



**Daffodil**  
*International*  
**University**

Thesis Paper On

**The Impact of Coronavirus (Covid-19) on Facebook commerce (F-commerce) in  
Bangladesh**

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## Letter of Transmittal

January 14, 2021

**To:** Mr. Samsul Alam

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**Subject:** Submission of thesis report as alternative to internship.

Dear Sir,

I am very glad to submit you my internship report which is a thesis on “The Impact of Coronavirus (Covid-19) on Facebook commerce (F-commerce) in Bangladesh.” I collected data and finally analyzed the information to have this thesis to place before you for approval. In completing this, I have tried my best to impart every available detail of the topic avoiding unnecessary amplification of the report. I wish your kind hearty consideration if there is any deviation in my report. I want to thank you for your friendly coordination to prepare my internship report successfully.

Therefore, I pray and hope that my report will satisfy you and be approved by the examination committee.

Sincerely Yours

-----

**MD. Minhajur Rahman**

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## Letter of approval

This is certifying that MD. Minhajur Rahman ID: 171-11-413 BBA (Management information system), is a regular student of the Department of Business Administration, Faculty of Business and Entrepreneurship, Daffodil International University. He has successfully prepared a thesis Paper under my direct supervision. His assigned topic is “The Impact of Coronavirus (Covid-19) on Facebook commerce (F-commerce) in Bangladesh”. The data and findings presented in this thesis paper seem to be authentic. Thus, it has been accepted for presentation in the defense and worthy of fulfilling the partial requirements of the BBA program.

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**Senior lecturer Mr. Samsul Alam**

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Thanks to Daffodil international university for publishing this paper to their DSpace Repository.

## **Dedication**

First of all, I am very grateful to the Almighty for sparing my life and seeing me through my years of education. I dedicate this work to Almighty Allah. His Grace and Mercy has brought me this far and I am proud and grateful.

I would like to also dedicate this work to my family. They support me in every way they could. With Allah's wills, they support financially and mentally for my education. Special gratitude to them.

## Abstract

Facebook commerce (F-commerce) is emerging towards a crowded business in Bangladesh. Many young people men and women at the age of 20-28 are now in this industry. The covid-19 situation forces people to buy more from online market because of the safety issue. People are getting more tend to buy from an online store. This study's objective is to explore the impact of the covid-19 on f-commerce particularly in Bangladesh. It uses purposive sampling of the non-probability sampling method and Likert five-point scale for determining and the measurement of the independent variables which are coronavirus awareness, consumer behavior and purchase intention. This paper confirms that along with consumer behavior and purchase intention, Covid-19 awareness also has a positive influence on f-commerce. The survey has other quaternary items that also indicates some assumptions that reflect f-commerce consumer's behaviors. In the end, research recommends some facts like improve trust issue and use home delivery for f-commerce business in Bangladesh. The research findings can contribute to the new entrepreneurs as well as those who already have a business on f-commerce like administrators, advertisers, dealers, promoters, and also government and private investors.

*Keywords:* f-commerce, covid-19 impact, Bangladesh, e-commerce, e-business

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### List of Abbreviations

Abbreviations	Short form
Facebook commerce	F-commerce
Electronic commerce	E-commerce
State-owned enterprises	SOE
e-Commerce Association of Bangladesh	e-cab
Coronavirus awareness	CA
Purchase intention	PI
Technology acceptance model	TAM
Information and communications technology	ICT
Big Five Model	BFM
Structural equation modeling	SEM
Partial least squares	PLS
Consumer behavior	CB
Average variance extracted	AVE
Composite reliability	CR



Business to business	B2B
Business to consumer	B2C
Consumer to consumer	C2C
Business to government	B2G
Severe acute respiratory syndrome coronavirus	SARS-COV
Middle east respiratory syndrome coronavirus	MERS-COV
Cash-on-delivery	COD
Mobile Finance Service	MFS

## CHAPTER ONE: INTRODUCTION

### 1.1 Background of the Study

Facebook was launched on February 4, 2004, by Mark Zuckerberg and his Harvard College roommates. It is a social media website. Social networking has been shaped as a means of multiple services and applications for both personal users and businesses (S. L. Lai & Turban, 2008). According to the Statista website, Facebook is the most popular social network worldwide as of October 2020, ranked by the number of active users (Social Media & User-Generated Content, 2020). The term Facebook commerce (F-Commerce) is coming from by combining electronic commerce (E-commerce) and “Facebook”. It is a “form of ‘social commerce’ that aims to create a platform to carry out buying and selling along with promotional and branding activities via Facebook” ( Zabeen, Ara, & Sarwar, 2013). Social media have been changing the way of relationships that are establishing in today’s society (Zhang, Lu, Gupta, & Zhao, 2014), not only that, the interactions between companies and their customers (Zhang & Benyoucef, 2016). Social relationships also arbitrate customer behavior (Liang, Ho, Li, & Turban, 2011) as the term of online purchasing is generally accepted as a social exchange relationship for the most part. Most of the Facebook users are mobile-user-only. People trust so much for this social website that they use this website’s account to log in to another website or app and interact with that website. It accounts for 62% of social logins made by consumers to sign into the apps and websites of publishers and brands (Smith, 2019). Besides that, people use Facebook for their business. There are over 60 million active business pages and over 2 billion people can be reached through Facebook ads but only 6 million of those businesses pay to be ‘active advertisers’ (Smith, 2019). So, many people do their business without any paid advertisement and no investment in engaging with their customers. Although 75% of brands pay to promote posts (Smith, 2019). Most of them are spent on mobile advertising.

