 2019 to 2020, e-commerce increased by 25% from US\$516 billion (11.1% of total retail sales) to US\$644 billion (14.2% of total retail sales) (Statista, 2021). Continued growth is forecast for 2021 and 2022 as well, with estimated online sales being US \$768 billion and US\$875 billion, respectively (Statista, 2021).

In Germany, the government imposed various restrictions in the first half of 2020. For instance, in March 2020, the borders and schools were closed, and the population was instructed to stay at home (Naumann et al., 2020). Hence, an increase in online shopping emerged. From 2019 to 2020, e-commerce increased by 29% from US\$79 billion to US\$102 billion (Statista, 2022). Continued growth is forecast for 2021 and 2022, with estimated online sales being US\$127 billion and US\$141 billion, respectively (Statista, 2022).

Studies of online shopping associated with the COVID-19 pandemic have been emerging in the extant literature. For example, Truong and Truong (2022) investigated purchasing behaviour by applying fear appeal theory and found that consumers moved their shopping from in-store to curbside pick-up and online due to the risk of COVID-19 shopping. Jacobson et al. (2022) found that grocery retailers in Canada shifted their messaging towards the community instead of a market focus. Although prior studies have evaluated online shopping (Dayal and Palsapure, 2020; Liu et al., 2020; Sethuraman and Thanigan, 2019), little research has evaluated those factors that will influence consumers to continue their online shopping once the COVID-19 pandemic recedes. Therefore, our research objective is to address this gap in the literature by studying online shopping continuance - comparing online activities prior to the pandemic with anticipated behavior after the pandemic.

As consumers start to resume their in-store shopping, it will be important for practitioners to understand the factors that motivate consumers to continue the increased levels of e-commerce activity experienced during the pandemic. Therefore, we pose the following research question: for physical merchandise, what are the drivers of continued online shopping intentions post-pandemic? Because consumers' interactions with retail websites are the gateway to online shopping, we propose that website quality influences online shopping continuance. As our theoretical foundation, we adopt the multiple-item scale, ES-QUAL, developed by Parasuraman et al. (2005) that measures overall website quality. Then, considering the context of online shopping intentions post-pandemic, we extend our model with the constructs of convenience and perceived usefulness. Health susceptibility, social shopping and hedonic motivation are added as mediators.

This paper is organized as follows. The next section, Section 2, is the literature review which develops the hypotheses and concludes with the research model. Section 3 explains the methodology. Section 4 details the results which are then discussed in section 5. Finally, our conclusions are summarized in section 6.

## 2. Literature review

### 2.1. E-commerce service quality

Many retail companies stress the importance of service quality, recognizing that good customer service leads to increased retention (Garvin, 1988; Imrie et al., 2000). Parasuraman et al. (1988) suggested that there are five dimensions to service quality: 1) tangibles, referring to the attractiveness of the store and the appearance of the personnel; 2) reliability, which is a measure of consistent service; 3) responsiveness, which is how easily and quickly assistance is available; 4) assurance,

indicating that employees are knowledgeable; 5) and empathy, which is the caring way that service personnel interact with the customer. These constructs were combined into a multi-item scale, SERVQUAL (Parasuraman et al., 1988) which has been applied in the context of service in physical retail stores (Sivadas and Baker-Prewitt, 2000; Veloso and Sousa, 2022).

When shopping online, similar constructs can be employed, but with a modified meaning. More specifically, tangibles refer to the design of the website, reliability is a measure of the accuracy of the website, responsiveness is the ease of placing an order and checking out, assurance is the trust that the correct product will be delivered, and empathy is a measure of any interaction with customer support (Holloway and Beatty, 2003). For e-commerce, after-sales support needs to be included in the measure of quality as the sale is not complete until the merchandise is delivered and the customer satisfied (Camilleri, 2021; Zhang et al., 2013).

Recognizing the need to modify SERVQUAL to differentiate between in-store and online retailing, Ranganathan and Ganapathy (2002) asked consumers what was important to them when shopping online. They ranked security and privacy first, followed by information content and website attractiveness. Barnes and Vidgen (2002) introduced WEBQUAL, which considers web presence and the smoothness with which the after-sales support (which handles deliveries and customer problems) functions. Loiacono et al. (2007) introduced another version of WEBQUAL with twelve dimensions, stressing the importance of information content, intuitive operations and the completeness of the delivery. Considering the context of our study and the importance of overall website quality, we adopt ES-QUAL discussed below.

### 2.2. ES-QUAL

Parasuraman et al. (2005) developed a multiple-item scale to measure website quality. From an analysis of empirical data, they proposed a 22-item scale across the four dimensions of efficiency, system availability, fulfillment and privacy. They labeled their multi-item scale 'ES-QUAL'. Various studies have shown that ES-QUAL impacts customer satisfaction, where quality websites lead to loyal customers who return to that website for continued online shopping (Petnji Yaya et al., 2012).

Boshoff (2007) collected data using ES-QUAL from 1409 users of a website selling mainly books and CDs. The results confirmed the importance of capturing the complete buying process, from the navigation of the website to the delivery of the product. In another application that used the scales of ES-QUAL, Marimon et al. (2010) investigated online supermarkets in Spain, finding that the key factors were system availability and fulfillment. Meta-analyses have supported the application of ES-QUAL to determine the service quality of e-commerce websites (Blut et al., 2015; Ladhari, 2010).

Therefore, we have selected ES-QUAL as our theoretical foundation. The dimensions in our model are: perceived efficiency, which includes system availability; perceived security, which refers to the management of financial data; perceived privacy concerns, which relates to unauthorized access to personal information; and fulfillment, which is the process of delivery once online payment has been completed. These dimensions, which measure the overall quality of the website, are supplemented with convenience, representing the ability to shop any time and any place. Based on these constructs, consumers will judge the perceived usefulness of the website. This, in turn, will influence their continuance intention. In addition, we have added three mediators: perceived health susceptibility, social shopping and hedonic motivation. Moderators are gender, country and online shopping experience.

The next paragraphs describe the variables in our model.

### 2.3. Fulfillment (FUL)

When buying physical merchandise online, one of the factors influencing the overall service quality will be the quality of order fulfillment

as measured by timeliness of delivery, order accuracy and delivery condition (Blut et al., 2015). This influence is different from brick-and-mortar retailing where customers can leave immediately with their purchased items. Similarly, this contrasts with online purchasing of digital products, such as electronic books and software, where gratification is immediate by delivery over the Internet as soon as payment has been received. When physical merchandise is bought online, there is a delayed consumption because of the need to physically deliver the merchandise. Also, to receive the merchandise, the customer may incur shipping costs which can be significant (Rao et al., 2011). Although delivery dates may be provided at the time of purchase, the actual delivery date may be different and later than first estimated. In addition, the consumer faces the risk that the wrong merchandise is delivered. Considering the potential of delayed deliveries and the inconvenience of returns, consumers may hesitate to purchase online (Titiyal et al., 2022), depending upon the quality of fulfillment, measured by the 'extent to which the site's promises about order delivery and item availability are met' (Parasuraman et al. (2005), p. 220). On the other hand, consumers can avoid the time and costs associated with traveling to a physical store if they purchase online. Grewal et al. (2004, p. 710) recommends that "retailers must give more attention to fulfillment". Because consumers will be encouraged to shop online if products are in stock and delivered on schedule, our first hypothesis is:

**H1.** Fulfillment positively influences the perceived usefulness of e-commerce

#### 2.4. Perceived security (SEC)

When paying with a credit or debit card in-store, the banking details are sent to the purchaser's financial institution for verification. Although risks are present with in-store purchases, consumers buying online may feel even more vulnerable. More specifically, when engaging in e-commerce and paying online, the perception is that the security risk is greater because there are more organizations moving the financial details from the retailer's website, via the Internet provider, to the financial institution (Bailey et al., 2020; Nasution et al., 2019). In addition, some retailers encourage consumers to store their payment data on their site for faster checkout. Unfortunately, reports of sites being hacked have been highlighted in the news (Green et al., 2019), which has led to consumers fearing that their data could be stolen and their card used unknowingly by others (Ranganathan and Ganapathy, 2002). Online shopping websites assure their customers that their data is secure by using secure protocols (e.g. https://), data encryption and login authentication. However, customers' perception of security may be influenced by their IT skills and understanding of the technical infrastructure behind the site (Shah et al., 2014). Independent of their IT knowledge, Peikari (2010) found that consumers' perception of security was influenced by the website security statement. Although we do not evaluate the influence of IT skills on perceived security in this study, we recommend future research to pursue this endeavor.

Our second hypothesis is that consumers need more extensive assurances that their data is secure and will not be stolen (Tran, 2021).

**H2.** Perceived security positively influences the perceived usefulness of e-commerce

#### 2.5. Perceived efficiency (EFF)

Customers expect websites to facilitate their shopping from the time they begin to search for products until their products are paid for and delivered (Yee and Faziharudean, 2010). For a website, efficiency is defined as 'the ease and speed of accessing and using the site' (Parasuraman et al., 2005). Just as stores need to be well organized with their merchandise clearly displayed, websites also need to be effectively designed to properly display the products that are available for purchase. Customers value the ease of searching for products and the

website's responsiveness (Kim et al., 2006). Also, the website needs to be well organized with intuitive navigation, and the checkout process needs to be flawless and efficient (Santos, 2003). Therefore, perceptions of the efficiency of the online shopping process will be important in perceptions of usefulness. This leads to the hypothesis:

**H3.** Perceived efficiency positively influences the perceived usefulness of e-commerce

#### 2.6. Perceived privacy concerns (PRI)

Consumers are aware that when browsing websites, their actions are recorded and in return for allowing cookies, they receive more targeted ads and personalized website interactivity (Pelau et al., 2020). However, once a purchase decision is made, the retailer's website asks for more detailed personal information. Name and address are required for delivery to occur, and email addresses are often requested to facilitate order confirmation and tracking. In addition, the retailer maintains history of purchases, collects details of product searches, and tracks time spent on any given webpage (Demangeot and Broderick, 2016). This information could be hacked, or the retailer could share it with other third parties who have not been authorized by the consumer (Kuo et al., 2016; Zhou, 2011). Perceived privacy risk is "the degree to which the site is safe and protects customer information" (Parasuraman et al., 2005, p. 220). Hence, if consumers perceive that their information is not safe and protected when shopping online, they may consider online shopping to be less useful. Therefore, we hypothesize that:

**H4.** Perceived privacy concerns negatively influence the perceived usefulness of e-commerce

#### 2.7. Perceived convenience (CNV)

Jiang et al. (2013) identified five dimensions to online shopping: access, search, evaluation, transaction, and possession. Consumers have ready access to multiple stores without having to leave their home. They can search for specific items and more product detail with simple search functions resulting in greater speed than physically visiting brick-and-mortar stores. Also, consumer reviews offer evaluation of products not readily available in physical stores. The payment transaction is simple and fast, with no added time or the inconvenience of waiting in line to check out. If the product is bulky or many items are being purchased, the products can be delivered directly to the consumer's home thereby reducing the burden of carrying the products home (Bhatnagar et al., 2000). Online retailers are never closed so shopping can take place any time and any place (Jebarajakirthy and Shankar, 2021; Shaw and Sergueeva, 2016). Hence, the convenience consumers perceive of online shopping can promote its usefulness.

