

The Effect of COVID-19 on E-Commerce and E-Learning

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Abstract: *COVID-19, or coronavirus, has had a significant effect on the countries, economies, and societies of the world. The COVID-19 outbreak and the lockdown measures have significantly influenced e-commerce and have affected individuals' daily behaviors. Many businesses have moved into e-commerce as people turn to it. Furthermore, many businesses and educational institutions have been in lockdown, and society has fully transformed to work remotely, which has had a positive impact on e-learning. This paper shows how COVID-19 has affected e-commerce and e-learning, and also states how the impact of COVID-19 has changed the buying behaviors of consumers.*

Keywords: COVID-19; Coronavirus; E-commerce; Consumer Behavior; E-learning

1. Introduction

The coronavirus pandemic, or the COVID-19 pandemic, also known as the Corona pandemic, is a currently ongoing global pandemic of coronavirus disease (COVID-19) caused by the coronavirus 2, and is associated with severe acute respiratory syndrome [1]. The disease first broke out in the Chinese city of Wuhan in early December 2019. On January 30, 2020, the World Health Organization officially declared the outbreak a public health emergency of international concern, and confirmed the outbreak's transformation into a pandemic on March 11th 2020. As of April 11, 2021, more than 135 million cases of COVID-19 were reported in more than 188 countries and territories, including more than 2,930,000 deaths, as well as the recovery of more than 77 million infected people [2]. The United States is the country most affected by the pandemic. Every country has imposed preventative measures to limit the outbreak. They follow lockdown procedures, and curfews reinforce social distancing and stay at home orders for peoples' health.

The pandemic has led to a significant effect on the country, economy, and society. However, it also has an impact on e-commerce. Turban et al. defined e-commerce, or electronic commerce, as "the process of buying, selling, or exchanging products, services, and/or information via computer networks" [3]. It involves electronic processes, including electronic client orders, electronic procurement, supply chain management, electronic learning, electronic payments, and others.

The massive spreads of the Internet and evolving technology have fueled the growth of e-commerce, and COVID-19 has significantly influenced e-commerce and has affected peoples' individual daily behaviors across the world. It has pushed consumers toward online shopping, and as a result of the lockdown producers, many people changed their buying behaviors and adopted e-commerce as the safer alternative to

shopping at brick and mortar stores (physical stores) [4]. E-commerce has many benefits, such as availability of operations (24/7) from anywhere, convenience, flexibility, and reduction in human physical interactions [4]. These benefits have motivated people to go from offline to online shopping during the pandemic.

COVID-19 also changed people's daily routines. For instance, attendance at workplaces, schools, and universities has been suspended, and remote work has been imposed, which has had a positive effect on e-learning. This paper shows how COVID-19 has affected e-commerce and e-learning, and also discusses its impact on changing the behavior of consumers to online purchases.

This paper is organized as follows: Section 1 contains an introduction to COVID-19 and e-commerce, Section 2 explains the impact of COVID-19 on e-commerce, Section 3 shows the impact of COVID-19 on the behavior of consumers, and Section 4 discusses COVID-19 and e-learning. The paper ends with the conclusion in the last section.

2. E-Commerce and COVID-19

COVID-19 has affected e-commerce around the world, as e-commerce has increased significantly during the pandemic. E-commerce has developed and flourished in many countries, such as Pakistan, Malaysia, Singapore, and Thailand. In Pakistan, online buyers were representing 3% of the whole population [5]. However, due to the pandemic, the number of buyers increased to 15%. Furthermore, COVID-19 has had a significant impact on e-retail sales, and researchers expect its sales to increase to reach \$6.5 trillion by 2023 [6].

Due to the pandemic, many businesses, in particular brick-and-mortar stores have turned to e-commerce, where special websites and/or applications were opened for them, or they

joined a third-party platform, in order to sell and continue to profit. Brick-and-click and electronic stores have successfully transitioned into online operations. They have improved their services through intense advertising, improved their sales operations and delivery, and improved their customer service to attract more consumers and increase sales. Table 1 represents the top five e-commerce retail stores during the pandemic based on their profits.