Day by day E-commerce is a growing business in developing countries like Bangladesh although she is way behind in comparison to her neighbor countries in south-Asia (Iqbal, 2012). Alike, India started its e-commerce journey long before Bangladesh had (Bhatnagar, 1997). However, nowadays the Bangladesh government has been appropriating policies and strategies to facilitate internet-related communication, e-commerce operation (Azam, 2015). They should simplify a friendly policy of e-commerce (Nessa Moon, Sultana, Narin Nur, & Saifuzzaman, 2017). Besides the government, organizations like the e-Commerce Association of Bangladesh

(e-cab) are trying to develop the Bangladeshi e-Commerce sector. If the government and private sector can develop the e-commerce sector, it will create “a country profile along with development prospects that can be useful to other developing countries and global e-commerce players” (Travica, Jošanov, Kajan, Vidas Bubanja, & Vuksanovigc, 2007). The impact of e-commerce technology increases the economy of developing countries (Ohidujjaman, Mahmudul, & Mohammad, 2013). This may be the potential of all segments such as business to business (B2B), business to customer (B2C), customer to customer (C2C), business to government (B2G) and the impact on cyber business processes and growth probably be large (Mannan, 2015). Those who “trying a new as solely in an e-commerce, partially, due to the latter’s comparatively less investment intensive nature” are nowadays successful in this field (Mandl & Celikel-Esse, 2012). As Bangladeshi entrepreneurs having financial problems in investing money in making an e-commerce website, thus they look forward to f-commerce. F-commerce is going to a new evolution business in Bangladesh. It is a part of E-commerce. It has “direct access to a wide community of customers that express their needs and give feedback” (Dewan, Dewan, & Nazmin, 2007). It is a great potential growing business in Bangladesh as Rakesh Kumar said, “F-commerce can reduce the unemployment rate as it is very easy to start as marketing as well as other cost is very lower” (Datta, 2020). Following table highlights the internet users, population along with GDP in Bangladesh that displays how far e-commerce industry have come.

*Table 1: Indicators for internet growth in Bangladesh*

Year	User	Population	percentage of users by population	GDP P.C.*
2009	556,000	156,050,883	0.4 %	US\$ 574
2010	<b>617,300</b>	158,065,841	0.4 %	US\$ 624
2011	5,501,609	158,570,535	3.5 %	US\$ 700
2012	8,054,190	161,083,804	5.0 %	US\$ 700
2015	53,941,000	168,957,745	31.9 %	US\$ 1,080
2020	<b>99,984,000</b>	164,689,383	60.7 %	US\$ 1,698

Note: Per Capita GDP in US dollars (P.C)

Source: International Monetary Fund, (Bangladesh Internet usage, broadband and telecommunications reports, 2020)

Table 1 shows in 2020, the internet users are 99,984,000 and if we look 10 years back, the internet users were 617,300 only. In 10 years, more than 9 crore users which is a 60.7% increased. This information tells us how fast the internet and related technology to the internet are covering the whole country. Education, income, and knowledge in English play a key role, in terms of its acquisition as a reason for internet use in countries like Bangladesh, Nepal, and Sri Lanka (Zhou, Singh, & P.D. Kaushik, 2011). Although many things are responsible for GDP's growing but the internet-based industry is one of the main reasons behind it.

Table 2 shows the total number of internet subscribers has reached **110.561** million at the end of November 2020.

*Table 2: Number of Internet Subscribers in Bangladesh*

<b>OPERATOR</b>	<b>SUBSCRIBER (MILLION)</b>
Mobile Internet	101.905
ISP + PSTN	8.656
<b>Total</b>	<b>110.561</b>

\* Internet subscriber means subscribers/subscriptions who have accessed the internet at least once in the preceding 90 days.

Source: (Bangladesh Telecommunication Regulatory Commission (BTRC), 2020)

110.561 million internet subscribers are quite significant for a country like Bangladesh. This state is to the popularity of internet usage among average people. There are “Several private banks (Dutch Bangla Ltd, Islamic Bank Ltd, Trust Bank Ltd and Others) introduced mobile banking and among them, the BRAC Bank-initiated mobile banking service (Bkash) is at present the country's leading service-provider in mobile banking” (Uddin, Das, & Barua, 2014). People are using these services to buy products from f-commerce and e-commerce websites although they prefer cash on delivery most. According to NapoleonCat, there are more than 3 crore Facebook users in Bangladesh in march 2020, which accounted for 22.1% of its entire population (Facebook users in Bangladesh, 2020). Table 3 shows, top 10 highest fan pages of e-commerce brands in Bangladesh.

*Table 3: Facebook Pages Stats in Bangladesh*

<b>Page names</b>	<b>Total fans</b>
rokomari.com	2 253 473

Apex	1 979 453
Evaly.com.bd	1 563 838
Othoba.com	1 336 541
BanglaShoppers	1 195 697
Bagdoom.com	1 124 291
Pickaboo.com	1 049 776
Global Brand Pvt Ltd	962 415
Kiksha	960 713
Jadroo.com	889 913

Source: (Facebook stats in Bangladesh - Ecommerce, 2020)

Bangladesh top 3 pages of Facebook sell various products, for example, rokomari.com sell books, Apex sell shoes, Evaly.com.bd sell various electric device and motorbike. Thus, this states that various types of products are selling in the f-commerce industry in Bangladesh. There are many pages alike above that have lots of fans and they sell their products through this. In Facebook, sales can be occurring anywhere. Like posting from a personal profile, business profile, groups, messenger et cetera. Many Facebook sales groups in Bangladesh are generating sales for thousands of Bangladeshi entrepreneurs. Many women are coming for f-commerce business. There are thousands of women doing business by various Facebook groups for example, “Women and e-Commerce forum” (more than 1 million members). A study (Hossain, 2018) found nowadays women are becoming more interested in establishing their own online business in Bangladesh.

