



# BANGLADESH UNIVERSITY OF PROFESSIONALS

Mirpur Cantonment, Dhaka-1216, Bangladesh

Phone: +88-02-8000261-4, Fax: +88-02-8000443, Web: [www.bup.edu.bd](http://www.bup.edu.bd)

## Call for Papers

Bangladesh University of Professionals (BUP)

Faculty of Science and Technology (FST)

**BUP Journal of Science and Technology**

*Volume-2, Issue-1, June 2023*

We are pleased to announce that FST of BUP is going to publish its yearly BUP JOURNAL OF SCIENCE AND TECHNOLOGY, Volume-2, Issue-I very shortly. In future, required steps will be taken soon for Indexing and Ranking. For further information contact the editorial office at the following email address: [journal.fst@bup.edu.bd](mailto:journal.fst@bup.edu.bd)

The journal welcomes various types of submission format: full research articles, short communications, book reviews, policy analysis and review articles. It encourages the submission of high-quality articles concerning the fundamentals of Electrical and Electronics Engineering, Computer Science and Engineering, Information and Communication Technology, Environmental Science and Management. Some important topics are as follows:

- Electric Power Engineering
- Electric Machinery and Power Electronics
- Electro physics & Applications
- Electric Material and Semiconductor
- High Power, High Voltage and Discharge
- Micro-Electro-Mechanical Systems (MEMS)
- Nanotechnology
- Microwave Engineering
- Radar and Satellite communications
- Optical fiber communication
- Optical and EM Wave
- Sensors and Systems
- Signal Processing
- Robotics, Automation and Control
- Application of AI in Smart Education System
- Natural Language Processing
- ICT in Education 4.0
- Industrial Internet of Things (IoT)
- Mobile Computing for Industry
- IoT and WSN for Smart City Applications
- Cloud Computing and Networking
- Grid and Metering Infrastructure
- Smart Transportation System
- Big Data and Machine Learning
- Natural Language Processing and Text Mining
- Data Mining for Biomedical Engineering
- Electronic Health Records and Standards
- Wearable and Body Implant Technologies
- ICT in Telemedicine
- Collaborative and Cooperative Education System
- Smart Learning System
- Cloud-IoT Platforms for Small to Large Scale Farming
- Applications of AI and Machine Learning
- Sustainable and Green Technology



# BANGLADESH UNIVERSITY OF PROFESSIONALS

Mirpur Cantonment, Dhaka-1216, Bangladesh

Phone: +88-02-8000261-4, Fax: +88-02-8000443, Web: [www.bup.edu.bd](http://www.bup.edu.bd)

---

- Cyber Physical Systems
- Cyber Physical Systems for Smart Farming
- Smart Waste Management
- Environmental Management
- Environmental Pollution and Mitigation
- Environmental Chemistry
- Environmental Engineering
- Environmental Modelling
- Environmental Economics
- Environmental Technology
- Biological Pollution in Environment
- Ecology and Biodiversity
- Earth Science
- Oceanography
- Environmental Policy and Governance
- Hydrology
- Environmental Impact Assessment and Environmental Audit System
- Water Resource Management
- Occupational Health and Safety
- Integrated coastal Zone and Floodplain Management
- Climate Change Adaptation and Mitigation
- Disaster Risk Reduction and Disaster Management
- Sustainable Urban Planning and Development
- Sustainable Energy Management
- Agriculture and Environment

All are cordially invited to submit articles for publication in the said journal. The Editorial Board will meet to review the articles for the journal soon after receiving them.

## **Guidelines for Authors**

### ***Before the Beginning***

Authors are requested to review the guidelines and template before their submission. All information will be available at the website of Bangladesh University of Professionals through this link [www.bup.edu.bd/publications](http://www.bup.edu.bd/publications). After considering all the guidelines authors can send their manuscripts and other required documents to the following email address: [journal.fst@bup.edu.bd](mailto:journal.fst@bup.edu.bd)

### ***Submission Checklist***

You can use this list to carry out a final check of your submission before you send it to the journal for review.

*Please ensure that the following items are present:*

One author has been designated as the corresponding author with contact details:

- E-mail address
- Full postal address



# BANGLADESH UNIVERSITY OF PROFESSIONALS

Mirpur Cantonment, Dhaka-1216, Bangladesh

Phone : +88-02-8000261-4, Fax: +88-02-8000443, Web: [www.bup.edu.bd](http://www.bup.edu.bd)

---

The Manuscript should have the following information:

- Title Page (Title of the study, Corresponding author's details, Co-author's details)
- Abstract
- Keywords (maximum 6)
- Main body (Introduction, Methodology, Result and discussion, Conclusion)
- References
- All figures (include relevant captions)
- All tables (including titles, description, footnotes)
- Indicate clearly if color should be used for any figures in print
- Graphical Abstracts / Highlights files (where applicable)
- Supplemental files (where applicable)
- Follow the template provided on the website for this journal.

Authors should also consider the following points before their manuscript submissions:

- This journal considers manuscript written in English.
- References follow this journal's prescribed format.
- All references mentioned in the Reference List are cited in the text.
- Permission for 3<sup>rd</sup> party information and ethical approval (where applicable).
- Manuscript should be 'spell checked' and 'grammar checked'.
- Permission should be obtained for the use of copyrighted material from other sources (including the Internet).
- Declaration of *Conflict of Interest*.

### ***Submission Declaration and Verification***

Submission of an article implies that the work described has not been published previously, that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright holder.

To verify originality, your article may be checked by the originality detection service/ Similarity Checker.

### ***Word Limit***

Articles submitted to **BUP Journal of Science and Technology** should normally have a maximum word count of 2500 for short communications, 5000 for policy analyses, 6000 for research articles and 8000 for synthesis or review articles. Flexibility with this limit may be exercised at the discretion of the handling Editor based on the quality of the Article. In general, authors are requested to write concisely and avoid overly long articles.



# BANGLADESH UNIVERSITY OF PROFESSIONALS

Mirpur Cantonment, Dhaka-1216, Bangladesh

Phone: +88-02-8000261-4, Fax: +88-02-8000443, Web: [www.bup.edu.bd](http://www.bup.edu.bd)

---

## *Essential title page information*

- *Title.* Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
- *Author names and affiliations.* Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. Present the authors' affiliation addresses (where the actual work was done) below the names. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
- *Corresponding author.* Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**
- *Present/permanent address.* If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address.

## *References*

Please follow APA style.