**H5.** Perceived convenience positively influences the perceived usefulness of e-commerce

#### 2.8. Perceived usefulness (PU)

Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). From a systematic literature review of articles that investigated the use of online digital technologies, perceived usefulness was deemed important in most studies (Yan et al., 2021). For example, Tong (2010) compared online shopping in USA and China and found that online shopping could be considered more productive because product comparisons were faster and there was no time wasted going to stores. It is easy to search many sites from the convenience of one's home, and merchandise is delivered directly to one's home (Marimon et al., 2010). Perceived usefulness depends upon the convenience offered by the website combined with the overall quality of the website, as measured by the multiple-items scales of ES-QUAL. When consumers

were hesitant to enter physical stores because of COVID-19, online shopping provided a useful alternative. Although shopping in-store is returning and continues to return, the usefulness experienced from online shopping during the pandemic can lead to intentions to continue shopping online. Hence, we propose the following hypothesis:

**H6.** Perceived usefulness positively influences continuance intention to shop online

## 2.9. Perceived health susceptibility (SUS)

In the 1950s, social scientists in the USA developed the Health Belief Model (HBM) to explain how the perception of a health threat impacted the adoption of preventive health programs (Janz and Becker, 1984). Any preventive action taken will depend upon the threat assessment, which is a combination of perceived severity with perceived susceptibility (Champion and Skinner, 2008). For example, the common cold is a low threat: although individuals are susceptible, it is typically not severe and therefore only limited preventive action is taken.

In the early days of the COVID-19 pandemic (second quarter of 2020), the threat of the virus was considered severe by many people due to the number of daily new cases, the death rate, the overcrowding of hospitals and the shortage of intensive care units (Gallo Marin et al., 2021; Johnson and Mayorga, 2021; Li and Linton, 2021). Consequently, following the advice from government and medical experts, the majority of individuals did take preventive action, such as wearing masks and limiting their visits to restaurants, concerts and retail stores. In many instances, they turned to online shopping as an alternative to visiting the physical store (Burt and Maglaras, 2022). Now, after two years of living with COVID-19, the health threat is less severe for some (Charumilind et al., 2021). Much of the population in the developed world has been vaccinated, mask mandates are relaxed and there is less pressure on the medical profession (Mukaigawara et al., 2022). Stores are opening with fewer constraints and consumers are now able to choose between in-store and online shopping.

Depending upon health beliefs, consumers who perceive themselves or household members to be more susceptible to the COVID-19 virus may be more reluctant to enter physical stores. Those who are uncertain of the effects that the virus may have on themselves or a household member may be hesitant to resume brick-and-mortar shopping. Having experienced online shopping and perceiving the health precautions it provides, they may elect to conduct more of their shopping online in comparison to prior to the pandemic (Prasad and Srivastava, 2021). We therefore propose that perceived health susceptibility has a mediating role as follows:

**H7.** Perceived health susceptibility mediates the influence of perceived usefulness on continuance intention to shop online

## 2.10. Social shopping (SOC)

The motivation to shop can be divided into functional needs and nonfunctional needs (Sheth, 1981). The latter includes personal needs, such as learning about new trends, self-gratification and physical activity. It also includes social needs, such as communication with others, peer group attractions and social experiences (Tauber, 1972). In a qualitative enquiry, Arnold and Reynolds (2003) introduced the category of 'social shopping', where individuals enjoyed sharing their shopping activity with friends and family. In another study, when Rintamäki et al. (2006) asked department store shoppers about their reasons for frequenting the store, they mentioned bonding with others. In contrast, Internet shopping does not provide the same degree of social shopping (Parsons, 2002). Therefore, we propose that shoppers who have a higher need for social shopping will be less likely to continue online shopping once stores have reopened, which leads to our hypothesis:

**H8.** Social shopping mediates the influence of perceived usefulness on continuance intention to shop online

## 2.11. Hedonic motivation (HED)

Consumers are attracted to websites whose interface satisfies their utilitarian needs and at the same time creates excitement (Liu et al., 2020). In a study of young shoppers in Portugal, Ribeiro Cardoso and Carvalho Pinto (2010) found that enjoyment was important and, therefore, websites need to be designed for both utilitarian and hedonic needs (Childers et al., 2001). When shopping was restricted in the early days of the pandemic, the prime reason for turning to e-commerce was for utilitarian needs. Some of those shoppers may have found navigating the website an enjoyable experience as well. Consequently, they may be motivated to continue their enjoyment of online shopping even when stores reopen. We, therefore, propose that hedonic motivation has a mediating effect and hypothesize:

**H9.** Hedonic motivation mediates the influence of perceived usefulness on continuance intention to shop online

## 2.12. Continuance intention (CNT)

Online shopping continuance is "the continued use of the Internet for product information search and purchase after initial adoption" (Liu and Forsythe, 2010, p. 98). Based on the expectation-confirmation model, consumers will continue if they are satisfied with their experience (Bhattacharjee, 2001). The infectiousness of COVID-19 created conditions where in-store visits were reduced due to store closures and health concerns. This encouraged individuals to turn to online shopping as a new experience or, if they had shopped online before, to possibly extend the variety and amount of their purchases. In our model, continuance intention is the dependent variable and we have proposed H6 that consumers who find online shopping useful will continue their usage as stores revert back to 'normal'.

## 2.13. Moderators

The moderating effect of gender on e-commerce is not conclusive. When Nissen and Krampe (2021) explored gender differences in the perception of e-commerce, they found that there were no significant differences from self-reported results. On the other hand, Peña-García et al. (2018) found that symbolic value of the purchase is more important for women while the functional value is more important for men. Hence, we add gender as a moderator.

The moderating effect of country of residence has mixed results depending upon the countries being compared and the research focus. Bigne (2021) found similar attitudes towards the use of augmented reality in e-commerce between Nicaragua and the USA. However, Hwang et al. (2006) found significant cross-cultural differences between Korean, Turkish and US shoppers in their perceptions of information accuracy and security. Mahrous (2011) compared Egypt, UK and the USA and the results showed that online privacy concerns were different across the countries. Hence, we add country as a moderator, with data collected from the USA, Canada and Germany.

Online shopping experience is also proposed as a potential moderator. Consumers who were non-users or infrequent users of online shopping prior to the pandemic may have decided to turn to retail websites because they were unable to patronize physical stores or did not want to wait outside a store for essential products. If their online experience was deemed useful, they may elect to conduct more online shopping once the stores reopen. Hence, we add online shopping experience as a moderator.

Online shopping continuance intention may also be moderated by various socioeconomic factors, such as income, location, IT skills, distance to stores and size of household. However, these factors were not

included in this study due to the desire to ensure that the questionnaire was not too onerous for participants but are proposed for future research.

For the moderators, we propose the following hypotheses:

**H10.** Gender will moderate the effect of perceived usefulness on continuance intention to shop online.

**H11.** Country of the online shoppers will moderate the effect of perceived usefulness on continuance intention to shop online.

**H12.** Online shopping experience will moderate the effect of perceived usefulness on continuance intention to shop online.

2.14. Research model

The research model (see Fig. 1) is a modified ES-QUAL with the addition of convenience as an exogenous variable and including mediators of perceived health susceptibility, social shopping, and hedonic motivation.

3. Methodology

A survey research method was utilized, and measurement items for each construct were adapted from the literature (see Appendix 1). A 5-point Likert scale with responses ranging from Strongly Disagree to Strongly Agree was used. Online shopping experience was measured by asking the frequency with which the individual shopped online, with a scale ranging from “Never” to “Seven or more times per month”. A draft of the survey was piloted with post-graduate students who provided feedback about its structure and comprehension. After modifications to the instrument, additional questions were added to capture gender, age and country of residence. Participants were recruited by companies experienced with online panels: Qualtrics (2020) provided the service for Canada, USA, and Germany. Taking into account the analysis required for moderating factors, sample sizes were planned to be large enough for statistical significance. The survey was administered starting in the last quarter of 2021 and finished during the beginning of the first quarter of 2022. After eliminating participants who had responded too fast or had straight-lined too many questions, each country had collected approximately 500 participant responses. There were four equal age

groups (see Table 1) of approximately 125 participants for each country.

To conduct our analyses, we utilized partial least squares structural equation modeling (PLS-SEM). Management research often has multiple independent variables and one dependent variable where researchers are analyzing the correlations between the variables. Multiple regression and structural equation modeling (SEM) are common statistical tools applied to such models (Cheng, 2001). The advantage of SEM is that it can examine multiple dependent relationships at the same time (Joseph F Hair, 2006). Within SEM, there are two techniques: covariance-based (CB-SEM) and variance-based partial least squares (PLS-SEM). Hair et al. (2017) suggest PLS-SEM when the research is exploratory, with the additional advantages that data can be non-normally distributed and that smaller sample sizes can still test for significance. Because our model is exploratory, we have selected PLS-SEM. We first tested that the indicators converged on their constructs and that the constructs were discriminant. We then calculated the path coefficients and their significance by bootstrapping, which is a non-parametric resampling procedure that evaluates the variability of the sample data (Streukens and Leroi-Werelds, 2016).