## 1.2 Statement of the Problem

The world cannot come out of the Corona Virus (Covid-19) crisis unscathed. It has impacted almost all aspects of the dimension. It impacted on world’s economy, health, environment, politics, business, technology, consumer behavior et cetera. It shifting the business model. Soon, organizations have to look for “digital replacements or identify ways of delivering their products and service with minimal physical contact and safely” (Seetharaman, 2020). Covid-19 impact negatively in most of the aspect but there is some positive impact too (A. Okyere, Forson, & Essel-Gaisey, 2020). In Japan before the pandemic, people those were using both offline and online market are switched to only online market because of the covid-19 (Watanabe & Omori, 2020). So, it pushes us to use more technology and create more efficient technology. Develop countries can easily handle it because they have a good infrastructure of technology. But developing countries and poor countries face many problems to use technology

because of poor infrastructure. For example, in Bangladesh, many village areas are not covered with a 3G network (Chaklader, Alam, Islam, & Sabbir, 2013). Lack of network infrastructure issues is one of the reasons that state-owned enterprises (SOE) are not adopting or using information and communications technology (ICT) tools in Bangladesh (Dewan, Dewan, & Nazmin, 2008).

Covid-19 situation force government to use virtual Court (Virtual court functions challenged, 2020), university students are attending online classes, school and college students are attending classes via national television and there are many steps that government had to take due to this situation (unicef Bangladesh, 2020).The entire world is now maintaining social distance. A fact like this arising a question that despites all problems, would Bangladeshi consumer's adaptation increase for e-business especially Facebook commerce due to this pandemic? Would it be a permanent impact on consumer behavior? How would f-commerce vendor deal with this situation and run their business?

### **1.3 Research Objectives**

#### ***1.3.1 General Objective***

There are many studies in the IT-related sector such as mobile commerce and technology adoption frameworks (Chhonkera, Vermaa, & Karb, 2017), E-waste, M-cards, E-commerce, Internet, Green IT environment, et cetera. But very few on f-commerce in Bangladesh. As the above information states that Facebook is the most common and popular social media so, researchers should work more on this field too. Covid-19 is an alarming situation. In this situation, researchers have very important roles to play. Every researcher should participate and take a look at the situation of how it's going in every aspect.

This study is to investigate the impact of covid-19 on f-commerce in Bangladesh during this pandemic situation.

#### ***1.3.2 Specific Objective***

The study has been conducted with the following specific objectives:

- To observe the impact of coronavirus awareness on f-commerce.
- To measure the impact of consumer behavior on f-commerce.
- To see the impact of purchase intention on f-commerce development.
- To find the problems associated with f-commerce in Bangladesh.
- To suggest for further improvement of f-commerce in Bangladesh.

- To help f-commerce aspirants in their way forward.

## **1.4 Research Questions**

The study has been conducted with the following research question:

- Does coronavirus awareness impact on f-commerce?
- How consumer behavior impact on f-commerce?
- What is impact of purchase intention on f-commerce development?
- What are the problems associated with f-commerce in Bangladesh?
- How f-commerce can improve in Bangladesh?

## **1.5 Scope of the Study**

### ***1.5.1 Geographical Scope***

The study was conducted in Dhaka, the capital city of Bangladesh. The area is “Facebook” which is a social platform over the internet. Users of the social platform are from all over the country.

### ***1.5.2 Time Scope***

The study was conducted for a period of four months started from October 2019 to January 2021.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Related Study**

E-commerce started to be grab by small and medium-sized enterprises (SMEs) in South-Asian developing countries in 2004 (H. Seyal, Awais, Shamail, & Abbas, 2004). Bangladesh started her journey a few years from now and after that “the trend of growing the internet subscriber is increasing rapidly which indicates the people’s interest in the internet and related technology” including f-commerce (Hossin, Sarker, Xiaohua, & Frimpong, 2018). The government of Bangladesh is trying to improve this industry more. A study confirmed some factors that can be used to improve the e-commerce business in Bangladesh (Bosu, et al., 2019). Also, Jamil proposes some success factors that can be used in e-commerce in Bangladesh (Jamil & Ahmad, 2009). A research paper shows that the top popular online shopping site in Bangladesh is facebook.com (Rahman S. M., 2015). Bangladeshi people prefer Cash-on-delivery (COD) for payment in online business but slowly Mobile Finance Service (MFS) users are growing in this country because “MFS users do feel it is easier to use when it comes to

paying for online shopping” (Chowdhury, Hossain, Habib, & Yue, 2019). Social image, subjective norms, and usefulness determine the intention of the adoption of F-commerce (Cabanillas & Dos Santos, 2017). In Facebook “the more experienced the consumers, the more he or she will actually purchase” from here (Jaafar, Leong, & Ainin, 2017). Trust, perceived value, and electronic word-of-mouth influence usage intentions of f-commerce (Dos-Santos, Jiménez, & Trujillo, 2019). An interesting fact that in a social media like Facebook-Instagram, people often shop here instantly and enjoyment has a particularly strong impact on the intention to use this kind of social media (Brusch & Rappel, 2020) also followed by the direct effect of perceived usefulness, the indirect effect of content quality, and social presence (Dri Handarkho, 2020). A study shows online social shopping intention in Facebook commerce was affected by the user’s personality traits, psychographic characteristics, and gratifications. According to the study, users who were market mavens and social browsers were likely to use online social shopping to socialize and intended to engage in online social shopping and those who were value-conscious and social browsers were likely to use online social shopping for information-seeking and intended to engage in online social shopping (M. Kang & K.P. Johnson, 2015).

## **2.2 Related Model**

There was some study that evaluated purchase behavior factors on E-commerce (Shareef, et al., 2018), social commerce (Bai, Yao, & Dou, 2015), And also on f-commerce (Jaafar, Leong, & Ainin, 2017). A model like the Technology Acceptance Model (TAM) is used to determine the intention to use e-commerce in Bangladesh (Islam, Hoque, & Sorwar, 2016). Zhang, Zhu, and Liu (2012) also supports this model by conducting a meta-analysis for adaption of mobile commerce which results, “TAM is valid in mobile commerce adoption research”.