## *Submission*

The last date of manuscript submission for the current issue is **15<sup>th</sup> July 2023**. All correspondence, including notification of the Editor's decisions and requests for revision will be sent by e-mail. For further information contact the editorial office at the following email address:

[journal.fst@bup.edu.bd](mailto:journal.fst@bup.edu.bd)

Sincerely yours

Brig Gen Md Mustafa Kamal, SGP  
Chief Editor, BUP Journal of Science and Technology  
Dean, Faculty of Sciences and Technology  
Bangladesh University of Professionals

# Perceptive Factors Influencing the Effectiveness of Customer Loyalty through Satisfaction in the Evolving Supermarkets of Bangladesh

Kamrul Hasan<sup>1</sup>

## Abstract

*The limited research conducted on the emerging supermarkets of Bangladesh motivates this study to make supermarkets more profitable, attractive and dynamic. This paper aims to investigate the influence of perceptive factors to attract and create loyal customers for the emerging supermarkets of Bangladesh. Data has been collected from 360 valid supermarket consumers by self-administered and random sampling questionnaires using 5 points Likert scale surveying three selected emerging and major supermarkets of Bangladesh. Exploratory factor analysis (EFA), Confirmatory Factor Analysis (CFA), and Statistical Equation Modeling (SEM) has been utilised as statistical tools to analyse the data and to confirm the Hypothesised Model using AMOS. The research finds that Hedonic and Utilitarian Gratification has a significant role in influencing the effectiveness of Customer Loyalty through Satisfaction in the supermarkets of Bangladesh. This research will provide supermarket entrepreneurs with a solid understanding of formulating potent plans to attract and retain more customers, keep them loyal, and increase profit.*

**Keywords:** Effectiveness of Customer loyalty, Supermarket, Loyalty Programs in Supermarket of Bangladesh.

## 1.1 Introduction

The study of the perceptive factors influencing the effectiveness of customer loyalty in emerging supermarkets of Bangladesh is momentous considering the rapid development of this industry (Alam, 2019). These factors related to customer loyalty, if utilised carefully, will be of great help to the supermarket business of Bangladesh to attract new customers, make more loyal customers and contribute to the generation of more revenue. Besides, supermarket entrepreneurs try to possess more loyal customers to return and promote the stores to their family and friends. This customer loyalty is mainly achieved through a customer loyalty program (Alsulami, 2021). The programs are of various forms and are implemented differently by various supermarket industries in Bangladesh. In this study, Perceptive Factors such as Social Gratification, Hedonic Gratification, Utilitarian

---

<sup>1</sup> Department of Information and Communication Technology, Bangladesh University of Professionals, Dhaka, Bangladesh, Email: [monahsan101@gmail.com](mailto:monahsan101@gmail.com)

Gratification and Perceived Sustainability have been considered to determine the influence to measure the effectiveness of Customer Loyalty through Satisfaction in the emerging supermarkets of Bangladesh.

Supermarket shopping is a contemporary issue in Bangladesh. Due to factors like urbanisation, increased per capita income, demographical shift, changed family structure, increased use of credit cards, etc., the shopping behaviour of Bangladeshi people has immensely evolved, and many of them have shifted to supermarkets (Shamsher, 2019). However, there has been insufficient research and analysis on supermarkets in Bangladesh to make them more profitable, appealing, and dynamic (Alam, 2021). Again, the industry's research and development and administrative wings appear to be not effective (Hobelsberger, 2021). Therefore, the purpose of this study is to identify the perceptive factors persuading the effectiveness of customer loyalty in the supermarkets by using statistical tools based on the responses from the customers through a self-administered questionnaire. Moreover, the significant findings of the research are that Hedonic and Utilitarian Gratification have a substantial role in influencing the effectiveness of Customer Loyalty through Satisfaction. Besides, this study will give supermarket entrepreneurs a firm grasp of attracting and retaining more loyal customers while increasing profits, allowing them to formulate pragmatic and viable plans.

## **1.2 Background of the Study**

Since the 1990s, the supermarket concept has been diffused in Bangladesh like in other developing countries. However, it has got international shape after 2010. Supermarkets are not new business chain stores in Bangladesh. The products sold in the supermarkets are not bargainable, while they are in the regular markets of Bangladesh. This is laid out in such a way so that products are arranged in accordance with their specialties and categories (Azad et al., 2011). The reasons for the increasing demand of the supermarket industry in Bangladesh are primarily connected with the change in taste and fashion, consumer awareness, and changes in social structure in the society (LightCastle Blog, 2015).

## **1.3 Customer Loyalty Programs at Present by Supermarkets across Bangladesh**

The supermarkets provide loyalty cards, joint loyalty cards, discounts, bonus points, and offers like buying more - saving more, half price, buy 1 get 1, voucher

offers etc. Again, to attract new customers through the promotional campaign, the supermarkets celebrate special days and festival days, offer exclusive propositions, and provide special offers at weekends. Besides, supermarkets launched a 'Donation pack' offer for all the kind-hearted buyers of the country who want to help people affected due to the surge of coronavirus pandemic. This pack includes all the essentials at a special discount and has been made available altogether in a single package (The Daily Star, 2020). Moreover, they provide an online home delivery service where shoppers can watch products through video and choose their essential products called 'Phone-a-Phone-a Bazar' (Shwapno, 2020). More so, they buy fresh organic items directly from farmers and deliver them to customers, benefiting underprivileged farmers in the process. (The Amader Somoy, 2020).

#### **1.4 Research Gap**

Despite the significant potential in this supermarket industry, the existing literature has ignored the direct and indirect influences of social gratification, hedonic gratification, utilitarian gratification, and sustainability perceptions on customer satisfaction and customer loyalty in the context of Bangladesh. Moreover, there has not been enough research and analysis on making supermarkets more profitable, appealing, and dynamic, which is a content gap. Additionally, SEMs and factor analysis of the constructs in the existing literature field in the perspective of Bangladesh have not been conducted rigorously. Furthermore, preliminary evaluation of theories regarding the productivity of customer loyalty in Bangladesh has created a vast evaluation gap. Therefore, it is worth studying how Customer Satisfaction and Loyalty are shaped by Social Gratification, Hedonic Gratification, Utilitarian Gratification, and Perceived Sustainability in the supermarket context.

#### **1.5 Research Question and Objective**

The primary research question is what dimensions should be considered while evaluating the perceptive factors to measure the effectiveness of customer loyalty through satisfaction for the emerging supermarkets in Bangladesh? The study's objective is to explore the perceptive factors that contribute to and influence the effectiveness of customer loyalty and to acquire a better insight into what influences customers' perception to visit a particular store repeatedly in the context of Bangladeshi supermarkets.