The specific tool to analyze the data was SmartPLS 3 (Ringle et al., 2015). As suggested by Hair et al. (2011), a two-step process was adopted. First, the indicators in the outer model were analyzed. Second, the paths of the inner model were analyzed. For the outer model, the loadings of each indicator were calculated and any indicators that were less than 0.64 were eliminated as they were considered non-convergent (Hair et al., 2011). Two tests were used for discriminant validity: heterotrait-monotrait (HTMT) (Henseler et al., 2015) and the Fornell-Larcker criterion (Fornell and Larcker, 1981). For HTMT, ratios were assessed to ensure they were less than 0.85. For Fornell-Larcker, the square root of the average variance extracted for each variable

Table 1

Age groups.

Survey Age Groups	From (years)	To (years)
Gen Z	19	26
Millennials Gen Y	27	44
Generation X	45	56
Other	57+	

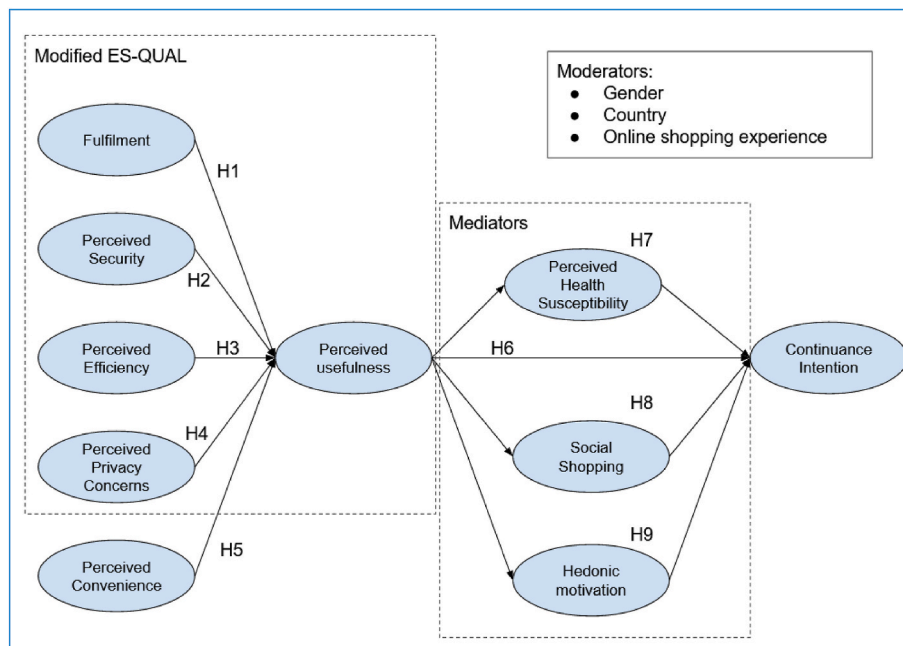


Fig. 1. Research model.

was evaluated to ensure it was greater than other correlation values.

Once the outer model had been checked and any indicators that did not satisfy the criteria were eliminated, the inner model was analyzed with the PLS algorithm using 300 iterations. The coefficients of determination,  $R^2$ , for the endogenous variables, perceived usefulness and continuance intention, were calculated together with the path coefficients. The significance of each path was found by bootstrapping with 10,000 subsamples. The mediating effects for health susceptibility, social shopping and hedonic motivations were also calculated via the PLS algorithm.

Groups were defined in SmartPLS 3. Significant differences between the relevant groups (see Table 2) were explored with the aid of multi-group analysis (MGA). According to Hair et al. (2022), the smallest sample size for statistical significance when using PLS is ten times the maximum number of paths directed at one construct. In our model, there are five paths directed at perceived usefulness. Therefore, the minimum acceptable sample size is 50. The smallest group size was 115, which was the number of German online shoppers with very little online experience. Hence, all analysis satisfied the criteria for statistical significance.

When collecting data for the independent and dependent variables in the same survey, there is a risk of common method variance which refers to ‘systematic errors that stem from the common method used to measure the constructs’ (Kock et al., 2021, p. 1). There are a number of methods to measure this influence so that researchers are assured that their results are not distorted due to biased responses (Podsakoff et al., 2003). In this study, we inserted a common marker variable which is unrelated to the variables in our model: if the statistical analysis shows that this variable is not correlated with any other variable in the model, then researchers can conclude that their model does not have common method variance that is significant (Simmering et al., 2015).

## 4. Results

### 4.1. Descriptive statistics

Sample sizes were similar for the three countries: 535 from Canada, 509 from USA and 460 from Germany. The age groupings and gender by country are provided in Table 3.

Online shopping experience, based on frequency of shopping, was divided into three groups (see Table 4): very little (never or less than once per month), moderate (1–4 times per month) and experienced (5 times or more per month).

Participants were asked about their online experience before the pandemic and during the pandemic. They were also asked how

**Table 2**  
Construct groupings for Multigroup Analysis.

Group	Group 1	Group 2
Country	Canada	USA
	Canada	Germany
	USA	Germany
Gender	Male	Female
Gender within country	Canada - Male	Canada - Female
	USA - Male	USA - Female
	Germany - Male	Germany - Female
Age	Gen Z 19 to 26	Other 57+
Age within country	Canada - Gen Z 19 to 26	Canada - Other 57+
	USA - Gen Z 19 to 26	USA - Other 57+
	Germany - Gen Z 19 to 26	Germany - Other 57+
Online shopping experience	Very little (never or < 1 per mth)	Experienced (5+ per mth)
Shopping experience within country	Canada – very little (infrequent)	Canada – experienced (very frequent)
	USA – very little (infrequent)	USA – experienced (very frequent)
	Germany – very little (infrequent)	Germany – experienced (very frequent)

frequently they expected to shop online once the pandemic is over and we are back to ‘normal’. Fig. 2 shows the percentage of respondents reporting their online shopping frequency, grouped as very little, moderate and experienced. For all three countries, there was an increased level of e-commerce during the pandemic, with participants forecasting that they would reduce their online shopping after the pandemic, but to a level greater than before the pandemic. For example, Fig. 2 shows that prior to the pandemic, 24% of Canadian shoppers declared themselves experienced, in that they had shopped online 5 times or more per month; 47% of the sample stated that they shopped five times or more per month during the pandemic; and 40% projected that they would shop online five times or more per month after the pandemic. Similarly, there were 37% of the USA sample who were experienced shoppers prior to the pandemic, increasing to 60% during the pandemic, but then dropping down to 55% after the pandemic. For Germany, 27% were experienced shoppers prior to the pandemic, 36% were experienced online shoppers during the pandemic, dropping to 31% after the pandemic. These self-declared responses showed that although online shopping was expected to decrease from its frequency during the pandemic, many participants anticipated that they would be shopping online more than they had done prior to the pandemic.

### 4.2. Validity of the outer model

The PLS algorithm within SmartPLS was used to calculate the outer loadings, which were then analyzed for indicator reliability. Indicators whose values were greater than 0.7 for all groups were included in the model. Indicators with loadings as low as 0.64 were included in the model only if their inclusion did not negatively affect reliability (Hair et al., 2022). Based on these criteria, indicator 1 for Perceived Usefulness (PU1 = ‘Online shopping enhances my shopping experience’) was dropped. The construct Social Shopping was eliminated altogether because the value of all three of its indicators showed non-convergence for many groups. The PLS algorithm was run again without Social Shopping and without PU1.

Internal consistency reliability was measured by calculating Cronbach’s alpha, composite reliability and the reliability coefficient ( $\rho$ ) for each group. Values were between 0.7 and 0.9 confirming reliability. Convergent validity was tested by calculating  $\rho_A$  the average variance extracted (AVE) for each group. All values were greater than 0.5, indicating that the construct is explained by more than half of the variance of its indicators (Hair et al., 2022). Also, discriminant validity was confirmed for each group. For all groups, HTMT ratios were less than 0.85 (Henseler et al., 2015) and the square root of the average variance extracted for each variable was greater than the other correlation values (Fornell and Larcker, 1981).

As already described in section 3, a common variable was added to the questionnaire to check common method variance. More specifically, we asked participants if they believed that investing in bitcoin is a wise decision. Results showed that the variable was not correlated with any of the other variables, thereby validating that common method bias was not significant within our sample.

### 4.3. Inner model: path analysis

The PLS algorithm calculated the path coefficients and the coefficient of determination,  $R^2$ , for each group. Bootstrapping with 10,000 samples estimated the significance of each path.

#### 4.3.1. Results across major groups

Table 5 shows the results for the major groups. The first grouping compares Canada, USA and Germany. Then, irrespective of country, additional groupings compare gender, age and online shopping experience.

Based on the results, H5 is supported for all major groups indicating that perceived convenience is an important factor influencing perceived

**Table 3**  
Age and gender by country.

Age Group	Gender	Canada	USA	Germany	Canada	USA	Germany
19 to 26	Male	44	91	56	36%	75%	49%
	Female	77	31	59	64%	25%	51%
<b>Total</b>		<b>121</b>	<b>122</b>	<b>115</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
27 to 44	Male	63	35	61	47%	28%	52%
	Female	70	89	57	53%	72%	48%
<b>Total</b>		<b>133</b>	<b>124</b>	<b>118</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
45 to 56	Male	77	42	56	57%	32%	51%
	Female	59	88	54	43%	68%	49%
<b>Total</b>		<b>136</b>	<b>130</b>	<b>110</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
57 plus	Male	81	89	62	58%	69%	53%
	Female	58	40	55	42%	31%	47%
<b>Total</b>		<b>139</b>	<b>129</b>	<b>117</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
All	Male	265	257	235	50%	51%	51%
	Female	264	248	225	50%	49%	49%
<b>Total</b>		<b>529</b>	<b>505</b>	<b>460</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Table 4**  
Online shopping experience by Country.