In the C2C business of f-commerce in Bangladesh, argument quality, tie strength, source credibility, product usefulness evaluation has a positive impact on purchase decision (Haque, et al., 2018). F-commerce advertising related study found that young people bought “the product of e-commerce on Facebook because they trusted that Facebook would choose a reliable e-commerce to advertise and the products of F-commerce are original ones, e.g. Lazada” (Siregar, 2018). (Hoque, et al., 2020) proposed a conceptual model for evaluating customer behaviors purchasing through Facebook with various variables and (Shawon, Hasan, Nayeem, & Uddin, 2018) study was through online shopping. A study was test Big Five Model (BFM) for antecedents of impulse purchase in f-commerce and also urge to purchase and urgency (SULAIMAN, Jaafar, & Leong, 2017).



### **2.3 Research Gap**

None of the studies identified covid-19 as a variable or constant in their model, hypothesis, or research frame for consumer behaviors effect of f-commerce.

However, there was some post-covid-19 study that works on consumer stockpile behavior consumption for online grocery during the covid-19 crisis and “first attempt in providing empirical evidence for how e-commerce impact food purchasing behavior” (Hao, Wang, & Zhou, 2020). Regarding online food purchasing behavior, the research found “that the share of confirmed COVID-19 cases increases the possibility of consumers purchasing food online” (Gao, Shi, Guo, & Liu, 2020). But this does not mean it will be the same for all the products of online business or f-commerce.

## **CHAPTER THREE: CONCEPTUAL FRAMEWORK**

The researcher mainly follows (Hasanat, et al., 2020) conceptual framework in his paper. But adding one more independent variable call purchase intention and instead of E-business being the dependent variable, F-commerce replaced. Thus, this thesis consists of 3 independent variables and one dependable variable. It anticipated that all three independent variables influence dependable variable.

### **3.1 Coronavirus Awareness**

In the year 2003, a virus called Severe Acute Respiratory Syndrome coronavirus (SARS-COV) was spread by the bat in Guangdong, China. The virus infected more than 8000 people and 776 were dead. A decade later (2012), another virus called Middle East Respiratory Syndrome Coronavirus (MERS-COV) was infected by Saudi Arabian nationals. This virus infected more than 2428 individuals and 838 were dead. The two-virus confirmed as a member of the Beta-coronavirus subgroup (Shereen, Khan, Kazmi, Bashir, & Siddique, 2020). Recently, in the past year (2019), a huge outbreak happens with this coronavirus and it’s still going on by the time this paper writing. Till now, according to the “Worldometers” website, more than 4 crores have been identified and more than a million people died in 217 nations. Although 31 million are recovered it does not ignore the fact that the virus affects the whole world (COVID-19 Coronavirus Pandemic, 2020). People are now aware of it and it’s changing people’s behaviors also the way of living.

Coronavirus awareness is identified as an independent variable because it influences the entire environment of a nation. Only one questionnaire item for this variable is made for gathering the appropriate information on the impact of covid-19 on f-commerce as covid-19 is new in the field of research. From the above discussion, the following hypothesis is developed.

### **Hypothesis 1: CA has positive impact on FC**

#### **3.2 Consumer Behavior**

“Online consumer Behavior” refer in this paper as Consumer behavior (CB) because f-commerce is a part of online business. It is getting an interesting area nowadays and, “became a contemporary research area for an increasing number of researchers to understand this unique nature of online shopping” (Rahman, Islam, Esha, Sultana, & Chakravorty, 2018). Thus, CB is considered as an independent variable because according to (Hasanat, et al., 2020), in this pandemic, consumers will take necessary precautions and act accordingly.

Questionnaire variables of items for consumer behavior collected from the International Journal of Commerce and Management Research ( Gurav & Patil, 2016). From the above discussion, the following hypothesis is developed.

### **Hypothesis 2: CB has positive impact on FC**

#### **3.3 Purchase Intention**

Purchase intention means one’s intention to buy a product from somewhere or shop. In our case it’s Facebook. The term “intention” is demarcated as the experiences that inspire and drive consumers’ purchases of products and services (Hawkins & Mothersbaugh, 2010). KimDawn and Pysarchik (2000) state that purchase intention serves as an alternate for measuring consumer’s purchase behavior. There are also recognized theories like the theory of reasoned action (TRA) (Haque, et al., 2015). Azjen (1991) also supported this theory and mentioned that intention is the factor that motivates consumers and in turn influences their behavior.

Purchase intention identified as an independent variable. Questionnaire items for this variable collected from the journal of Information Technology & People (Shareef, et al., 2018). From the above discussion, the following hypothesis is developed.

### **Hypothesis 3: PI has positive impact on FC**

The Following conceptual framework was developed from the above discussion.

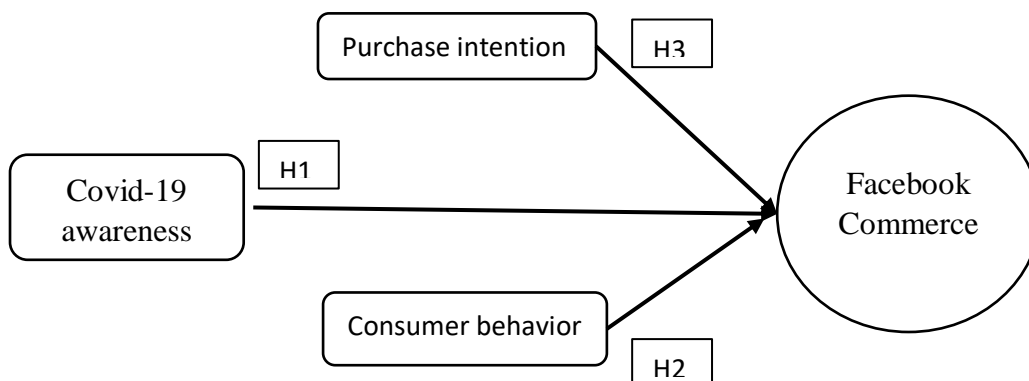


Figure 1: Conceptual Framework

The following table shows questionnaire items that used in this paper for measurement purpose of the variables.