## **1.6 Contribution of the Study**

This study and research are new in this particular field. So, research findings will assist supermarket owners in making more efficient plans to attract new customers and keep repeat and loyal customers. Again, academicians will hugely benefit by receiving more insights from the newly added literature and CB-SEM based hypothesised model. The theoretical model based on the perspective factors will generate new ideas based on the variables. More so, the policymakers can plan and take adequate measures based on the analysis and results of this paper to make this sector more vibrant and dynamic.

## **2. 1 Literature Review and Hypothesis Development**

The supermarket industry is a vast, departmentalised retail store that is also a unique food source convenient for self-service shopping experiences for customers. This study will also discuss the supermarket industry in Bangladesh, reasons for selecting Agora, Shwapno and Meena Bazar for a survey, social gratifications, hedonic gratifications and utilitarian gratifications, sustainability perception, customer satisfaction and customer loyalty. By discussing the relevant literature and ascertaining the relationship between customer satisfaction with social gratifications, hedonic gratifications and utilitarian gratifications, sustainability perception and customer loyalty, the hypotheses are developed based on the arguments and justifications of different researchers.

### **2.1.1 Supermarket Industry in Bangladesh**

Supermarkets in Bangladesh value their loyal customers. These are currently operating in major urban centres of Bangladesh with a limited number of locations, producing jobs and contributing significantly to the country's economy (Alam, 2021). According to the BSOA (Bangladesh Supermarkets Owners' Association), there are 130 supermarkets in the country. However, the industry is primarily dominated by three major players: Shwapno, Agora and Meena Bazar (Alam and Noor, 2019). Agora was inaugurated in 2001, the pioneer in the supermarket industry, and since then, this industry has been on the rise. Besides, many supermarkets, including Shwapno, Meena Bazar, Prince Bazar, Almas, Big Bazar, have dominated the market and successfully run their business (Ahmed, 2017). The experts opined that the supermarkets' demand grows daily in Bangladesh. More than 300,000 customers regularly use supermarkets to shop for their necessary goods (Islam et al., 2018). Therefore, the supermarket business has turned into a very competitive business today.



### **2.1.2 Reasons for Selecting Agora, Shwapno and Meena Bazar for a Survey**

Agora is an innovator in the Bangladesh supermarket industry. The number of outlets of Agora is 18; in Dhaka, 15 outlets, 2 in Sylhet and one in Chattagram. Later in 2008, supermarket Shwapno (“dream”) started its journey with a vision to make a nationwide retail chain where all strata of consumers could come and shop. “One Shwapno for all” is its mantra. Shwapno operates in Dhaka, Sylhet, Chittagong and Comilla with 63 outlets. Serving around 35,000 customers daily, Shwapno is currently the market leader with 60 outlets. Another supermarket, Meena Bazar, started its journey in 2002 and is operating in Dhaka, Chattagram and Khulna with 19 outlets (Ahmed, 2018).

Therefore, these three supermarkets are selected after examining their high sales volume, significant market share, prolonged duration of operation, substantial consumer base and superior brand image.

### **2.1.3 Uses and Gratification Theory**

The Uses and gratification theory (UGT) examine why and how people actively seek various media to meet their requirements. The audience-centred approach to understanding mass communication is known as UGT. According to the UGT theory, the researcher developed the conceptual framework. For example, Thuy Tran (2021) utilised the UGT model and found perceived effectiveness of e-commerce platforms (PEEP), economic benefits, pandemic fear, sustainable consumptions are essential to predict the intention to manage e-commerce platforms effectively. Besides, Chen et al. (2020) applied the UGT model. They investigated perceived usefulness, enjoyment, system quality, information quality, sense of belonging, interaction, satisfaction, and habit and continued willingness to use location-based mobile apps. Mejía-Trejo (2021) used the UGT model and found emergency context (mood, emotion, values), motivation, attitude, website attraction, purchase intention of online consumer behaviour. Here, the researcher focused on social, hedonic, and utilitarian gratification, which influence customer satisfaction, customer loyalty, and user behaviour in the supermarket industry.

### **2.1.4 Social Gratification**

The combination of social contact and social presence is known as social pleasure. The amount to which WeChat is used as a communication medium to interact with others (Deci and Ryan, 2000) and the degree to which WeChat produces a psychological feeling of communicating and building connections with others is referred to as social presence (Biocca et al., 2003). Again, Mahlangu and Makhitha

(2019) suggested that shoppers visit supermarkets for value shopping, brand hunting, social gratification. Moreover, socially gratified consumers feel satisfied as they can contribute to society through social innovativeness products, and their consumption behaviour would be recognised as ethical and moral (Choi and Kim, 2013). The researcher suggests that Social Gratification positively influences customer satisfaction in the supermarket industry. So, Social Gratification affects Customer Satisfaction significantly.

### **2.1.5 Hedonic Gratification**

Hedonic pleasure refers to the users who can acquire emotional relief by having fun and enjoying themselves. Nguyen, Nguyen and Barrett (2007) mentioned that shoppers driven by hedonic gratification pay more attention to supermarket attributes' quality and are more likely to be loyal customers. Another researcher, Alam et al. (2020), found customer loyalty shaped by utilitarian value, hedonic value, and corporate image based on the S-O-R model in customer's value perception and belief of 360 Bangladeshi respondents. Other studies have discovered hedonic gratification usage in mobile app behavioural intention to use (Thuy Tran 2021; Chen, Hsiao and Li 2020) in the context of managing an effective e-commerce platform in the pandemic, online consumer behaviour on purchase intention in COVID-19 ads, and usage continuance willingness for location-based apps consecutively. Other researchers, Atulkar and Kesari (2017), provided some valuable insight on the relationship between hedonic shopping gratification and customer satisfaction in supermarkets. The results of that study showed the differential effect of hedonic shopping values. They confirmed the research findings demonstrating the relationship between hedonic shopping gratification, customer satisfaction, loyalty, and re-patronage intentions. In addition, Mehmood and Hanaysha (2015) showed that hedonic gratification has optimistic effects on customer satisfaction and loyalty. So, Hedonic Gratification impacts Customer Satisfaction considerably.