Table 1: Top e-commerce websites during the pandemic [7]

Rank	Retail website
1	Amazon.com
2	Ebay.com
3	Rakuten.co.jp
4	Samsung.com
5	Walmart.com

People’s tendency to shop electronically has increased during the pandemic, and as the World Health Organization confirmed that the coronavirus spreads directly between people and across surfaces and paper currencies, most people now prefer to shop online and use e-transactions [8].

The nature of various products has also been affected by the pandemic, and in different ways. Some products have been highly affected by the pandemic either positively or negatively [7]. Additionally, the percentage of sales increased, such as Wal-Mart’s grocery e-commerce, which increased by 74% [9]. The most purchased products during the pandemic are disposable gloves, masks, sterilizer, toilet paper, freezers, bidets, kettle bells, bread machines, paint by numbers, puzzles, pelotons, coloring books, air purifiers, treadmills, stationary bikes, yoga mats, refrigerators, exercise balls, and other exercise equipment [7]. However, the least purchased products during the pandemic are luxuries items, such as travel, which was banned, and curfews were imposed in many countries. Luxuries products such as luggage and suitcases, cameras, swimwear, bridal dresses, men’s formal dress, gym bags, etc. are the least purchased as shown in Figure 1, which depicts the most and least purchased product during the pandemic.

Moreover, the number of social media usage increased, either for work or for remote communication, and many companies were quick to update their programs, applications, and websites to connect more people. For example, Facebook introduced Messenger to connect more people and is currently competing with Zoom [7].

The increasing number of online consumers helped improve Internet services by allowing Internet providers to expand their network capacity and providing cost-effective or free data for service packs [10].

However, the pandemic has had a negative impact on the shipment of goods. China is the main production center for many companies worldwide, as most products are largely manufactured in China. Many e-commerce companies depend on China, so the closure of China in this pandemic has had a significant impact on the import and export of products and has thus had a negative impact on the growth of e-commerce [11]. Furthermore, the pandemic and the transfer from brick-and-mortar stores to e-commerce caused many companies to dismiss their workers, as e-commerce does not require a large workforce. In addition to this, price gouging became another problem faced by online consumers during the pandemic. Due to the high demand for some necessary products, such as sanitizers and facemasks, some companies raised their prices exponentially to maximize their profits [12].

3. Impact of COVID-19 on Consumer Behavior

Consumer behavior is defined as “the behavior that the consumer highlights in the search for buying or using goods, services and ideas, which he expects will satisfy his desires or needs according to his available purchasing capabilities”[13]. Customer behavior is affected by many factors, such as environmental, situational, cultural, social, and marketing factors [13]. COVID-19 has affected consumers’ lives, as well as their buying behavior. For instance, during the pandemic although the demand for some products increases, the rate of discretionary spending is expected to decrease [14].

During pandemic period, people bought more products intended for storage, and the demand increased for sterilization products. As to research conducted by Nielsen on Vietnamese consumers during March 2020 that revealed that 45% of Vietnamese consumers purchased products for storage, and 25% of purchases were conducted online [15]. The modern consumer has changed the pattern of consumption toward necessities rather than luxuries. The quarantine and lockdown measures imposed by the government in many countries have also affected the frequency of shopping, which has led to people minimizing their own shopping frequency [16].