Table 4: Variable, items and their sources

Variable	Items	Source
Purchase intention (PI1)	I would like to purchase from F-commerce.	(Shareef, et al., 2018)
Purchase intention (PI2)	I am satisfied with the purchase from F-commerce.	(Shareef, et al., 2018)
Purchase intention (PI3)	I will continue purchasing from F-commerce in future.	(Shareef, et al., 2018)
Covid-19 Awareness (CA)	I am aware about the effect of the Covid-19.	
Considering health (FC1)	I am purchasing more from F-commerce considering health condition due to covid-19	(Hao, Wang, & Zhou, 2020)
Usage of Facebook (FC2)	I have been using Facebook more since Covid-19 pandemic.	
Cost saving (CB1)	Purchasing from f-commerce is cost saving	( Gurav & Patil, 2016)
Time saving (CB2)	Purchasing from f-commerce is time saving	( Gurav & Patil, 2016)
Easy way of payment (CB3)	F-commerce has easy way of payment	( Gurav & Patil, 2016)
Online offers (CB4)	F-commerce give offers or discounts regarding Covid-19	( Gurav & Patil, 2016)

Note: PI = Purchase intention, CA = Coronavirus awareness, FC= F-commerce, CB= Consumer behavior.

## CHAPTER FOUR: METHODOLOGY

### 4.1 Sampling Design

Because of the covid-19, social distance is needed for the survey, and only those who use Facebook regularly can contribute to the research. So, this study use “Google form” as a survey collection service which was only distrusted on Facebook. This research follows the purposive

sampling procedure of the non-probability sampling method. Likert five-point scale ranging from "strongly agree" to "strongly disagree" has been used in the survey to determine and study independent variables. The questionnaire items provided in both English and local language to ensure responders understanding of the items. Some survey items also determine the population's opinions on the matter (discussed in a later chapter).

## **4.2 Research Procedure**

The research follows both quantitative and qualitative methods which is known as the mixed method. Demographic variables such as age, gender, occupation result collected from "Google form survey" which is the survey service for this research. To evaluate and check the proposed theoretical model, the Structural Equation Modeling (SEM) method tested along with a Partial Least Squares (PLS) software analysis used in this study. Because SEM is a path modeling approach to test and validate a conceptual research model and the assumed relationships among the theories of that model (Weiß, 2007). It is broadly accepted for measuring the validity of theories with pragmatic data (Gotz, Liehr-Gobbers, & Krafft, 2010) and general in social science and information systems research (Williams, Rana, & Dwivedi, 2015). The main reason to approach the PLS in this research is related to its demonstrated statistical power capacity when testing with small-sized samples (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). The researcher also uses the bootstrapping technique for checking the significance of the coefficients previously assessed through the PLS analysis software (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). This research used the two-stage methodology to perform data analysis (Anderson & Gerbing, 1988). First, composite reliability and discriminant validity was verified based on the measurement model, whereas in the second stage, the hypotheses and structural model tested.

## **4.3 Demographic Variables**

### ***4.3.1 Data screening***

To start our data analysis, it is better to data screening before performing data analysis (Pallant, 2005). The raw data was checked for missing data or any biased data before processed. All the dataset associated glitches were revised before statistical analysis because better data preparation leads to better estimate (Tabachnick, 2013).

### ***4.3.2 Demographic information***

Table 5 shows all the demographic information about our population such as gender, age, divisions, occupations, educational qualification. There were 67.4 % or in number 112 of the respondents are male and rest 32.6% are female in our population. In Bangladesh, there are

71.6% men on Facebook (Facebook users in Bangladesh, 2020), thus this is backing our data. 86.2% or in number 156 of the respondents came from the age of 20-24 years. The second highlighted group was 25-29 with a percentage of 9.4%. There were 3.9% of 15-19 age group of peoples which consider as a teenager. Only one respondent was above 40 and the rest were 0. So, it indicates that the maximum survey participants were young and which is also favorable data because, people aged 18 to 24 are the largest user group on Facebook (Facebook users in Bangladesh, 2020). 81 or 44.8% of participants were from Dhaka city which is the capital of this country. Rest were from various divisions (which is kind of region), no responders from Sylhet division. It is good for the research that our population represents almost all over the country. Near 89% were students and mostly (52.5%) completed Higher Secondary School Certificate (HSC) and 39.8% were graduated. 7.2% were jobholders and the rest were business persons or not employed.

*Table 5: Demographic Information of Respondents*

Characteristics		Frequency	Percentage
Gender	Male	112	67.4%
	Female	59	32.6%
Age	10-14	0	0%
	15-19	7	3.9%
	20-24	156	86.2%
	25-29	17	9.4%
	30-34	0	0
	35-39	0	0
	above 40	1	0.6%
Divisions	Dhaka Division	81	44.8%
	Barisal Division	3	1.7%
	Chittagong Division	17	9.4%
	Rangpur Division	57	31.5%
	Khulna Division	4	2.2%
	Mymensingh Division	6	3.3%
	Rajshahi Division	13	7.2%
	Sylhet Division	0	0%
Occupation	Not employed	3	1.7%

	Student	161	89%
	Job holder	13	7.2%
	Business person	4	2.2%
Educational qualification	Primary level	0	0%
	JSC	0	0%
	SSC	3	1.7%
	HSC	95	52.5%
	Diploma	4	2.2%
	Graduate	72	39.8%
	Post graduate	5	2.8%
	PhD	1	0.6%
	Post Doc	1	0.6%

## CHAPTER FIVE: DATA ANALYSIS AND RESULTS

### 5. Measurement model

Hair Jr, Sarstedt, Hopkins, and Kuppelwieser (2014) suggested that a researcher must test the outer model after the research model was formed thus below evaluating the outer model by measuring the average variance extracted (AVE), composite reliability (CR), and discriminate validity. Both reliability and validity of the variables tested to confirm the correctness of measurement items. Internal reliability is used to test the consistency of outcomes across measurement items on similar tests and Litwin (1995) suggested calculating and testing the internal reliability of items even if the study is using well-established measurement items of previous successful studies.