### **2.1.6 Utilitarian Gratification**

The fulfilment of individuals' utility demands, such as information seeking or self-presentation, is utilitarian gratification. Küçükşarı (2021) suggested that utilitarian satisfaction is a task-oriented and cognitive process. He also added that people might buy more utilitarian products for themselves during an economic crisis.

Other researchers, Yusof, Musa and Rahman (2012), defined that utilitarian gratification revolves around the criteria of rational purchase. They also added that consumers derive utilitarian gratification in stores after evaluating the accessibility of products and how easily they can find their desired outcomes. Examples of utilitarian gratification would be information achievement, assortment seeking, immediate possession and price comparison. The Ryu et al. (2010) study shows that utilitarian gratification affects customer satisfaction. Customers who perceive high utilitarian gratification are expected to accomplish their shopping goals and show higher loyalty. Besides, Mehmood and Hanaysha (2015) argued that utilitarian gratification does not directly affect customer loyalty; instead, it influences loyalty through building customer satisfaction. Therefore, Customer Satisfaction is primarily influenced by Utilitarian Gratification.

### **2.1.7 Sustainability Perceptions**

Perceived sustainability refers to humans' awareness of the environment. Lee (2020) used sustainability in the context of communicating sustainable development. It is an essential antecedent because it identifies three dimensions of stockholder-centric sustainability concern (e.g., strength, magnitude, and mobilizability). Again, Fathi et al. (2020) investigated sustainability effects on supermarkets. Therefore, beyond the level of sustainability labels, various product-certifying systems have been developed to provide quality assurance via certificated brands (Zhang et al., 2016). They argued that workload balancing could significantly reduce the total supermarket cost and contribute to the overall production and economic sustainability. Besides, Ehgartner (2018) explored whether customers are primarily influenced by sustainability in the context of the retail food industry. He also examined how consumers are revealed to the sustainability of the retail food industry and how this is related to customer response. In addition, other researchers, Chen et al. (2020), suggested that perceived sustainability can positively affect customer engagement through influencing customer satisfaction and commitment in the shopping environment. Their research finding confirms the causal chain of “perceived sustainability-satisfaction-commitment-customer engagement”. It indicates the affecting routes from the short-term relationship (i.e., satisfaction). To the long-term relationship (i.e., commitment and engagement) and the transactional relationship (i.e.,

satisfaction and commitment) to the non-transactional relationship (i.e., engagement). Thus, Customer Satisfaction is mainly influenced by customers' perceived Sustainability.

### **2.1.8 Customer Satisfaction**

Customer satisfaction is a necessary construct that plays a mediating role between endogenous and exogenous variables in the context of the supermarket industry. Satisfaction is the congruence between aspirations and the reality perceived from consumers' experiences. According to Islam et al. (2012), customer satisfaction is related to loyalty. For example, Slack, Singh, and Sharma (2020) found that customer satisfaction influences emotional value, social value, and functional value based on the theory of consumption value and constitutes interrelated value dimensions in the context of a supermarket in a developing country. Moreover, Moliner-Velázquez et al. (2018) also studied retail innovation and image for loyalty. They found that store image, retail innovation, excellence, efficiency, entertainment, aesthetes, and satisfaction primarily shape customer loyalty. Furthermore, Filipe et al. (2017) emphasised supermarket satisfaction and trust to explain supermarket loyalty in the context of Portugal. Finally, some researchers paid attention to analysing customer satisfaction and value in the context of social media marketing (Dwivedi et al., 2020; Agnihotri et al., 2016; Shareef et al., 2019; Rossmann et al., 2015). However, this study explored the direct and mediated role of customer satisfaction on purchase intention, brand awareness, and equity in the context of the Super Market Industry. The researcher argues that customer satisfaction positively influences customer loyalty in supermarkets.

### **2.1.9 Customer Loyalty**

Loyalty has been defined as a behavioural concept including the purchase of a product or service regularly, as assessed by the number of assets, referrals, the size of the relationship, or all of the above together (Alok and Srivastava, 2013). Similarly, customer loyalty means returning previous customers who purchased products or services in the past. Again, customer loyalty can be measured in various ways, such as repurchasing and recommending. (Chen et al., 2014). Some research explains that customer loyalty has become an essential asset for supermarkets (Petzer and van Tonder, 2019; Shankar and Jebarajakirthy,

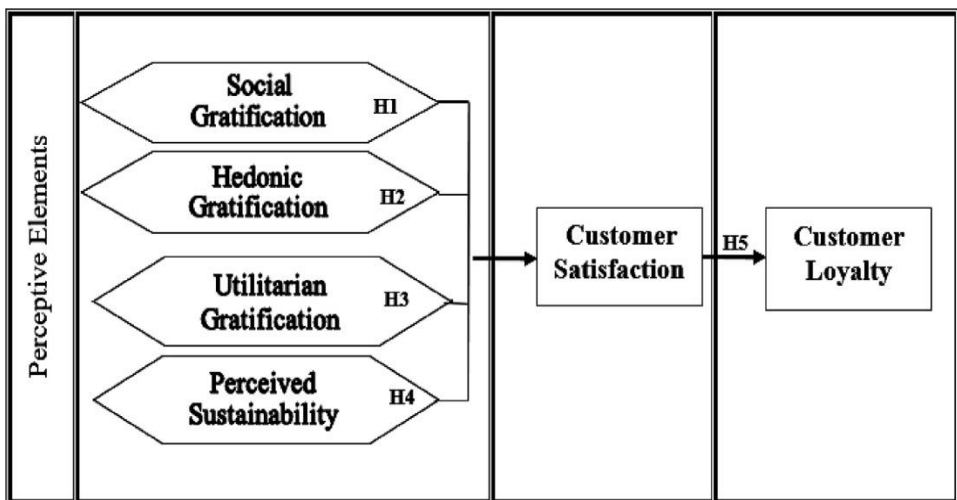
2019). Continuous purchase and recommendations are the components of customer loyalty (Spratt, 2019). According to Irfan et al. (2019), based on the patronage behaviour and learning theory, the researcher found perceived value, in-store logistics performance, store image, and satisfaction to create loyalty in 200 Pakistan respondents. We discovered that supermarket loyalty is essential to building customer loyalty at this juncture. The researcher suggests that Customer Satisfaction positively influences Customer Loyalty for emerging in the supermarket industry of Bangladesh.

### 3.1 Conceptual Framework

This study explores the relationship between Social Gratification, Hedonic Gratification, Utilitarian Gratification, and Perceived Sustainability on Customer Satisfaction which turns to Customer Loyalty.