Experience	Canada	USA	Germany	Canada	USA	Germany
Very little (OLS1)	203	136	126	38%	27%	27%
Moderate (OLS2)	195	181	210	37%	36%	46%
Experienced (OLS3)	131	188	124	25%	37%	27%
<b>Grand Total</b>	<b>529</b>	<b>505</b>	<b>460</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

OLS1: Very little: Never or less than once per month.  
 OLS2: Moderate: 1 to 4 times per month.  
 OLS3: Experienced: 5 times or more per month.

usefulness of online shopping. Also, H6 is supported for all major groups suggesting that perceived usefulness positively influences online shoppers' continuance intentions. For both genders and all online shopping experience categories, perceived efficiency (H3) is important for perceptions of online shopping usefulness, and perceived security (H2) is important as well for both genders. Interestingly, fulfillment (H1) and perceived privacy concerns (H4) were insignificant for all major groups. Mediation results (e.g., paths involving hedonic motivation) are discussed below.

4.3.2. Results for gender by country

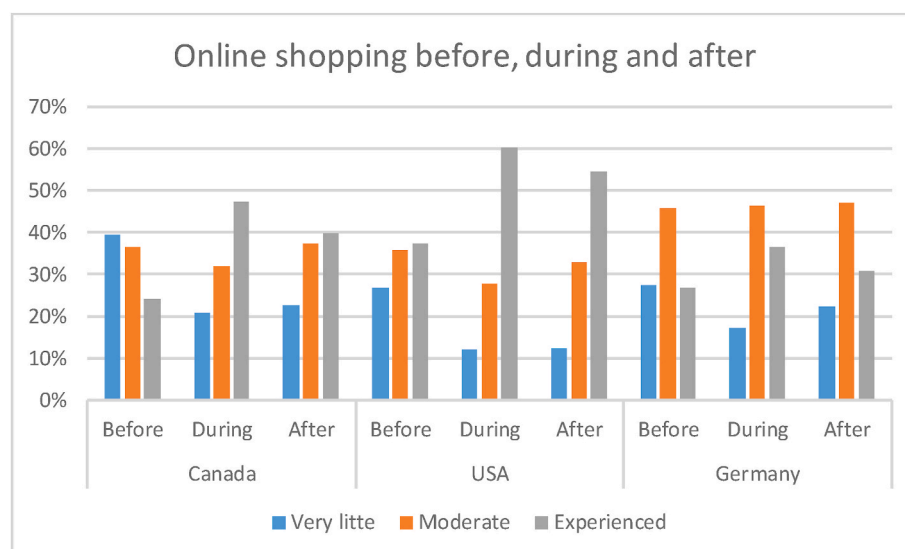
For each country, the data was further divided into subgroups: for gender, age and online shopping experience. The results by country and gender (Table 6) suggest that all genders consider convenience important for online shopping's usefulness, with the latter being an important factor for their online shopping continuance intentions.

4.3.3. Results for age groups by country

Table 7 shows the results by age group for each country. When assessing the results by country and age group, perceived usefulness positively influences online shoppers' continuance intentions for all except Canadians for Age3 (i.e., 45–56 years old or Generation X). For 19- to 26-year-olds in all countries, perceived convenience is an important factor influencing perceptions of online shopping usefulness. It is also important for those 57 and older in the USA and Germany, but only important for 27- to 44-year-olds in the USA and 45- to 56-year-olds in Germany.

4.3.4. Results for online shopping experience by country

Table 8 provides the results by online shopping experience for each country. Based on the results by country and online shopping experience, all categories of online shopping experience for each country find perceived convenience important for perceived usefulness, except for



**Fig. 2.** Online shopping before, during and after the pandemic.



**Table 5**  
Hypotheses testing results and R<sup>2</sup> for major group.

	Can	US	Ger	Male	Female	Age1	Age2	Age3	Age4	OLS1	OLS2	OLS3
H1: FUL-PU												
H2: SEC-PU	✓			✓	✓		✓		✓		✓	
H3: EFF-PU		✓	✓	✓	✓	✓			✓	✓	✓	✓
H4: PRI-PU												
H5: CNV-PU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
H6: PU-CNT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
H7: PU-SUS	✓											
H7: SUS-CNT				✓							✓	✓
H9: PU-HED	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
H9: HED-CNT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	0.506	0.498	0.513	0.485	0.539	0.544	0.527	0.439	0.552	0.492	0.485	0.494

**Note:** FUL= Fulfillment; PU= Perceived Usefulness; SEC= Perceived Security; EFF = Perceived Efficiency; PRI= Perceived Privacy Concerns; CNV= Perceived Convenience; CNT= Continuanace Intention; SUS= Perceived Health Susceptibility; HED= Hedonic Motivation; Age1 = 19 to 26 (Gen Z); Age2 = 27 to 44 (Gen Y); Age3 = 45 to 56 (Gen X); Age4 = 57+ (Other); OLS1 = Never or less than once per month (Very little); OLS2 = 1 to 4 times per month (Moderate); OLS3 = 5 times or more per month (Experienced).

**Table 6**  
Hypothesis support and R<sup>2</sup> for gender by country.

	Canada		USA		Germany	
	M	F	M	F	M	F
H1: FUL-PU						
H2: SEC-PU		✓		✓		
H3: EFF-PU			✓		✓	✓
H4: PRI-PU						
H5: CNV-PU	✓	✓	✓	✓	✓	✓
H6: PU-CNT	✓	✓	✓	✓	✓	✓
H7: PU-SUS	✓	✓			✓	
H7: SUS-CNT						
H9: PU-HED	✓	✓	✓	✓	✓	✓
H9: HED-CNT	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	0.464	0.575	0.519	0.487	0.501	0.542

**Note:** FUL= Fulfillment; PU= Perceived Usefulness; SEC= Perceived Security; EFF = Perceived Efficiency; PRI= Perceived Privacy Concerns; CNV= Perceived Convenience; CNT= Continuanace Intention; SUS= Perceived Health Susceptibility; HED= Hedonic Motivation.

Canadians who do very little or moderate online shopping (i.e., shopping online 4 times per month or less). Also, all categories for each country's continuance intentions are significantly influenced by perceptions of online shopping usefulness, except for Germans who do very little online shopping (i.e., never or less than once per month).

4.4. Results for the mediators

4.4.1. Perceived health susceptibility

For the majority of the groups, the indirect paths PU to SUS and SUS

**Table 7**  
Hypotheses testing results and R<sup>2</sup> for age groups by country.

	Canada				USA				Germany			
	Age1	Age2	Age3	Age4	Age1	Age2	Age3	Age4	Age1	Age2	Age3	Age4
H1: FUL-PU												
H2: SEC-PU		✓		✓					✓			
H3: EFF-PU				✓	✓					✓		✓
H4: PRI-PU												
H5: CNV-PU	✓				✓	✓		✓	✓		✓	✓
H6: PU-CNT	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
H7: PU-SUS				✓								
H7: SUS-CNT												
H9: PU-HED	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
H9: HED-CNT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	0.571	0.538	0.351	0.612	0.568	0.513	0.425	0.582	0.545	0.529	0.56	0.548

**Note:** FUL= Fulfillment; PU= Perceived Usefulness; SEC= Perceived Security; EFF = Perceived Efficiency; PRI= Perceived Privacy Concerns; CNV= Perceived Convenience; CNT= Continuanace Intention; SUS= Perceived Health Susceptibility; HED= Hedonic Motivation; Age1 = 19 to 26 (Gen Z); Age2 = 27 to 44 (Gen Y); Age3 = 45 to 56 (Gen X); Age4 = 57+ (Other).

to CNT were not significant. We therefore conclude that H7 is not supported.

4.4.2. Social shopping

In the analysis of the outer model, the indicators for social shopping did not converge and therefore this construct was dropped from the model. We were not able to test H8.

4.4.3. Hedonic motivation

The indirect paths PU to HM and HM to CNT were significant. The path PU to CNT was also significant when the mediating variable was included. Table 9 shows the VAF calculation for the various groups by country: values between 20% and 80% represent partial mediation (Hair et al., 2014) providing support for H9.

4.5. Results for the moderators via multigroup analysis

Various groups were compared to determine if there were significant differences. Table 10 summarizes the results and reports paths in which differences were significant. As can be seen in Table 10, there are significant differences between Americans and Canadians, as well as Americans and Germans, regarding perceived usefulness importance for continuance intentions of online shopping. Also, there are significant differences for usefulness perceptions influence on online shopping continuation for participants who are 19- to 26-year-olds versus 57+, and Germans with very little online shopping experience versus those who are experienced. Also, there are differences in perceptions of convenience influencing perceived usefulness for Germans who are 19- to 26-year-olds versus 57+, and Canadians who are inexperienced online

**Table 8**  
Hypotheses testing results and R<sup>2</sup> for online shopping experience by country.

	Canada			USA			Germany		
	OLS1	OLS2	OLS3	OLS1	OLS2	OLS3	OLS1	OLS2	OLS3
H1: FUL-PU									
H2: SEC-PU		✓						✓	
H3: EFF-PU						✓		✓	
H4: PRI-PU									
H5: CNV-PU			✓	✓	✓	✓	✓	✓	✓
H6: PU-CNT	✓	✓	✓	✓	✓	✓	✓	✓	✓
H7: PU-SUS			✓				✓		
H7: SUS-CNT									
H9: PU-HED	✓	✓	✓	✓	✓	✓	✓	✓	✓
H9: HED-CNT	✓	✓	✓	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	0.501	0.534	0.476	0.533	0.464	0.474	0.456	0.484	0.558

**Note:** FUL= Fulfillment; PU= Perceived Usefulness; SEC= Perceived Security; EFF = Perceived Efficiency; PRI= Perceived Privacy Concerns; CNV= Perceived Convenience; CNT= Continuance Intention; SUS= Perceived Health Susceptibility; HED= Hedonic Motivation; OLS1 = Never or less than once per month (Very little); OLS2 = 1 to 4 times per month (Moderate); OLS3 = 5 times or more per month (Experienced).