#### 5.1 Composite reliability

At first, utilization of the CR to measure the reliability of the variable. The values of AVE are more than the proposed threshold of 0.50 (Chiu, Wang, Fang, & Huang, 2012) and composite reliability should be greater than 0.70 to confirm acceptable reliability (Hair Jr, M. Hult, M. Ringle, & Sarstedt, 2013), (Barclay & Thompson, 1995). Table 6 shows the values are recommended according to the literature. Thus, the data are reliable.

*Table 6: Composite Reliability and AVE*

	CR	AVE
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<b>CA</b>	<b>1.000</b>	<b>1.000</b>
<b>CB</b>	<b>0.824</b>	<b>0.539</b>
<b>FC</b>	<b>0.741</b>	<b>0.593</b>
<b>PI</b>	<b>0.946</b>	<b>0.855</b>

### 5.2 Discriminant validity

Discriminant validity is the valuation of the scope to which different hypotheses are suggestively different from one another (Barclay & Thompson, 1995). Alternatively, we can say that it determines the uniqueness of a theory related to a specific concept. To evaluate discriminant validity in PLS, Fornell and F. Larcker, (1981) advised criterion for this analysis is that, correlations between the dimensions are lower than the square root of the AVE.

*Table 7: Discriminant Validity*

	<b>CA</b>	<b>CB</b>	<b>FC</b>	<b>PI</b>
<b>CA</b>	<b>1.000</b>			
<b>CB</b>	0.093	<b>0.734</b>		
<b>FC</b>	0.226	0.459	<b>0.770</b>	
<b>PI</b>	0.140	0.547	0.576	<b>0.924</b>

Result shows in Table 7, all of our constructs are discriminant as the values of the diagonal are higher than the inside value.

### 5.3 Structural model

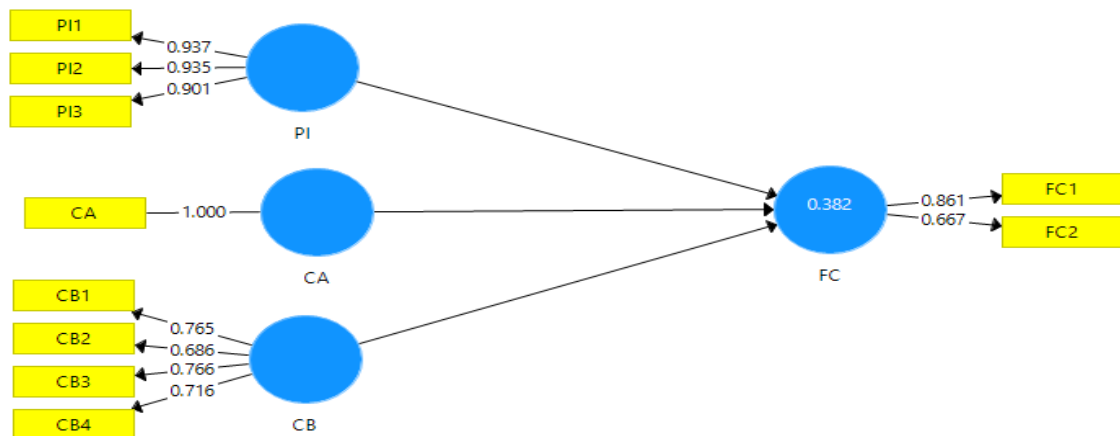
Satisfying discriminant validity is the requirement to develop accurateness in the assessment of the structural model (Santosa, Wei, & Chan, 2005). The structural model contains the relationship among the hypotheses in a research framework and it is used to evaluate the degree and level of the relationships between exogenous and endogenous variables. Explicitly, using the PLS technique, the created structural model valued the required path coefficient ( $\beta$ ),  $t$ -statistics of each path, and the  $R$ -square of the model to test the relationships hypothesized. Beta coefficients ( $\beta$ ) and  $t$ -statistics are estimated using the bootstrap method (Chin, 1998).

*Table 8: Path relationship*

Hypothesis	Path	Beta value	T Values	P Values	Comments
H1	CA -> FC	0.145	2.050	<b>0.041</b>	<b>Supported</b>
H2	CB -> FC	0.202	2.262	<b>0.024</b>	<b>Supported</b>
H3	PI -> FC	0.445	5.181	<b>0.000</b>	<b>Supported</b>

and Table 8 show structural modeling assessments that display the findings of the various hypothesis tests, with each hypothesis confirmed as T value is more than 1.6 and p-value greater than 0.05. Coronavirus awareness impact on f-commerce, therefore H1 is acceptable given that ( $\beta=0.145$ ,  $t=2.050$ ,  $p < 0.041$ ). Consumer behavior also impacts on f-commerce, and therefore H2 is confirmed with ( $\beta=0.202$ ,  $t=2.262$ ,  $p < 0.024$ ), similarly purchase intention also impacts on f-commerce, and hence H3 is accepted with ( $\beta=0.445$ ,  $t=5.181$ ,  $p < 0.000$ ).

Figure 2: Result of Hypothesis Testing



According to our analysis, Covid-19 awareness is also impacting f-commerce along with Purchase intention and consumer behaviors. Usually, purchase intention and consumer behaviors influence an online business but our model shows that covid-19 awareness can also be influence an online business just like other variables.