Regarding brick-and-mortar stores, 52% of consumers avoid visiting physical stores and crowded areas [9]. In addition, 36% of consumers have avoided shopping in physical stores until they get the coronavirus vaccine [9]. For the most part, people prefer to stay at home and maintain social distancing

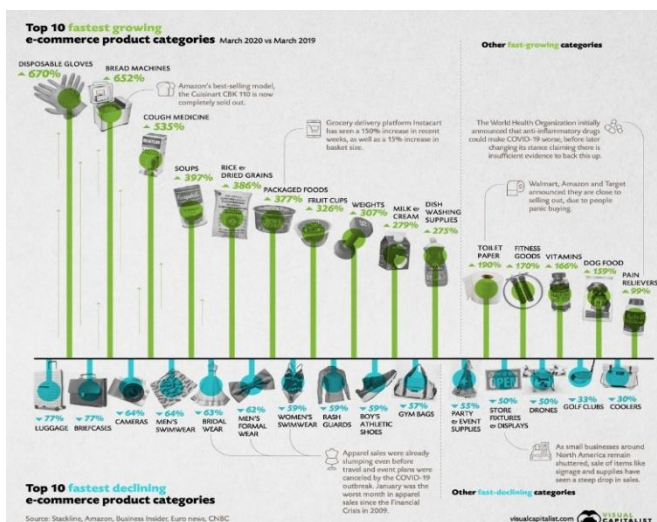


Figure 1: The most and least purchased products [6].

while buying and working online from home. Delivery services and online grocery shopping have grown rapidly, as downloads from grocery apps and delivery apps have doubled during the pandemic [17].

Since the coronavirus may be transmitted through the exchange of cash currencies, many consumers have adopted the use of electronic payment and electronic shopping as a way to obtain the goods and services they need, with the added benefit of not using paper money or exposing themselves to the risks of infection [16].

In addition, some e-commerce problems were solved during the pandemic. For example, many consumers did not know how to shop online or how to use digital devices (digital literacy). Many preferred shopping in physical stores because they did not have the desire to learn anything new, and they did not want to invest the time needed to learn how to shop online. However, the pandemic changed that, and pushed most consumers to learn and finally shop online [17]. Consumers are expected to continue shopping online due to the convenience and the time savings it provides.

One of the biggest challenges of e-commerce is that people do not trust online transactions. Some online companies encourage their customers to write reviews and provide feedback to reduce the uncertainty involved in making purchases online, and thus encourage more buyers [17]. Also, some consumers preferred physical shopping due to the lack of product information when shopping online. Many companies further improved their services by adding live chats and the ability to instantly respond to customers to provide information to online shoppers.

4. Impact of COVID-19 on E-learning

Electronic learning, or more popularly known as e-learning, is “The online delivery of information for purposes of training or education” [18]. It is a web-based system that allows for the accessibility of knowledge over the Internet, and makes use of technology to distribute, track, and manage courses anytime and anywhere [18].

The spread of technology and the ease of access to the Internet have had a great impact on many aspects of our lives. It has positively contributed to various sectors, such as education, medicine, and commerce, and many businesses now rely on remote information sharing for success. E-learning provides the skills needed to operate a business electronically, and offers tailored learning programs for students and employees. It also provides the means to collect and redeploy knowledge within an organization and assists in the effective management of knowledge.

E-learning is not just an online assisted learning tool; it is also a business tool that helps traders’ partners build stronger relationships [19]. Additionally, it has features that allow teachers and students to communicate with each other online, such as whiteboards, quizzes, assignments, live chats, polls,

discussion forums, and surveys. It can also be used for conference meetings and training. Learning management systems (LMS), Zoom, Microsoft Teams, Google Meet, Edmodo, and Moodle are examples of these systems.

Moreover, the COVID-19 pandemic has affected people’s daily lives. Many governments asked their people to stay in their homes, and thus, businesses moved to virtual workplaces where employees began to work remotely, using e-learning applications, such as Zoom. This made it easier for businesses to hold meetings and discuss work matters, which helped in the continuity of their workflow. Zoom, an online video conference software, has achieved profit growth up to 78%, and Google Meet has achieved an approximate growth of up to 60% in user traffic [17]. With this digital business transformation, businesses are becoming easier and more flexible. It is expected that flexible working hours and digital meetings will continue even after the end of the pandemic, and that they will replace the traditional workplace [17].