### 3.2 Conceptual Model

The customer loyalty conceptual framework presents the hypotheses that have been empirically developed as discussed in the literature review. It can be anticipated that this innovative study model will immensely contribute to the relevant literature field. Here is the conceptual model below:



**Figure 1:** Conceptual Model

Figure 1 illustrates that Social Gratifications, Hedonic Gratifications, Utilitarian Gratifications and Perceived Sustainability are the perceptive factors and exogenous variables. These factors influence Customer Satisfaction to create loyal customers. Here, Customer Satisfaction plays the role of mediating variable, and Customer Loyalty is the endogenous variable.

#### **4.1 Research Methodology**

To collect necessary data, a self-administered questionnaire using 5 points Likert scale was randomly distributed to the consumers in the three major supermarkets, namely Agora, Swapna and Meena Bazar. Data has been analysed from the responses of 360 valid respondents using descriptive frequencies, correlation, principal component, EFA, CFA, measurement model, structural model, and hypothesised path coefficient. The causal relationship among the constructs proposed in this study has been empirically validated through SEM, and the correlations have been tested concurrently. Then, the valid cases have been selected using AMOS through SEM for verifying and testing the hypothesised relationships between the variables of this study model.

#### **4.2 Research Design**

The method of this study includes systematic investigation, procedure, sample selection and finally, evaluation of the results. A quantitative method is adopted to understand the perceptive factors influencing customer loyalty's effectiveness.

#### **4.3 Sample Size, Data Collection and Target Population**

Cochran's formula calculated the sample size with a 95% confidence level. Convenience Random Sampling has been utilised in this study as it is the most reasonable when dealing with a large population. It involves using respondents who are 'convenient' to the researcher. It has also fewer limitations than other sampling probability methods regarding generalizability (Heng et al., 2011).

Supermarket consumers of three major supermarkets in Bangladesh: Agora, Shwapno and Meenabazar, were requested to participate in the survey digitally. For this, a self-administered questionnaire was distributed using 'Google Form' through a digital application to group forums of the elite members of prominent clubs, various universities, several district groups, corporate groups, social groups of different districts where any supermarket from these three selected are situated. Total 409 respondents participated in the survey. The data was cleaned, and 49 were found to be unengaged responses, and 360 valid responses were analysed for

the study. Here, the response rate was 88 percent. The study's target population was all the supermarket customers of Bangladesh of these three selected major supermarkets.

#### 4.4 Questionnaire Development

Self-administered questionnaires using 5 points Likert scale have been utilised to obtain field information related to the many components employed in the conceptual background of customer loyalty. In the questionnaire, a prelude has been given about customer loyalty for the easy assimilation of the respondents about the questions. Moreover, efforts have been made to disregard any terminology that might confuse the respondents. A lot of attention has been shown to the contents of the questionnaires to develop external validity. The questionnaires have been attached as **Appendix-A**.

#### 4.5 Pre-test Study

Before performing the survey, a pre-test was conducted digitally by a carefully selected group of 20 experts, including academics from the marketing department, supermarket management departments, and supermarket industry specialists, to ensure that the contents were accurate. After this test, questionnaires were distributed among the supermarket respondents.

### 5. Result and Discussion

#### 5.1 Demographic Profile

The respondent's demographic characteristics were carried out based on sex, marital status, age group, educational qualification and income group and the frequencies and percentages are measured using the statistical tools. It shows that male, married visits and age group from 18 -to 44 years visit supermarkets more than that of female, single and 45 years and above respectively. Details are described in **Table 1** : below.

**Table-1: Demographic Characteristics of Respondents (n =360).**

Items	Variables	Frequencies	Percentage
Sex	Male	206	57.21
	Female	154	42.8
Marital Status	Single	87	24.2
	Married	272	75.6

	Divorced	1	3
Age Group	18 - 44 Years	307	85.3
	45 Years and above	53	14.7
Educational Qualification	Bachelor's Degree and below	220	61.1
	Above Bachelor's Degree	140	38.9
Income Group	1,00,000 Tk and below	188	52.2
	Above 1,00,001 Tk	172	47.8

Source: Output of IBM SPSS Statistics Version 25

### 5.2 Construct Validity Test

The construct validity has been verified through Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity Test. After analysis, the strength of association among the constructs is shown in **Table 2**, representing a good result (Ali et al., 2012).

**Table-2 : KMO and Bartlett's test.**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.891
Bartlett's Test of Sphericity	Approx. Chi-Square	13210.085
	Df	861
	Sig.	0.000

Source: Output of IBM SPSS Statistics Version 25

### 5.3 Reliability and Factor Analysis Test

The reliability of items in the questionnaire has been tested before starting the analysis for ensuring the consistency of various things present in the questionnaire. Reliability measurement helps provide stability and character of the whole mechanism (Sekaran, 2003). Here, the principal axis factoring has been adopted to explore the fundamental factors related to the items in the questionnaire (Yong and Pearce, 2013). Principal axis factoring assumes that factors are hypothetical and can be estimated from variables. Moreover, factor analysis has been used to measure the degree of customer satisfaction and loyalty since it is an effective method of transforming statistical data into linear combinations of constructs (Hair et al., 1992). Here in Table 3, the range of Cronbach's Alpha is from 0.851 to 0.890 of the constructs, which indicate higher reliability (Tavakol and Dennick, 2011). EFA has been conducted to capture the observed variables consistently moving together. Here in EFA, all the loadings of the factors have come above 0.60, which indicates a stable result (Guadagnoli and Velicer, 1988).



## **6. Findings and Implications**

The respondents' responses to the questionnaire identified significant factors related to the perceptible influence on the effectiveness of customer loyalty in the supermarkets of Bangladesh. This study shows that Hedonic Gratification is considered very important to make the customer satisfied and loyal. Utilitarian Gratification also plays a significant role in this aspect. On the other hand, Social Gratification and Perceived Sustainability play a less important role. Overall, Customer Satisfaction has a strong relationship with Customer Loyalty.