## CHAPTER SIX: CONCLUSION



## 6.1 Survey result discussion

### 6.1.1 Qualitative Survey Statistic

Table 9 below shows, how many people in the survey buy products from f-commerce before and after the covid-19 pandemic. Before covid-19 which means a lot of time to consider, 102 people in the survey were purchase from f-commerce. But after covid-19 which is in a short period 96 people purchase from f-commerce. This state that people are attending f-commerce purchase more because of this pandemic. There could be more reason for this as f-commerce becoming Bangladeshi's favorite online market.

*Table 9: Purchases before and after Covid-19*

Characteristics		Frequency	Percentage
Before Covid-19	Purchased	102	56.4%
	Not purchased	79	43.6%
After Covid-19	Purchased	95	52.5%
	Not purchased	86	47.5%

Table 10 illustrate, how many times people in the survey, bought from f-commerce before covid-19 and after covid-19. We can see that before the covid-19 pandemic, 74 people bought products from f-commerce 1-5 times and 17 people bought 5-10, whereas, after covid-19, 65 people bought 1-5 times and 14 people 5-10 times during this pandemic. A fact that this pandemic is not even ended by the time this paper is writing, the further result can be clearer for this assumption.

*Table 10: Purchases quantity before and after Covid-19*

Characteristics		Frequency	Percentage
Before Covid-19	0 times	70	38.7%
	1-5 times	74	40.9%
	5-10 times	17	9.4%
	10-15 times	4	2.2%
	15-20 times	4	2.2%
	More than 20 times	12	6.6%
After Covid-19	0 times	86	47.5%

	1-5 times	65	35.9%
	5-10 times	14	7.7%
	10-15 times	7	3.9%
	15-20 times	4	2.2%
	More than 20 times	5	2.8%

According to the survey (see Table 11), 66.9% of the population agree that Facebook is safer than an offline grocery shop during this covid-19 pandemic, 27.1% were neutral and only 6.1% disagreed, perhaps it's because f-commerce in Bangladesh have trust issues just like Mahmud Akhter Shareef said: "many consumers refrain from online buying only due to absence of trust" (Shareef, et al., 2018). 73.5% of the population prefer to pay Cash on delivery from F-commerce. This assumption is similar to (Rahman, Islam, Esha, Sultana, & Chakravorty, 2018) assumption also, (Ishtiaque & Sarwar, 2016) said "The payment is almost entirely Cash-on-Delivery (COD)" because of the "perception of insecurity and low level of trust among card users". In this pandemic everyone wants to safe from their home, such thought reflects our data too, 90.6% of people in the population want Home delivery for their products.

*Table 11 : Preference of population on f-commerce activity*

Characteristics		Frequency	Percentage
Safer than an offline grocery	<b>Agree</b>	121	<b>66.9%</b>
	Neutral	49	27.1%
	Disagree	11	6.1%
Prefer payment option	<b>Cash on delivery</b>	133	<b>73.5%</b>
	Mobile banking	45	24.9%
	Debit card	2	1.1%
	Credit card	1	0.6%
Prefer delivery method	<b>Home delivery</b>	164	<b>90.6%</b>
	Courier service point	13	7.2%
	Individual Business point	4	2.2%

People in Bangladesh care about the f-commerce business thus they want to improve it in every way. Below Table 12 result shows that the highest opinion in all activity is “improvement needed”. It seems that Product quality, Trustworthiness, security, Availability of information needs to be much improvement as those appear 40+. The table also illustrates that a certain group is happy with the payment method, easy to place order and easier communication as those are 50+ “no improvement needed”.

*Table 12: Population’s opinions for f-commerce activity*

<b>Characteristics</b>		<b>Frequency</b>
Delivery service	No improvement needed	38
	Improvement needed	114
	Much improvement needed	29
Product quality	No improvement needed	19
	Improvement needed	108
	Much improvement needed	<b>54</b>
Trustworthiness	No improvement needed	22
	Improvement needed	144
	Much improvement needed	<b>45</b>
Security	No improvement needed	34
	Improvement needed	93
	Much improvement needed	<b>54</b>
Payment method	No improvement needed	<b>65</b>
	Improvement needed	92
	Much improvement needed	24
Easy to place order	No improvement needed	<b>59</b>
	Improvement needed	94
	Much improvement needed	28
Response to customer	No improvement needed	39
	Improvement needed	109
	Much improvement needed	33
Availability of information	No improvement needed	33
	Improvement needed	106
	Much improvement needed	<b>42</b>

Customer rating and review	No improvement needed	49
	Improvement needed	101
	Much improvement needed	31
Easier Communication	No improvement needed	<b>56</b>
	Improvement needed	104
	Much improvement needed	21

### ***6.1.2 Qualitative Part of the Survey***

This paper does not expose any kind of personal info of the population including name of a survey responder. The researcher includes a privacy-related structure in the subheading of the survey. Thus, none of the opinions are direct quotes to someone. Their opinions were optional but most of the people wrote their opinion about this topic. The Section described a summary of the population's opinions from the survey.

Facebook, one of the largest social networking platforms, has branched out from being a mere culture sharing hub. It is very easy to visit and choose what one needs. In this pandemic, gathering in public places is risky. So, some people saying rather they purchase from Facebook. Thus, Small businesses and entrepreneurs are currently using Facebook to promote, advertise, and sell products, and also reach their preferred customers.

The first month of the lockdown was very puzzling for online businesses as they were not sure whether the logistics delivery provider was safe. As a result, many of the F-commerce businesses halted their sales. Gradually logistics delivery providers such as "E-courier" and "Pathao Parcel" developed a new model of delivery that minimizes human contact and ensures that the delivery persons are equipped with masks while making the delivery.

Covid-19 makes f-commerce a very important platform. Some are saying the most improvement needed in f-commerce is Trustworthiness and security and some are arguing with product quality. There are some group of frauds that giving the wrong product or low quality or even not delivering the products to the customers. After the covid-19 situation started, because of increasing customers of F-commerce, these groups are also increasing more. The government should take responsibility for this kind of event and give customers protection.