**Table 9**  
Mediating effect of Hedonic Motivation.

		PU-CNT (Direct) c'	PU-HED Indirect a	HED-CNT Indirect b	VAF ab/ (ab + c')
Canada	All	0.377	0.483	0.426	35%
Age	19 to 26	0.271	0.487	0.574	51%
	27 to 44	0.442	0.576	0.385	33%
	45 to 56	0.318	0.451	0.339	32%
	57 plus	0.51	0.516	0.364	27%
Gender	Male	0.408	0.431	0.355	27%
	Female	0.354	0.533	0.494	43%
Online exp.	Very little	0.298	0.581	0.464	48%
	Moderate	0.563	0.405	0.252	15%
	Experienced	0.427	0.456	0.39	29%
USA	All	0.525	0.421	0.299	19%
Age	19 to 26	0.577	0.524	0.277	20%
	27 to 44	0.465	0.386	0.37	24%
	45 to 56	0.368	0.48	0.38	33%
	57 plus	0.689	0.433	0.147	8%
Gender	Male	0.592	0.353	0.252	13%
	Female	0.438	0.487	0.368	29%
Online exp.	Very little	0.498	0.459	0.358	25%
	Moderate	0.595	0.359	0.154	8%
	Experienced	0.507	0.388	0.272	17%
Germany	All	0.358	0.591	0.437	42%
Age	19 to 26	0.368	0.654	0.391	41%
	27 to 44	0.478	0.452	0.344	25%
	45 to 56	0.319	0.656	0.496	50%
	57 plus	0.335	0.711	0.439	48%
Gender	Male	0.379	0.599	0.397	39%
	Female	0.344	0.584	0.47	44%
Online exp.	Very little	0.199	0.601	0.535	62%
	Moderate	0.413	0.584	0.364	34%
	Experienced	0.537	0.564	0.28	23%

**Note:** PU= Perceived Usefulness; CNT= Continuance Intention; HED= Hedonic Motivation; VAF= Variance Accounted For.

shoppers versus experienced.

4.6. Results summary

Fig. 3 shows the results for the complete model. Social shopping was dropped because its indicators did not converge. The mediating effect of perceived health susceptibility was not supported. Hedonic motivation mediates the influence of perceived usefulness on continuance intention. As described in the previous paragraphs, the model was run for a number of different groups (see Table 2). Fig. 3 shows the paths that were significant when the model was run for all data collected.

**Table 10**  
Multigroup analysis results.

Comparison	Country	Path	Coefficient	P-value
Can vs USA		PU - > CNT	-0.148	0.019
Can vs Germany		PU - > HED	-0.108	0.026
USA vs Germany		HED - > CNT	-0.138	0.024
		PU - > CNT	0.167	0.01
		PU - > HED	-0.17	0.001
Male vs Female	All	HED - > CNT	-0.113	0.028
Male vs Female	Canada	n.s.	n.s.	n.s.
	USA	n.s.	n.s.	n.s.
	Germany	n.s.	n.s.	n.s.
Age1 vs Age4	All	HED - > CNT	0.176	0.019
		PU - > CNT	-0.18	0.011
Age1 vs Age4	Canada	n.s.	n.s.	n.s.
	USA	n.s.	n.s.	n.s.
	Germany	CNV - > PU	0.306	0.027
OSL1 vs OLS3	All			
OLS1 vs OSL3	Canada	CNV - > PU	-0.377	0.013
	USA	n.s.	n.s.	n.s.
	Germany	HED - > CNT	0.255	0.044
		PU - > CNT	-0.338	0.014

**Note:** PU= Perceived Usefulness; CNT= Continuance Intention; HED= Hedonic Motivation; CNV= Perceived Convenience; Age1 = 19 to 26 (Gen Z); Age4 = 57+ (Other); OLS1 = Never or less than once per month (Very little); OLS3 = 5 times or more per month (Experienced); n.s. = not significant.

5. Discussion

For all three countries, shoppers increased their online behavior during the pandemic and, although they are reducing their frequency of use as physical stores start to resume business as usual, they are more engaged in online shopping than prior to the pandemic. Of the 1424 individuals who responded, 423 (29.7%) were very frequent online shoppers prior to the pandemic. During the pandemic, 688 (48.3%) reported that they shopped very frequently. Once shopping is back to 'normal', 601 (42.2%) plan to be very frequent online shoppers.

The main reason cited for continuance was convenience, regardless of age, gender, country or shopping experience. When non-essential shops were closed, there was no choice other than to forsake the purchase. Essential shops were limited in capacity and lines formed outside as people waited for others to exit to provide the space for social distancing inside. The projected increase in online shopping can be explained by the positive experience of shopping from the comfort of home at any time and having the product delivered (Kim, 2020).

The efficiency of the website was another important factor for certain groups, although there was no pattern across the three countries. With

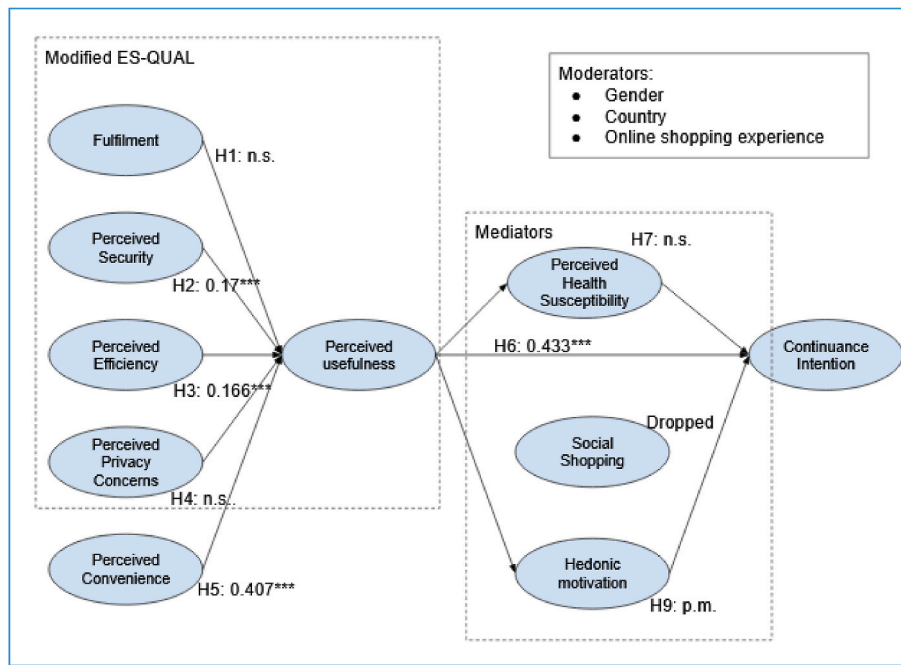


Fig. 3. Results for Complete Model, Note: n.s. = not significant; p.m. = partial mediation; \*\*\* =  $p < 0.001$ .

easy navigation, fast response times and well-organized websites, consumers could search for products, compare prices and checkout without having to wait in line. Interestingly, fulfillment was not significant for any group. This may be because online retailers have invested in their ‘last mile’ and they now deliver accurately, within the promised time-frame and have simple return policies in case of dissatisfaction.

Security was a concern for a few groups, such as females in Canada and Germany. None of the groups were concerned about perceived privacy. This could possibly be explained by the acceptance of providing one’s name and address as a necessity for delivery, and personal information being considered less sensitive than financial data. This result is similar to a study of Spanish supermarkets (Marimon et al., 2010). Health susceptibility did not mediate the relationship between perceived usefulness and continuance intention, indicating health concerns are not a salient factor in online shopping continuance decisions.

Hedonic motivation was a key influencing variable, mediating the relationship of perceived usefulness on continuance intention. Infrequent shoppers may have been reluctant to shop online, but when they did, they found the experience enjoyable. With increased competition on the web, websites have become more colorful, fast and fun. Consumers may, therefore, have been pleasantly surprised and added online shopping as a viable addition to their shopping habits (Olsson et al., 2013).

We were not able to offer any results for Social Shopping. Although the scales were adopted from Arnold and Reynolds (2003), which has been cited over 3000 times according to Google Scholar, our indicators did not converge. The responses may be biased by different consumer perceptions of contracting COVID-19 while socializing resulting in inconsistent values. We were not able to make any country comparisons and dropped this variable. Hence, we were not able to provide any results for hypothesis 8 and suggest it be revisited in future research.

Highlighting some of the results of the multigroup analysis, we found that the influence of perceived usefulness on online shopping continuance intentions was stronger for Americans than Canadians or Germans. This could be explained by the larger proportion of Americans who are very frequent online shoppers and who therefore may be more selective of websites that they visit, valuing those that are perceived to be more

useful. Although usefulness had a significant effect on continuance intention for both younger and older shoppers, the path coefficient was slightly greater for older shoppers. In another comparison, younger Germans enjoyed the convenience of online shopping more than older Germans. Younger Germans may have found the task of exploring websites easier due to their greater familiarity with the technology and a greater appreciation of being able to shop online whenever and wherever they like. The influence of online shopping experience as a moderating factor was significant for Canada where experienced shoppers valued the convenience more than less experienced shoppers. This may be because experience shoppers conduct more product searches and price comparisons, as well as order greater amounts of merchandise.

### 5.1. Theoretical implications

Our contribution to theory is an extended model based on ES-QUAL in which overall service quality, as measured by the ES-QUAL variables, influences perceived usefulness which in turn influences online shopping continuance. In the context of online shopping for physical merchandise post-pandemic, our findings show that the addition of convenience to the ES-QUAL variables provides more insight. Another novel contribution is the addition of the mediator hedonic motivation. The importance of hedonic motivation across all countries confirms previous studies (Childers et al., 2001; Liu et al., 2020) which have analyzed the importance of both utilitarian and hedonic motivations.

