Analysing the Influence of UI & UX on E-Commerce Sales Through UTAUT and Correlation Analysis

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APPROVAL

This thesis titled on "**Analysing the Influence of UI & UX on E-Commerce Sales Through UTAUT and Correlation Analysis**", submitted by **Abrar Fahim (ID: 202-35-3109)** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

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I hereby declare that, this thesis titled **"Analysing the Influence of UI & UX on E-Commerce Sales Through UTAUT and Correlation Analysis"** is done by me under the supervision of Prof. Dr. Engr. A. K. M. Masum, Professor, Department of Software Engineering, Daffodil International University, towards the partial fulfilments of my work. I also state that this project has not been submitted anywhere in the partial fulfilments for any degree of this or any other University.

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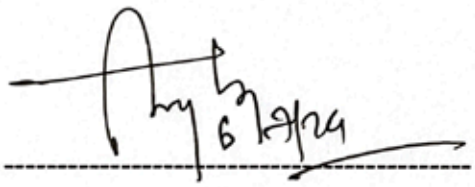

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ABSTRACT

E-commerce has transformed retail, with global sales exceeding $6 trillion in 2023. Despite this growth, cart abandonment rates remain high, suggesting that better UI/UX design could enhance customer experiences. This study investigates how UI/UX influences e-commerce sales in Bangladesh using the UTAUT model and correlation analysis. Data from 200 Bangladeshi e-commerce users was collected via a structured questionnaire based on UTAUT constructs: performance expectancy, effort expectancy, social influence, and a new factor, perceived immersiveness. Previous research has used models like UTAUT, TAM, and the Information System Success Model to study these dynamics. This study builds on that by adding perceived immersiveness to the UTAUT model and using ANCOVA to understand how demographic factors affect these relationships. The analysis found significant positive relationships between UI/UX elements and purchase intentions. Realistic product photos ($r = 0.866$, $p = 0.000$), zoom functionality ($r = 0.812$, $p = 0.000$), ease of navigation ($r = 0.350$, $p = 0.041$), website speed ($r = 0.280$, $p = 0.000$), and search capabilities ($r = 0.274$, $p = 0.000$) were the most influential factors. Additionally, ANCOVA analysis showed that age and gender moderate these relationships. Gender influences how effort expectancy and perceived immersiveness affect buying intentions, meaning features like navigation and product search impact men and women differently. Age moderates the effects of effort expectancy, social influence, and perceived immersiveness, indicating that website speed, product search, reviews, and immersive product views affect different age groups differently. This research makes several contributions. It extends the UTAUT model by including perceived immersiveness, showing its importance in e-commerce. By using ANCOVA, it offers a detailed view of how demographic factors influence the impact of UI/UX on buying intentions. These insights can help e-commerce platforms improve, potentially reducing cart abandonment and increasing sales. The implications are significant. For users, better UI/UX means a more intuitive and enjoyable shopping experience, boosting trust and purchase intent. For society, optimized e-commerce platforms can drive economic growth by reducing cart abandonment and improving market efficiency. Future research should expand the sample size, explore more UI/UX aspects, and use longitudinal studies and objective data collection methods to further validate these findings.

Keywords: E-commerce, UI/UX Design, Online shopping, UTAUT Model, Cart Abandonment, Purchase Intentions, Bangladesh, Correlation Analysis, Usability

CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

This chapter opens with the background of the study by explaining how technological advancements have created a new e-commerce landscape in Bangladesh. But despite this growth, there are still problems like the presence of high cart abandonment rates which makes the need to have a good UI/UX design even more important. This highlights the research gap and calls for a refined UTAUT model to thoroughly comprehend how UI/UX affects consumer behaviour. The chapter elaborates objectives, including primary data collection and correlation analysis, and it highlights motivations of the study, stressing societal implications with model problems. The scope is elaborated as well focusing on Bangladeshi e-commerce and it's key aspects while acknowledging it's limitations. In sum, it provides a roadmap for exploring the relation between UI/UX design and consumer behaviour.