Education has also been affected and still by the COVID-19 pandemic, as this has led to the closure of schools and universities all over the world. Because of this, distance education and e-learning have been adopted. This tested the readiness of educational institutions for e-learning and contributed to their rapid development of the education environment and the advanced technology needed to maintain the continuity of effective education during the pandemic. From this, many organizations have become interested in the best ways to deliver educational content online.

The adoption of e-learning by the education sectors and the increasing demand for learning management systems to systematically implement and manage e-learning has led to the great growth of the learning market. The e-learning market grew exponentially in 2019, which is the beginning of pandemic, as shown in Figure 2. It is expected to grow from USD \$200 billion in 2020 to over USD \$375 billion by 2026 [20]. The worldwide e-learning market increased by 200% between 2017 and 2020.

E-learning has been showing its benefits since the fruition of the COVID-19 crisis. It has helped ensure remote learning is an effective and flexible resource, and teachers and teaching materials can easily and conveniently be accessed. Students can easily and comfortably listen to their lectures and learn [22], and it is suitable for students who are not very confident. It has also reduced the cost of travel. It eases administration and access, along with reduced time and physical resources. Online learning methods encourage students to focus during this lockdown situation, and due to its flexibility, students can learn at any time of the day and can become self-learners [22].

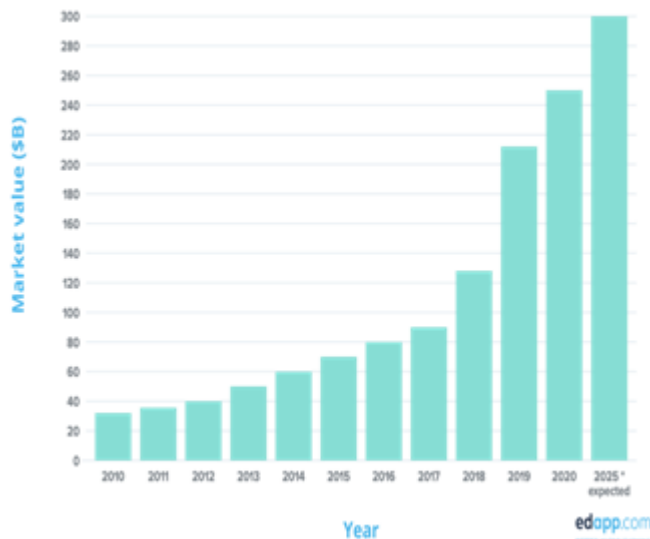


Figure 2: Rise of the e-learning market [21].

There are different limitations of e-learning, however, as it is unable to teach the practical and clinical courses that require the physical presence of the student. Furthermore, it is difficult to assess students on tests, which provides no guarantee that students will take their tests without cheating. Teachers are also unable to assess students' understanding during online learning due to a lack of immediate feedback [22]. Online learning depends on the Internet and its bandwidth, of which many users were unable to connect remotely due to Internet problems and governments and telecommunication companies should resolve this problem and expand their services across countries.

5. Conclusion

COVID-19 has had a significant impact on the world. In this paper, we were primarily interested in how the coronavirus affected the e-commerce and e-learning industries. E-commerce was enhanced by COVID-19, as it offered an alternative way for people to meet their demands in light of this crisis. COVID-19 has also had negative impacts on shipment and workforces; however, it accelerated the growth of e-commerce, as many businesses have successfully made the transition to online platforms. Additionally, COVID-19 has affected consumers' lives, as well as their buying behaviors. Many consumers have adopted the use of electronic payment and shopping methods to obtain the goods and services they need. Moreover, the pandemic forced workplace operations and education to go virtual, and many businesses and educational institutions successfully made the transition in a rather short period of time, which has had a great impact on the growth of e-learning. This trend and growth in e-commerce and e-learning is expected to continue after the end of the pandemic.

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