By including health susceptibility, the model is applicable to consumer apprehensions caused by changing health concerns. Our findings show that, for COVID-19, health susceptibility is not a mediating influence. This could be because of the timing of our study, which was over a year since the start of the pandemic. Individuals may have just accepted the health risk due to the continuous messaging from governments. Our theoretical model also confirms that consumers value perceived usefulness, in accordance with TAM (Davis, 1989) and its many extensions (Yousafzai et al., 2007).

With this theoretical design, researchers can easily test additional variables that might mediate the influence of perceived usefulness on

continuance. We have compared three high income countries and created groups for variables such as gender, online shopping experience and age. We have demonstrated the ability of applying multigroup analysis with PLS to determine if there are significant differences between these groups.

## 5.2. Practical implications

With shoppers turning to e-commerce during the pandemic, practitioners want to know how they can retain their online customers once stores reopen. Convenience is a key factor for practitioners to consider. Websites should be available 24/7. Therefore, practitioners will want to consider their websites availability and should make investments that ensure the website is functioning as intended providing online visitors with convenience to shop anywhere at any time.

Products should be easy to find. Comparing prices and obtaining additional product information should be quick and effortless. Checkout should be simple and fast. Practitioners should ensure that their consumers can enter their information, make last minute changes, and complete the transaction quickly. Also, security is a concern for female consumers in Canada and the United States. Practitioners should assure their customers that their financial data and personal data are safe by, for example, displaying trust badges on their websites.

Physical store owners can also take advantage of these results by adding hedonic experiences. For example, they may consider modifying their store to create an entertaining and enjoyable shopping experience versus one that solely focuses on utilitarian purposes. They could provide live music, free giveaways, or trials of new product offerings. Shopping malls could consider broadening their purpose beyond sales and focus on social aspects such as hosting festivals and art displays (Gallici, 2022).

For omnichannel retailers, the perceived convenience of having multiple channels could be emphasized so that their customers are aware that they can shop whenever and wherever they please. Curb-side pickup adds to convenience as wait time is reduced. Also, some consumers may prefer to experience the product first (e.g., touch, taste). To accommodate this, retailers can highlight such experiences that are available at their physical locations while still offering the added convenience of being able to place an order whenever they choose online. For consumers looking for digital immersive experiences, retailers can offer such experiences by virtual or augmented reality. Previous research has demonstrated that virtual retail environments enhance hedonic shopping value through a sense of telepresence (Alzayat and Lee, 2021). Considering the importance of hedonic motivation in our study's findings, retailers may consider providing a similar virtual reality shopping environment, conveniently intertwining it with online shopping such that consumers can easily and efficiently make a purchase within their virtual experience.

Our findings suggest that online shopping post-pandemic will be higher than pre-pandemic levels. Hence, online retailers will want to consider their staffing needs accordingly. With the pandemic increasing online shopping, shifts in the labor market are occurring (Dorfman, 2022). For instance, online retail employment is projected to grow 14.6% from 2020 to 2030. Therefore, continued efforts to hire and retain employees will need to be a priority for online retailers. For instance, as online shopping with delivery and pick up options grow in popularity, retailers will need to shift their workforce accordingly to accommodate these alternative methods of serving their customers.

## 5.3. Limitations and future research

Participants were recruited by organizations that help researchers conduct surveys. The participants are rewarded and, therefore, may not be as focused on providing honest answers but rather just on quick answers to complete the survey and collect their reward. As best as possible, such cases were eliminated by adding attention filters to the survey and analyzing responses for straight-lining. The questionnaire solicited responses regarding online shopping frequency before, during and after the pandemic. Responses may not, however, represent actual behaviour. Also, when asked about their future use of e-commerce, shoppers may exaggerate. The survey was conducted at a particular point in time during the pandemic and attitudes may change as restrictions and the health threat changes. Also, we compared three high income countries whose messaging and shopping limitations were different. Therefore, motivations to turn to online shopping may be different in countries with other income levels.

Future research could evaluate other mediating factors. Because the indicators for social shopping did not converge in our study, future studies could use refined scales. The timing of our study was at a specific point in time: longitudinal studies could also be conducted to provide a more accurate picture as to the public's understanding of the risks of COVID-19 as it evolves and its influence on online shopping continuance. Other countries could be compared, selecting them based on their categorization as high-income, mid-income or low-income. Policies by country differ, such as the zero COVID policy of China: investigations of such policies could determine their influence as well. Future research could also focus on other socioeconomic factors and their potential influence on online shopping continuance. For example, data collected could include income, comfort with information technology, distance from shopping centre and size of household. Perceived security and perceived privacy could be further investigated to determine if such factors as IT skills and knowledge are influencing variables.

## 6. Conclusion

During the COVID-19 pandemic, many consumers increased their frequency of online shopping. With store restrictions and health concerns, e-commerce became a valid alternative. Retail websites attracted more customers and their challenge is to retain these customers as the pandemic recedes by providing a quality online experience. Online shopping refers to various stages in the customer's journey, including information search, web site browsing/navigation, ordering, payment, customer service interactions, delivery, post-purchase problem resolution, and satisfaction with the purchase. E-shopping quality refers to overall consumer perceptions of the excellence and effectiveness of an e-tailer's product offering through its virtual store plus its performance in delivering the correct product within the promised timeframe. In comparing three high income countries (i.e., USA, Canada and Germany), shoppers expressed similar attitudes towards their online shopping continuance. They valued the convenience, but that is not enough – in addition, they want their online shopping experience to be enjoyable.

## Data availability

Data will be made available on request.

Appendix 1

Construct/source	Items
Efficiency (Parasuraman et al., 2005)	Generally when I shop online 1. It is easy to find what I want 2. I am able to complete transactions quickly 3. The website is well organized 4. It is easy to add products to the shopping cart
Fulfillment (Parasuraman et al., 2005)	5. Checking out is fast 1. Products are delivered as promised 2. Delivery is within a suitable timeframe 3. Products delivered are what were ordered 4. Items are in stock
Perceived health susceptibility (Parasuraman et al., 2005)	If I go into a store, my concerns about COVID-19 are that ... 1. I may get infected 2. My chances of being infected are high 3. I risk health problems
Online Convenience (Duarte et al., 2018)	When shopping online 1. I can shop whenever I want 2. I can shop wherever I am 3. I can compare prices easily 4. I can quickly learn more about products 5. I save time by not traveling to stores
Perceived privacy concerns (Parasuraman et al., 2005)	In general, when I shop online and am asked for personal information, I am confident that ... 1. My information is protected 2. My information is not shared 3. My information is not misused
Perceived Security (Alkhowaiter, 2020)	In general when paying online, I am confident that ... 1. My credit card is safe 2. My payment details cannot be stolen 3. My financial data will not be used illegally 4. My bank account is safe
Perceived usefulness (Daragmeh et al., 2021)	1. Online shopping enhances my shopping experience 2. Online shopping is a useful addition to in-store shopping 3. I can see a wide selection of products when shopping online 4. Online shopping means that I don't have to worry about carrying products home
Continuance intention (Parasuraman et al., 2005)	1. I can see myself shopping online in the future 2. I will use online shopping regularly in the future 3. I will continue to use online shopping
Hedonic motivation (Arnold and Reynolds, 2003)	1. Online shopping is fun 2. I find online shopping enjoyable 3. I shop online to enjoy the variety of content
Social shopping (Arnold and Reynolds, 2003)	1. I go shopping in stores to socialize with friends or family 2. I enjoy socializing when I shop in stores 3. Shopping with others in stores is a bonding experience

References

Alkhowaiter, W.A., 2020. Digital payment and banking adoption research in Gulf countries: a systematic literature review. *Int. J. Inf. Manag.* 53, 102102 <https://doi.org/10.1016/j.ijinfomgt.2020.102102>.

Alzayat, A., Lee, S.H.M., 2021. Virtual products as an extension of my body: exploring hedonic and utilitarian shopping value in a virtual reality retail environment. *J. Bus. Res.* 130, 348–363.

Arnold, M.J., Reynolds, K.E., 2003. Hedonic shopping motivations. *J. Retailing* 79 (2), 77–95. [https://doi.org/10.1016/s0022-4359\(03\)00007-1](https://doi.org/10.1016/s0022-4359(03)00007-1).

Bailey, A.A., Pentina, L., Mishra, A.S., Ben Mimoun, M.S., 2020. Exploring factors influencing US millennial consumers' use of tap-and-go payment technology. *Int. Rev. Retail Distrib. Consum. Res.* 30 (2), 143–163.

Barnes, S.J., Vidgen, R.T., 2002. An integrative approach to the assessment of e-commerce quality. *J. Electron. Commer. Res.* 3 (3), 114–127.

Bhatnagar, A., Misra, S., Rao, H.R., 2000. On risk, convenience, and Internet shopping behavior. *Commun. ACM* 43 (11), 98–105.

Bhattacharjee, A., 2001. Understanding information systems continuance: an expectation-confirmation model. *MIS Q.* 25 (3), 351.

Bigne, E., 2021. A model of adoption of AR-based self-service technologies: a two country comparison. *Int. J. Retail Distrib. Manag.*

Blut, M., Chowdhry, N., Mittal, V., Brock, C., 2015. E-service quality: a meta-analytic review. *J. Retailing* 91 (4), 679–700.

Boshoff, C., 2007. A psychometric assessment of ES-QUAL: a scale to measure electronic service quality. *J. Electron. Commer. Res.* 8 (1), 101.

Burt, S., Maglaras, G., 2022. Special Issue on Covid-19 and Retailing. Taylor & Francis, pp. 1–3.

Camilleri, M.A., 2021. E-commerce websites, consumer order fulfillment and after-sales service satisfaction: the customer is always right, even after the shopping cart check-out. *J. Strat. Manag.* <https://doi.org/10.1108/jisma-02-2021-0045>. ahead-of-print (ahead-of-print).