The study implies that all the hypotheses are accepted, i.e., Social Gratification, Hedonic Gratification, Utilitarian Gratification, and Perceived Sustainability enhance Customer Satisfaction, and Customer Satisfaction influences Customer Loyalty. Social Gratification, Hedonic Gratification, Utilitarian Gratification, and Perceived Sustainability partially mediated Customer Loyalty through Customer Satisfaction. This endeavour will help envisage the reality and impacts of Customer Loyalty and how perceptible factors influence it through Customer Satisfaction in the supermarket context of Bangladesh. More insights from this study will be highly beneficial to academicians. Again, the CB-SEM based hypothesised model will assist the entrepreneurs in attracting and retaining more customers and making them loyal to generate more revenues. Besides, the study results show an essential guideline for retailers to consider the factors before launching an effective loyalty program and assuredly enrich the existing literature in the emerging supermarkets in the context of Bangladesh. Moreover, authorities can develop and implement appropriate policies based on the findings of this research to make this sector energetic and more active.

## **7. Limitations and Future Research Directions**

Supermarket retailing is a relatively new phenomenon in Bangladesh. So, this research's data, analysis, and findings are applicable to developing countries. Again, the income level of the customers affects and influences to a great extent in supermarket purchases, but influences of income have not been hypothesized and analysed in this paper. In addition, interviews of the experts, entrepreneurs, and supermarket customers have not been carried out in person due to the pandemic. Another vital issue is that the competition between the wet market and supermarket business in Bangladesh has not been discussed. Moreover, only three supermarkets have been surveyed, which do not reflect the entire scenario of the market.

In future, tangible factors may be analysed to assess the effectiveness of customer loyalty in the evolving supermarkets of Bangladesh. Additionally, more insights may be collected by interviewing experts, entrepreneurs, and supermarket customers. Furthermore, comparison and competition between the wet market and

supermarket business in Bangladesh can be thoroughly analysed in future research. Henceforth, the influence of different income levels in this supermarket industry and its relationship can be studied. Its moderation effect and hypotheses testing may help ascertain income level's impact on customer loyalty.

## 8. Conclusion

Customer loyalty, one of the significant components in maintaining a stable consumer relationship, is now recognised as a prime element of sustaining organisations. Again, implementing customer loyalty programs to attract and retain customers is crucial to making this supermarket sector more viable and gainful. Therefore, it is accepted as a long-term commitment or the central part of the long-term marketing strategy. These programs are helping the organisation to survive in a competitive environment by making them repeat and loyal customers and resisting the customers to switch to another supplier. This paper will immensely help the entrepreneurs to make an effective endeavour to create loyal customers and make this business more dynamic and profitable. This will also assist the policymakers in making pragmatic plans to make this sector vibrant and lucrative. The entrepreneurs should take adequate measures on Social Gratification, and Perceived Sustainability issues as these are found to be behind. These steps will help supermarket entrepreneurs to attract more customers and make them satisfied and loyal. These can be achieved by launching good customer loyalty programs very effectively. Thus, this study will immensely assist the retailers in knowing what perceptive factors impact the effectiveness of customer loyalty for the emerging supermarkets in Bangladesh.

## References

- Agnihotri, R., Dingus, R., Hu, M.Y. and Krush, M.T., 2016. Social media: Influencing customer satisfaction in B2B sales. *Industrial Marketing Management*, 53, pp.172–180.
- Ahmed, N., 2018. An insight into the retail industry: A case on Bangladesh.
- Ahmed, S.S., 2017. Trends of large scale retailing in Bangladesh. *ANGLISTICUM. Journal of the Association-Institute for English Language and American Studies*, 6(6), pp.30-34.
- Alam, J., 2021. Customers' Problem in Buying from supermarkets in Bangladesh. *Consumer Behaviour Review*, 5(2), 215-231.
- Alam, M.M.D. and Noor, N.A.M., 2019. Superstore retailing in Bangladesh: A comprehensive literature review from a consumer

- perspective. *International Journal of Economics, Commerce and Management*, 7(7), pp.163-187.
- Alam, M.M.D. and Noor, N.A.M., 2020. The Relationship Between Service Quality, Corporate Image, and Customer Loyalty of Generation Y: An Application of S-O-R Paradigm in the Context of Superstores in Bangladesh. *SAGE Open*, 10(2), pp.21582440-2092440.
- Alam, M.M.D., 2019. The effect of service quality on customer loyalty of Generation Y—An empirical investigation on superstores in Bangladesh. *Malaysian Management Journal*, 22, pp.153-173.
- Alam, M.Z., Hu, W., Kaium, M.A., Hoque, M.R. and Alam, M.M.D., 2020. Understanding the determinants of mHealth apps adoption in Bangladesh: A SEM-Neural network approach. *Technology in Society*, 61, p.101255.
- Ali, S.B., Mahdi, A. and Malihe, J., 2012. The effect of employees' performance appraisal procedure on their intrinsic motivation. *International Journal of Academic Research in Business and Social Sciences*, 2(12), pp.161.
- Alok, K.R. and Srivastava, M., 2013. The Antecedents of Customer Loyalty: An Empirical Investigation in Life Insurance Context. *Journal of Competitiveness*, [online] 5(2), pp.139–163. Available at: <https://www.cjournal.cz/files/139.pdf>. [Accessed 30 Jan 2022].
- Alsulami, H., 2021. A Framework for Improving Customer Loyalty at Retailers in Jeddah City: A Case Study. *American Journal of Industrial and Business Management*, 11(9), pp.973-983.
- Atulkar, S. and Kesari, B., 2017. Satisfaction, loyalty and repatronage intentions: Role of hedonic shopping values. *Journal of Retailing and Consumer Services*, 39, pp.23-34.
- Awang, Z., 2012. *Research methodology and data analysis second edition*. UiTM Press.
- Azad, S.N., Hossain, M.M. and Parveen, R., 2011. Customer perception, price and demand analysis of supermarkets in Dhaka city. *Journal of Business and Technology (Dhaka)*, pp.35-51.
- Bagozzi, R.P. and Yi, Y., 2012. Specification, evaluation, and interpretation of structural equation models. *Journal of the academy of marketing science*, 40(1), pp.8-34.
- Biocca, F., Harms, C. and Burgoon, J.K., 2003. Toward a More Robust Theory and Measure of Social Presence: Review and Suggested Criteria. *Presence: Teleoperators and Virtual Environments*, 12(5), pp.456–480.
- Chen, C.-C., Hsiao, K.-L. and Li, W.-C., 2020. Exploring the determinants of usage continuance willingness for location-based apps: A case study of bicycle-based exercise apps. *Journal of Retailing and Consumer Services*, 55, p.102097.