Few people complained about images of products being edit and doesn't match their expectation when they got the real product, it dissatisfied them. People suggesting to improve the seller's loyalty to order for wining customers satisfaction. Nowadays people are depending on online-shop so, if f-commerce sellers provide their product information correctly and fast

customer response, they will get connected more. It seems interesting that some people are saying, Covid-19 impact on f-commerce is good because it makes their life easier.

## **6.2 Arising challenges and solution of F-commerce**

The challenges are based on the survey, literature review, and researcher observation.

- Poor concept of online marketing among vendors.
- Lack of trustable business and enterprise.
- Lack of ICT education and training of peoples.
- Lack of paid advertisement knowledge on Facebook.
- The high cost of internet usage.
- No proper agreement for shipping policy.
- Lack of privacy policy knowledge among vendors.
- No law of specifically for “f-commerce”.
- Cultural tradition.
- Local business and enterprise are less interested to move in.
- Not all banks are negotiable for electrical transaction
- The high cost of products/services comparing to traditional market.
- Internet coverage arena is limited.

The solutions are based on the survey, literature review, and researcher observation.

- Proper training on various modern online marketing strategy.
- Must building the trust of customers.
- Proper ICT education and training should available.
- Proper gaudiness in native language for Facebook advertising.
- BTRC and private sim companies should lower the internet cost.
- The government should give a proper policy for shipping.
- Entrepreneurs should concern about their customer’s privacy policy.
- Laws are made for E-commerce are not getting attention to f-commerce thus, the policy should be made for f-commerce Specifically.
- Existed f-commerce should marge with local business and enterprise.
- Every private or public bank should have a safe online transaction system for their customers.
- Price should be reasonable with the local market.
- Vendors should upload high quality image of products and not too much edit in product’s part.

- The government should ensure fast internet in every area of the country.
- Merchants should develop some kind of physical events so that customers can know better about their business and have faith in f-commerce.
- E-signature can be a game-changer to this industry.
- The interest of the air cargo industry in the e-commerce industry could be a way to earn lots of revenue from other countries.

### **6.3 Research limitations**

This research has several limitations. The research scope was bind by time frame. No investment for survey collection. More responses could make the result clearer. Although the survey gets responses almost all over the places but not all of them. Further research can take survey responses from all over the place. There is only one item added to coronavirus awareness constants, because of the new and limited study of the topic. Further study can better breakdown the coronavirus constant. Covid-19 pandemic has not ended, further measurement and research could be more clarified for this issue, whether the impact is temporary or permanent.

### **6.4 Recommendation**

The F-commerce future is bright for Bangladesh. Young people are coming towards this business and making lots of money. But everyone has to take responsibility for this industry. Some problems like “lack of basic automation in place, poor management skill, lack of e-commerce integration” must be addressed (Salman, 2004). Especially entrepreneurs should clear the doubt of the trustworthiness of consumers. If they focus on price, the rarity of the item and the experience of the customer are elements of trust that can be used to gain trust for this kind of e-commerce business (Nafi, Kar, Hossain, & Hashem, 2013). Also, we can use the “third-party guarantee” strategy which is well efficient in promoting consumer’s trust in china (Kaihong, 2009). The government should support rural areas for e-commerce and f-commerce business to grow. In China, e-commerce helps to increase rural villager’s income and to develop their economy (Tanga & Zhuc, 2020). The government can also initiate “electronic signatures” used for e-commerce like other countries in South-Asia namely Singapore, Thailand, Malaysia, and Vietnam have (Kim, 2019).

Bangladesh is mainly an agricultural country where the agriculture sector plays a vital role in accelerating economic growth. We can use e-commerce or f-commerce capability to market capitalizing agility and operational adjustment agility like china (Lina, Lia, Luo, & Benitez, 2020). The E-commerce industry made the Air-cargo industry a booming market as “that is

why some European carriers take strategic actions to attract more e-commerce goods” (Van Asch, Dewulf, Kupfer, Cardenas, & Van de Voorde, 2020). There is a beneficial potential for air cargo industry of this country too. They can boost local e-commerce and f-commerce. It is a win-win situation for both the E-commerce and Air-cargo industry.

Covid-19 situation accelerating this business more. Now consumers are Accustomed to online business. Most Bangladeshi people who use the internet are a user of a Facebook account and this creates an opportunity for entrepreneurs to sell their goods because during Covid-19 pandemic people are using more Social media as they can't go outside frequently. Thus, this becoming a great market for any products.

*Appendix 1: Questionnaire items*

Serial number	Questionnaire items
1	What is your gender?
2	What is your age?
3	which divisions in you live in?
4	What is your occupation?
5	What is your educational qualification?
6	Did you buy products from Facebook page or group before Covid-19 pandemic?
7	How many times did you buy before Covid-19 pandemic?
8	Did you buy products after Covid-19 pandemic from Facebook page or group?
9	How many times did you buy after Covid-19 pandemic?
10	I am purchasing more from F-commerce considering health condition due to covid-19.
11	I have been using Facebook more since Covid-19 pandemic.
12	I am aware about the effect of the Covid-19.
14	Purchasing from F-commerce is cost saving.
15	Purchasing from F-commerce is time saving.
16	F-commerce has easy way of payment.
17	F-commerce give offers or discount regarding Covid-19.
18	I would like to purchase from f-commerce.
19	I will continue purchasing from f-commerce in future.
20	I am satisfied with the purchase from F-commerce.
21	Do you agree purchase from online platform like "Facebook" is safer than an offline grocery shop during this covid-19 pandemic?
22	Which payment option do you prefer to pay for your purchase from F-commerce?
23	What delivery method do you like?
24	In which area do you think f-commerce needs more improvement for better customer satisfaction?



25	How does Covid-19 impact on f-commerce? Please write down your opinion. You can also post your suggestion for f-commerce business in Bangladesh
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