CDC, 2020. Preventing the Spread of COVID-19 in a Variety of Settings throughout Your Community. <https://www.cdc.gov/coronavirus/2019-ncov/php/infection-control.html>.

Champion, V.L., Skinner, C.S., 2008. The health belief model. *Health behavior and health education: Theor. Res. Prac.* 4, 45–65.

Charumilind, S., Craven, M., Lamb, J., Sabow, A., Wilson, M., 2021. When Will the Covid-19 Pandemic End? an Update. In: January.

Cheng, E.W., 2001. SEM being more effective than multiple regression in parsimonious model testing for management development research. *J. Manag. Dev.*

Childers, T.L., Carr, C.L., Peck, J., Carson, S., 2001. Hedonic and utilitarian motivations for online retail shopping behavior. *J. Retailing* 77 (4), 511–535.

Cramer-Flood, E., 2022. Global Ecommerce Forecast 2022. <https://www.emarketer.com.ezproxy.lib.ryerson.ca/content/global-ecommerce-forecast-2022>.

Cucinotta, D., Vanelli, M., 2020. WHO declares COVID-19 a pandemic. *Acta Biomed.: Atenei Parmensis* 91 (1), 157.

Daragmeh, A., Sági, J., Zéman, Z., 2021. Continuous intention to use E-wallet in the context of the COVID-19 pandemic: integrating the health belief model (HBM) and technology continuous theory (TCT). *J. Open Innovat.: Technol. Market Complex.* 7 (2), 132.

Davis, F.D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* 13 (3), 319–340 [http://ryerson.summon.serialssolutions.com/2.0.0/link/0/eLvHCXmWlV1LS8NAEB7Egyjoiyo-KuwPaDTNa5OTFGnx6KFeVlSdfRyKxfrb\\_9-ZTdIEEcFbyOwhbJZvZnamQ8gh7C4AcmkFPRGI9TVEqTz-Tik9QonTiy1crlkvXbulvhQizZepagr-ITuIQl-0gJAzmp-VXwNpRXGNthDQiiLkoVs-t38HxWHrZXUq\\_MgoleTxgn3jo3cjsFFoucUsf8ZpVddD764jG\\_33ZGZw08aWY1AfiHPZsNYCDt4-gKPeAMiLeH9lXgsBnhFv39ZtFrXoJLq3U3Jy4tOxdSRU5ZetxQzGyBPC9uajib-w6K7qb-E-Ww6f34JGrWF4CPPsyDDWFO4gATEhq84QIN5GH1RWOTCrRMXmcjoBEPmIY2cYZB0qOkx4pDMxldwrJiUX6198565BoEuD7GgIMbpPNGiHTGZzVOJNnZoEnMDQ7-H5bKerFFSRsLE9LleyNu\\_zXdw2BG-hrC\\_Xm3s\\_S6L2QLqV8HM](http://ryerson.summon.serialssolutions.com/2.0.0/link/0/eLvHCXmWlV1LS8NAEB7Egyjoiyo-KuwPaDTNa5OTFGnx6KFeVlSdfRyKxfrb_9-ZTdIEEcFbyOwhbJZvZnamQ8gh7C4AcmkFPRGI9TVEqTz-Tik9QonTiy1crlkvXbulvhQizZepagr-ITuIQl-0gJAzmp-VXwNpRXGNthDQiiLkoVs-t38HxWHrZXUq_MgoleTxgn3jo3cjsFFoucUsf8ZpVddD764jG_33ZGZw08aWY1AfiHPZsNYCDt4-gKPeAMiLeH9lXgsBnhFv39ZtFrXoJLq3U3Jy4tOxdSRU5ZetxQzGyBPC9uajib-w6K7qb-E-Ww6f34JGrWF4CPPsyDDWFO4gATEhq84QIN5GH1RWOTCrRMXmcjoBEPmIY2cYZB0qOkx4pDMxldwrJiUX6198565BoEuD7GgIMbpPNGiHTGZzVOJNnZoEnMDQ7-H5bKerFFSRsLE9LleyNu_zXdw2BG-hrC_Xm3s_S6L2QLqV8HM).