- Chen, C.-H. and Chou, C.-Y., 2020. The integrated quality control model with product inspection and process improvement. *Quality Technology & Quantitative Management*, pp.1–15.
- Chen, X., Sun, X., Yan, D. and Wen, D., 2020. Perceived sustainability and customer engagement in the online shopping environment: The rational and emotional perspectives. *Sustainability*, 12(7), p.2674.
- Chen, Y., Tang, G., Jin, J., Li, J. and Paillé, P., 2014. Linking Market Orientation and Environmental Performance: The Influence of Environmental Strategy, Employee's Environmental Involvement, and Environmental Product Quality. *Journal of Business Ethics*, 127(2), pp.479–500.
- Choi, E.J. and Kim, S.H., 2013. The study of the impact of perceived quality and value of social enterprises on customer satisfaction and re-purchase intention. *International journal of smart home*, 7(1), pp.239-252.
- Cochran, W. G., 1963. Sampling Techniques, 2nd Ed., New York: John Wiley and Sons, Inc.
- Deci, E.L. and Ryan, R.M., 2000. The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, [online] 11(4), pp.227–268. Available at: [https://www.tandfonline.com/doi/abs/10.1207/S15327965PLI1104\\_01](https://www.tandfonline.com/doi/abs/10.1207/S15327965PLI1104_01). [Accessed 03 Jan 2022].
- Dwivedi, Y.K., Ismagilova, E., Hughes, D.L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A.S., Kumar, V., Rahman, M.M., Raman, R., Rauschnabel, P.A., Rowley, J., Salo, J., Tran, G.A. and Wang, Y., 2020. Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, [online] 59(59), pp.102168. Available at: <https://www.sciencedirect.com/science/article/pii/S0268401220308082>. [Accessed 30 Dec 2021].
- Ehgartner, U., 2018. Discourses of the food retail industry: Changing understandings of “the consumer” and strategies for sustainability. *Sustainable Production and Consumption*, 16, pp.154–161.
- Evelina, T.Y., Kusumawati, A. and Nimran, U., 2020. The influence of utilitarian value, hedonic value, social value, and perceived risk on customer satisfaction: a survey of e-commerce customers in Indonesia. *Business: Theory and Practice*, 21(2), pp.613-622.
- Fabrigar, L.R., Porter, R.D. and Norris, M.E., 2010. Some things you should know about structural equation modelling but never thought to ask. *Journal of Consumer Psychology*, 20(2), pp.221-225.
- Fathi, S., Srinivasan, R., Fenner, A., and Fathi, S., 2020. Machine learning applications in urban building energy performance forecasting: A

- systematic review. *Renewable and Sustainable Energy Reviews*, 133, p.110287.
- Filipe, S., Marques, S.H. and Salgueiro, M. de F., 2017. Customers' relationship with their grocery store: Direct and moderating effects from store format and loyalty programs. *Journal of Retailing and Consumer Services*, 37, pp.78–88.
- Gaskination's StatWiki., 2021. Website: [http://statwiki.gaskination.com/index.php?title=Main\\_Page](http://statwiki.gaskination.com/index.php?title=Main_Page) [Accessed 30 Jan 2022].
- Guadagnoli, E. and Velicer, W.F., 1988. Relation of a sample size to the stability of component patterns. *Psychological Bulletin*, 103(2), pp.265.
- Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C., 1992. *Multivariate Data Analysis* (3rd ed.). Macmillan, New York.
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E., 2019. *Multivariate Data Analysis* (Eight). Hampshire, UK: Cengage Learning.
- Hair, J.F., Celsi, M., Ortinau, D.J. and Bush, R.P., 2010. *Essentials of marketing research* (Vol. 2). New York, NY: McGraw-Hill/Irwin.
- Han, H. and Ryu, K., 2009. The roles of the physical environment, price perception, and customer satisfaction in determining customer loyalty in the restaurant industry. *Journal of hospitality and tourism research*, 33(4), pp.487-510.
- Heng, K.C., Yeong, K.S., Siong, L.C., Shi, T.Y., & Kuan, Y. M., 2011. Customers' Perceptions of the Marketing Mix and the Effect on Malaysian Hypermarkets' Brand Loyalty.
- Hobelsberger, C., 2021. *Restructuring of Food Retail Markets in Countries of the Global South: The Case of Emerging Supermarkets in Dhaka, Bangladesh*. Springer Nature.
- Irfan, W., Siddiqui, D.A., and Ahmed, W., 2019. Creating and retaining customers: a perspective from Pakistani small and medium retail stores. *International Journal of Retail & Distribution Management*, 47(4), pp.350–367.
- Islam, Md.A., Khadem, M. and Sayem, A., 2012. Service quality, customer satisfaction and customer loyalty analysis in Bangladesh apparel fashion retail: an empirical study. *International Journal of Fashion Design, Technology and Education*, 5(3), pp.213–224.
- Islam, N., Arefin, M.S., Hasan, K.N., Omi, M.H., Murshed, M.M., Tazwar, Z., Al-Hossain, T. and Nazrul, T., 2018. An analysis of customers' satisfaction of supermarkets in Bangladesh. *International Journal of Research in Business, Economics and Management*, 1(3), pp.203-220.

- Kenny, D.A., Kaniskan, B. and McCoach, D.B., 2015. The performance of RMSEA in models with small degrees of freedom. *Sociological methods and research*, 44(3), pp.486-507.
- Küçüksarı, Z., 2021. *Dynamic hedonic and utilitarian segmentation based on individual customer purchase patterns* (Doctoral dissertation).
- Lee, Y., 2020. Communicating sustainable development: Effects of stakeholder-centric perceived sustainability. *Corporate Social Responsibility and Environmental Management*.
- LightCastle Blog., 2015. Business Insights. Website: <http://www.lightcastlebd.com/blog/2015/02/market-insight-supermarket-industrybangladesh>. [Accessed 30 Dec 2021].
- Mahlangu, E.N. and Makhitha, K.M., 2019. The impact of demographic factors on supermarket shopping motivations in South Africa. *Journal of Business and Retail Management Research*, vol. 13(3).
- Malhotra, N.K., 2007. *A Book of Marketing Research. An Applied Orientation*. 5th Edition.
- Marsh, H.W., Morin, A.J., Parker, P.D. and Kaur, G., 2014. Exploratory structural equation modelling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual review of clinical psychology*, 10, pp.85-110.
- Mehmood, K.K. and Hanaysha, J., 2015. The strategic role of hedonic value and utilitarian value in building brand loyalty: Mediating effect of customer satisfaction. *Pakistan Journal of Social Sciences (PJSS)*, 35(2).
- Mejía-Trejo, J. (2021). COVID-19 ads on Purchase Intention of Online Consumer Behavior as Business Innovation Activity: a contribution to the Uses and Gratification Theory. *Electronic Commerce Research and Applications*, p.101086.
- Moliner-Velázquez, B., Fuentes-Blasco, M., Servera-Francés, D. and Gil-Saura, I., 2018. From retail innovation and image to loyalty: moderating effects of product type. *Service Business*, [online] 13(1), pp.199–224. Available at: <https://link.springer.com/article/10.1007/s11628-018-0378-5> [Accessed 5 Jan. 2022].
- Nguyen, T.T., Nguyen, T.D. and Barrett, N.J., 2007. Hedonic shopping motivations, supermarket attributes, and shopper loyalty in transitional markets: evidence from Vietnam. *Asia*

*Pacific Journal of Marketing and Logistics.*

- Niclasen, J., Skovgaard, A.M., Andersen, A.M.N., Sømshovd, M.J. and Obel, C., 2013. A confirmatory approach to examining the factor structure of the Strengths and Difficulties Questionnaire (SDQ): a large scale cohort study. *Journal of abnormal child psychology*, 41(3), pp.355-365.
- Petzer, D.J. and Van Tonder, E., 2019. Loyalty intentions and selected relationship quality constructs: The mediating effect of customer engagement. *International Journal of Quality & Reliability Management*.
- Rahi, S. and Abd Ghani, M., 2018. A structural equation modelling (SEM-AMOS) for investigating brand loyalty and customer's intention towards adoption of internet banking. *Economic and Social Development: Book of Proceedings*, pp.206-220.
- Rahman, M.K., Haque, A. and Jalil, M.A., 2014. Factors affecting customer loyalty through satisfaction towards retail marketing strategy: an exploratory investigation on Malaysian hypermarkets. *Australian Journal of Basic and Applied Sciences*, 8(7), pp.304-322.
- Rossmann, A., Stei, G. and Ranjan, K.R., 2015. *Social Media Usage in Business-to-Business Sales: Conceptualization, Antecedents, and Outcomes*. [online] [www.alexandria.unisg.ch](http://www.alexandria.unisg.ch). Available at: <https://www.alexandria.unisg.ch/id/eprint/236007> [Accessed 20 Jan. 2022].
- Ryu, K., Han, H., and Jang, S., 2010. Relationship among hedonic and utilitarian values, satisfaction and behavioral intentions in the fast-casual restaurant industry. *International Journal of Contemporary Hospitality Management*, 22(3), 416-432. DOI: 10.1108/09596111011035981.
- Saili, T., Mingli, Z. and Zhichao, C., 2012. The effects of loyalty programs on customer loyalty: The mediating role of customer value and the moderating role of relationship benefits. *African Journal of Business Management*, 6(11), pp.4295-4309.
- Schreiber, J. B., 2008. Core reporting practices in structural equation modelling. *Research in Social and Administrative Pharmacy*, 4(2): pp.83-97.
- Sekaran, U., 2003. *Research Methods for Business: A Skill Building Approach* (4th ed.). New.
- Shamsher, R., 2019. Investigating the Relationship between Store Environment and Store Loyalty in the Context of Supermarkets of Bangladesh. *CIU Journal*, 2(1), pp.67- 86.

- Shankar, A. and Jebarajakirthy, C., 2019. The influence of e-banking service quality on customer loyalty. *International Journal of Bank Marketing*, 37(5), pp.1119–1142.
- Shareef, M.A., Mukerji, B., Dwivedi, Y.K., Rana, N.P. and Islam, R., 2019. Social media marketing: Comparative effect of advertisement sources. *Journal of Retailing and Consumer Services*, [online] 46(1), pp.58–69. Available at: <https://www.sciencedirect.com/science/article/pii/S096969891730591X>. [Accessed 19 Jan. 2022].
- Shwapno., 2020. Shwapno phone e phone Bazar e-leaflet. [Online]. 02<sup>nd</sup> Jun. Available from: [https://www.facebook.com/Shwapno.ACILL/posts/2973494996038549?comment\\_id=2978403312214384](https://www.facebook.com/Shwapno.ACILL/posts/2973494996038549?comment_id=2978403312214384). [Accessed 30 Jan 2022].
- Slack, N., Singh, G. and Sharma, S., 2020. Impact of perceived value on the satisfaction of supermarket customers: developing country perspective. *International Journal of Retail & Distribution Management*.
- Sprott, R.A., 2019. Factors that foster and deter advanced teachers' professional development. *Teaching and Teacher Education*, vol 77, pp.321–331.
- Sun, J., 2005. Assessing goodness of fit in confirmatory factor analysis. *Measurement and evaluation in counselling and development*, 37(4), pp.240-256.
- Tavakol, M. and Dennick, R., 2011. Making sense of Cronbach's alpha. *International journal of medical education*, 2, pp.53.
- The Amader Somoy., 2020. Shwapno is beside the farmers of Lalmonirhat. [Online]. The Amader Somoy, 06<sup>th</sup> Dec. Available from: <https://www.dainikamadershomoy.com/post/289867>. [Accessed 30 Jan 2022].
- The Daily Star., 2020. Shawpno launches 'Shebapack'. 23<sup>rd</sup> Apr. Available from: <https://www.thedailystar.net/super-shop-shwapno-launches-shebapack-1895989>. [Accessed 30 Jan 2022].
- Thuy Tran, L.T., 2021. Managing the effectiveness of e-commerce platforms in a pandemic. *Journal of Retailing and Consumer Services*, [online] 58, pp.102287. Available at: <https://www.sciencedirect.com/science/article/pii/S0969698920312959>. [Accessed 11 Nov 2021].



- Yong, A.G. and Pearce, S., 2013. A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in quantitative methods for psychology*, 9(2), pp.79-94.
- Yusof, J. M., Musa, R., and Rahman, S. A., 2012. The effects of green image of retailers on shopping value and store loyalty. *Procedia-Social and Behavioral Sciences*, 50, 710-721. DOI: 10.1016/j.sbspro.2012.08.074.
- Zhang, R., Liu, Y., He, M., Su, Y., Zhao, X., Elimelech, M., and Jiang, Z., 2016. Antifouling membranes for sustainable water purification: strategies and mechanisms. *Chemical Society Reviews*, [online] 45(21), pp.5888–5924. Available at: <https://pubs.rsc.org/en/content/articlelanding/2016/cs/c5cs00579e#>. [Accessed 11 Dec 2021].