- Dayal, S., Palsapure, D., 2020. A study on the individual's online shopping continuance intention on Amazon. in for consumer electronics. *Int. J. Bus. Glob.* 24 (2), 240–255.
- Demangeot, C., Broderick, A.J., 2016. Engaging Customers during a Website Visit: a Model of Website Customer Engagement. *International Journal of Retail & Distribution Management*.
- Dorfman, D., 2022. Retail Trade Employment: before, during, and after the Pandemic. Beyond the Numbers: Employment & Unemployment. [https://www.bls.gov/optub/btn/volume-11/retail-trade-employment-before-during-and-after-the-pandemic.htm#\\_edn17](https://www.bls.gov/optub/btn/volume-11/retail-trade-employment-before-during-and-after-the-pandemic.htm#_edn17).
- Duarte, P., e Silva, S.C., Ferreira, M.B., 2018. How convenient is it? Delivering online shopping convenience to enhance customer satisfaction and encourage e-WOM. *J. Retailing Consum. Serv.* 44, 161–169.
- eMarketer, 2021. Canada's Retail Ecommerce Sales. <https://www.emarketer.com/content/since-2019-ecommerce-sales-canada-have-nearly-doubled-their-share-of-overall-retail-sales>.
- Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *J. Market. Res.* 39–50.
- Gallici, A., 2022. Make Malls Matter. 135 (6), 12–13. <http://archive.macleans.ca/article/2022/7/1/make-malls-that-matter>.
- Gallo Marin, B., Aghagholi, G., Lavine, K., Yang, L., Siff, E.J., Chiang, S.S., Aung, S.N., 2021. Predictors of COVID-19 severity: a literature review. *Rev. Med. Virol.* 31 (1), 1–10.
- Garvin, D.A., 1988. *Managing Quality: the Strategic and Competitive Edge*. Simon and Schuster.
- Green, D., Hanbury, M., Cain, A., 2019. If You Bought Anything from These 19 Companies Recently, Your Data May Have Been Stolen. <https://www.businessinsider.com/data-breaches-retailers-consumer-companies-2019-1>.
- Grewal, D., Iyer, G.R., Levy, M., 2004. Internet retailing: enablers, limiters and market consequences. *J. Bus. Res.* 57 (7), 703–713.
- Hair, J.F., 2006. *Multivariate Data Analysis*, sixth ed. Pearson Prentice Hall, Upper Saddle River, N.J.
- Hair, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., 2014. *A Primer on Partial Least Squares Structural Equations Modeling (PLS-SEM)*. SAGE Publications.
- Hair, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., 2022. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, third ed. SAGE, Los Angeles.
- Hair, J.F., Ringle, C.M., Sarstedt, M., 2011. PLS-SEM: indeed a silver bullet. *J. Market. Theor. Pract.* 19 (2), 139–152.
- Hair Jr., J.F., Matthews, L.M., Matthews, R.L., Sarstedt, M., 2017. PLS-SEM or CB-SEM: updated guidelines on which method to use. *Int. J. Multivariate Data Anal.* 1 (2), 107–123.
- Henseler, J., Hubona, G., Ray, P.A., 2015. Using PLS Path Modeling in New Technology Research: Updated Guidelines.
- Holloway, B.B., Beatty, S.E., 2003. Service failure in online retailing: a recovery opportunity. *J. Serv. Res.* 6 (1), 92–105.
- Hwang, W., Jung, H.-S., Salvendy, G., 2006. Internationalisation of e-commerce: a comparison of online shopping preferences among Korean, Turkish and US populations. *Behav. Inf. Technol.* 25 (1), 3–18.
- Imrie, B.C., Durden, G., Cadogan, J.W., 2000. Towards a conceptualization of service quality in the global market arena. *Adv. Int. Market.* 10 (1), 143–162.
- Jacobson, J., Gunn, F., Hernandez, T., 2022. Stepping up as an essential service: grocery retailing and the COVID-19 pandemic in Canada. *Int. Rev. Retail Distrib. Consum. Res.* 1–20.
- Janz, N.K., Becker, M.H., 1984. The health belief model: a decade later. *Health Educ. Q.* 11 (1), 1–47.
- Jebarajakirthy, C., Shankar, A., 2021. Impact of online convenience on mobile banking adoption intention: a moderated mediation approach. *J. Retailing Consum. Serv.* 58, 102323.
- Jiang, L., Yang, Z., Jun, M., 2013. Measuring consumer perceptions of online shopping convenience. *J. Serv. Manag.* 24 (2), 191–214.
- Johnson, B.B., Mayorga, M., 2021. Americans' early behavioral responses to COVID-19. *Hum. Ecol. Risk Assess.* 27 (7), 1733–1746.
- Kim, M., Kim, J.H., Lennon, S.J., 2006. Online service attributes available on apparel retail web sites: an E-S-QUAL approach. *Manag. Serv. Qual.: Int. J.*
- Kim, R.Y., 2020. The impact of COVID-19 on consumers: preparing for digital sales. *IEEE Eng. Manag. Rev.* 48 (3), 212–218.
- Kock, F., Berbekova, A., Assaf, A.G., 2021. Understanding and managing the threat of common method bias: detection, prevention and control. *Tourism Manag.* 86, 104330 <https://doi.org/10.1016/j.tourman.2021.104330>.
- Kuo, T., Tsai, G.Y., Lu, L., Chang, J.-S., 2016. Relationships Among Service Quality, Customer Satisfaction and Customer Loyalty: A Case Study on Mobile Shopping APPs. Paper presented at the Proceeding, The 17th Asia Pacific Industrial Engineering and Management System conference.
- Ladhari, R., 2010. Developing e-service quality scales: a literature review. *J. Retailing Consum. Serv.* 17 (6), 464–477.
- Li, S., Linton, O., 2021. When will the Covid-19 pandemic peak? *J. Econom.* 220 (1), 130–157.
- Liu, C., Forsythe, S., 2010. Post-adoption online shopping continuance. *Int. J. Retail Distrib. Manag.* 38 (2), 97–114. <https://doi.org/10.1108/09590551011020110>.
- Liu, F., Lim, E.T., Li, H., Tan, C.-W., Cyr, D., 2020. Disentangling utilitarian and hedonic consumption behavior in online shopping: an expectation disconfirmation perspective. *Inf. Manag.* 57 (3), 103199.
- Loiacono, E.T., Watson, R.T., Goodhue, D.L., 2007. WebQual: an instrument for consumer evaluation of web sites. *Int. J. Electron. Commer.* 11 (3), 51–87.
- Mahrous, A.A., 2011. Antecedents of privacy concerns and their online actual purchase consequences: a cross-country comparison. *Int. J. Electron. Market. Retailing.* 4 (4), 248–269.
- Marimon, F., Vidgen, R., Barnes, S., Cristóbal, E., 2010. Purchasing behaviour in an online supermarket. *Int. J. Mark. Res.* 52 (1), 111–129. <https://doi.org/10.2501/s1470785310201089>.
- Mukaigawara, M., Hassan, I., Fernandes, G., King, L., Patel, J., Sridhar, D., 2022. An equitable roadmap for ending the COVID-19 pandemic. *Nat. Med.* 28 (5), 893–896. <https://doi.org/10.1038/s41591-022-01787-2>.
- Nasution, M.D.T.P., Rossanty, Y., Ariffin, K.H.K., Zaini, N.I.B.M., 2019. An empirical examination of the factors influencing consumer's purchase intention toward online shopping. *J. Bus. Retail Manag. Res.* 13 (4).
- Naumann, E., Möhring, K., Reifenscheid, M., Wenz, A., Rettig, T., Lehrer, R., Fikel, M., 2020. COVID-19 policies in Germany and their social, political, and psychological consequences. *Eur. Pol. Anal.* 6 (2), 191–202.
- Nissen, A., Krampe, C., 2021. Why he buys it and she doesn't—Exploring self-reported and neural gender differences in the perception of eCommerce websites. *Comput. Hum. Behav.* 121, 106809.
- Olsson, T., Lagerstam, E., Kärkkäinen, T., Väänänen-Vainio-Mattila, K., 2013. Expected user experience of mobile augmented reality services: a user study in the context of shopping centres. *Personal Ubiquitous Comput.* 17 (2), 287–304.
- Parasuraman, A., Zeithaml, V.A., Berry, L.L., 1988. Serqual: a multiple-item scale for measuring consumer perc. *J. Retailing* 64 (1), 12.
- Parasuraman, A., Zeithaml, V.A., Malhotra, A., 2005. ES-QUAL: a multiple-item scale for assessing electronic service quality. *J. Serv. Res.* 7 (3), 213–233.
- Parsons, A.G., 2002. Non-functional motives for online shoppers: why we click. *J. Consum. Market.*
- Peikari, H.R., 2010. The Influence of Security Statement, Technical Protection, and Privacy on Satisfaction and Loyalty: A Structural Equation Modeling. Paper presented at the Global Security, Safety, and Sustainability: 6th International Conference, ICGS3 2010, Braga, Portugal, September 1-3, 2010. Proceedings.
- Pelau, C., Niculescu, M., Stanescu, M., 2020. Consumers' perception on the advantages and disadvantages of cookies and browsing history. *Proc. Int. Conf. Bus. Excell.* 14 (1), 829–837. <https://doi.org/10.2478/picbe-2020-0079>.
- Peña-García, N., Gil-Saura, I., Rodríguez-Orejuela, A., 2018. Emotion and reason: the moderating effect of gender in online shopping behavior. *Innovar* 28 (69), 117–131.
- Petnji Yaya, L.H., Marimon, F., Fa, M.C., 2012. Assessing e-service quality: the current state of E-S-QUAL. *Total Qual. Manag. Bus. Excell.* 23 (11–12), 1363–1378. <https://doi.org/10.1080/14783363.2012.728850>.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., Podsakoff, N.P., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88 (5), 879–903. <https://doi.org/10.1037/0021-9101.88.5.879>.
- Prasad, R.K., Srivastava, M.K., 2021. Switching behavior toward online shopping: coercion or choice during Covid-19 pandemic. *Acad. Market. Stud. J.* 25, 1–15.
- Qualtrics, 2020. Qualtrics: what is Qualtrics? <https://csulb.libguides.com/qualtrics>.
- Ranganathan, C., Ganapathy, S., 2002. Key dimensions of business-to-consumer web sites. *Inf. Manag.* 39 (6), 457–465.
- Rao, S., Griffis, S.E., Goldsby, T.J., 2011. Failure to deliver? Linking online order fulfillment glitches with future purchase behavior. *J. Oper. Manag.* 29 (7–8), 692–703.
- Repko, M., Thomas, L., 2020. 6 Ways the Coronavirus Pandemic Has Forever Altered the Retail Landscape. <https://www.cnn.com/2020/09/29/how-coronavirus-pandemic-forever-altered-retail.html>.
- Ribeiro Cardoso, P., Carvalho Pinto, S., 2010. Hedonic and utilitarian shopping motivations among Portuguese young adult consumers. *Int. J. Retail Distrib. Manag.* 38 (7), 538–558.
- Ringle, C.M., Wende, S., Becker, J.-M., 2015. SmartPLS3. <http://www.smartpls.com>.
- Rintamäki, T., Kanto, A., Kuusela, H., Spence, M.T., 2006. Decomposing the Value of Department Store Shopping into Utilitarian, Hedonic and Social Dimensions: Evidence from Finland. *International Journal of Retail & Distribution Management*.
- Saleh, M., 2022. Increase in E-Commerce Due to COVID-19 in Africa, Country. <https://www.statista.com/statistics/1233745/share-of-consumers-shopping-more-online-due-to-covid-19-in-selected-african-countries/#statistic-Container>.
- Santos, J., 2003. E-service quality: a model of virtual service quality dimensions. *Manag. Serv. Qual.: Int. J.*
- Sethuraman, P., Thanigan, J., 2019. An empirical study on consumer attitude and intention towards online shopping. *Int. J. Bus. Innovat. Res.* 18 (2), 145–166.
- Shah, M.H., Peikari, H.R., Yasin, N.M., 2014. The determinants of individuals' perceived e-security: evidence from Malaysia. *Int. J. Inf. Manag.* 34 (1), 48–57.
- Shaw, N., Sergueeva, K., 2016. Convenient or Useful? Consumer Adoption of Smartphones for Mobile Commerce. Paper presented at the 26th Annual DIGIT Workshop, Dublin, Ireland. <http://aisel.aisnet.org/digit2016/3>.
- Sheth, J.N., 1981. *An Integrative Theory of Patronage Preference and Behavior*. College of Commerce and Business Administration. Bureau of Economic and.
- Simmering, M.J., Fuller, C.M., Richardson, H.A., Ocal, Y., Atinc, G.M., 2015. Marker variable choice, reporting, and interpretation in the detection of common method variance: a review and demonstration. *Organ. Res. Methods* 18 (3), 473–511.
- Sirimanne, S., 2021. COVID-19 and E-Commerce: A Global Review. [https://unctad.org/system/files/official-document/dtstict2020d13\\_en\\_0.pdf](https://unctad.org/system/files/official-document/dtstict2020d13_en_0.pdf).
- Sivadas, E., Baker-Prewitt, J.L., 2000. An Examination of the Relationship between Service Quality, Customer Satisfaction, and Store Loyalty. *International Journal of Retail & Distribution Management*.
- Statista, 2021. E-Commerce in the United States. <https://www-statista-com.ezproxy.lib.ryerson.ca/study/28028/e-commerce-in-the-united-states-statista-dossier/>.
- Statista, 2022. eCommerce in Germany. <https://www.statista.com/outlook/dmo/ecommerce/germany>.

- Streukens, S., Leroi-Werelds, S., 2016. Bootstrapping and PLS-SEM: a step-by-step guide to get more out of your bootstrap results. *Eur. Manag. J.* 34 (6), 618–632.
- Tauber, E.M., 1972. Marketing notes and communications: why do people shop? *J. Market.* 36 (4), 46–49.
- The Canadian Press, 2021. Grim Anniversary: A Timeline of One Year of COVID-19. <https://www.ctvnews.ca/health/coronavirus/grim-anniversary-a-timeline-of-one-year-of-covid-19-1.5280617>.
- Titiyal, R., Bhattacharya, S., Thakkar, J.J., 2022. E-fulfillment across product type: a review of literature (2000–2020). *Manag. Res. Rev.*
- Tong, X. (2010). A cross-national investigation of an extended technology acceptance model in the online shopping context. *Int. J. Retail Distrib. Manag.*
- Tran, L.T.T., 2021. Managing the effectiveness of e-commerce platforms in a pandemic. *J. Retailing Consum. Serv.* 58, 102287.
- Truong, D., Truong, M.D., 2022. How do customers change their purchasing behaviors during the COVID-19 pandemic? *J. Retailing Consum. Serv.* 102963-102963.
- Veloso, C.M., Sousa, B.B., 2022. Drivers of customer behavioral intentions and the relationship with service quality in specific industry contexts. *Int. Rev. Retail Distrib. Consum. Res.* 32 (1), 43–58.
- Yan, M., Filieri, R., Gorton, M., 2021. Continuance intention of online technologies: a systematic literature review. *Int. J. Inf. Manag.* 58, 102315.
- Yee, B.Y., Faziharudean, T., 2010. Factors affecting customer loyalty of using Internet banking in Malaysia. *J. Electron. Bank. Syst.* 21.
- Yousafzai, S.Y., Foxall, G.R., Pallister, J.G., 2007. Technology acceptance: a meta-analysis of the TAM: Part 2. *J. Model. Manag.*
- Zhang, R., Chen, J.Q., Lee, C.J., 2013. Mobile commerce and consumer privacy concerns. *J. Comput. Inf. Syst.* 53 (4), 31–38.
- Zhou, T., 2011. The impact of privacy concern on user adoption of location-based services. *Ind. Manag. Data Syst.* 111 (2), 212–226. <https://doi.org/10.1108/02635571111115146>.