1.2 Background of the Study

E-commerce, the rapidly growing industry which has given consumers unparalleled convenience and access, has completely reshaped retail to its core. The magnetic flip to online shopping platforms is evident with global e-commerce sales topping $6 trillion in 2023, and traditional retail falling the wayside. The proliferation of smartphones and easier access to the internet have played a part in this surge. But there is still a big problem: shopping cart abandonment remains alive and well. According to the Baymard Institute, 67% is the average cart abandonment rate in E-commerce platforms worldwide which clearly underlines how paramount it has become for UX/UI design to gain superior customer experience across all touchpoints of functionalities.

The digital marketplace itself is quite active, and UI/UX plays a significant role in moldinging consumer behavior as well as their decision to purchase. Great UI/UX design improves usability, user satisfaction, and trust building in order to stimulate online shopping. It has been programmatically discovered that an interface which is developed in an intuitive and aesthetic ways have a big influence on the psychology of the users and ultimately this can make effect

prediction for buying or not. E.g. a study by Manganari et al. Orzan et al. (2009) showed that the store atmosphere, i.e. visual attractiveness and ease of orientation on an online market place are highly influential as to how a customer is ultimately affected by behaviour support systems in e-commerce. In Bangladesh, E-commerce sector is on top of growth. Driven by the popularity of online shopping platforms, Bangladesh's e-commerce market has hit $3 billion in 2023, according to the e-Commerce Association of Bangladesh (e-CAB). Similar to the global trend, Bangladeshi e-commerce businesses experience cart abandonment as well. Rahman and Islam (2020) in their study pointed out that UI / UX can play an essential role to enhance user experience which is a key focus areas for usability of Bangladeshi e-commerce platforms.

While ecommerce continues to see consistent growth, the thriving future of e-commerce in Bangladesh depends on pleased and user-friendly experience developed by certain platforms. When consumers are becoming again to be a great discerning and lazy, and they have the habit of online shopping — the User Interface (UI) & User Experience (UX) designing of an E-commerce platform can throw major consequences on consumer behaviour as well as buying intentions.

In a time when the competition amongst platforms is heightened, it is fundamental to comprehend how both UI and UX design are impacting consumer behaviour and purchase intentions. Theoretical models along with empirical evidence can provide valuable insights for e-commerce platforms about the key predictors of consumer adoption and use which they may capitalize upon to shape their UI/UX design strategies—an important consideration given the fluid nature of digital marketplace.

This study will offer meaningful insights into the characteristics of UI and UX that appeal to Bangladeshi customers in order to adapt design strategies for e-commerce platforms where such elements are effective. Since it will help the Bangladeshi e-commerce businesses grow and also be beneficial for consumers, their quality of service increases significantly.

1.3 Problem Statement

While this is a well-known fact that the design of UI and UX impacts the behaviour of users therefore resulting in e-commerce sales generation on the other hand, when it comes to their exact impact on sales performance, nobody seemed to have a clear answer. Most of the previous works used models like SEM (Structured Equation Model), TAM (Technology Acceptance Model), ISS (Information System Success Model) UTAUT Model (Without moderating variables) etc and studies, which are not enough to understand this vague relationship between UI/UX design and sales performance that can improve with HCI. Unfortunately, information from these models and methods do not describe the fully dynamic profile of user behaviour in parallel to e-commerce platforms, leaving openings for improvements for UI/UX effects on customer retention or conversion rates.

However, existing studies suffer from methodological shortcomings such as the static nature of questionnaires and some do not even consider moderating variables like demographics which could be useful for e-commerce marketers. The problem is further compounded by the absence of newer integrative models, which could assist in real-time data and user behaviour pattern analysis leading to an unclear understanding on UI/UX design standardization for higher sales outcomes.

The thesis therefore seeks to fill existing gaps by building on a contemporary UTAUT model and improving correlation techniques with real-time primary data which should provide a more dynamic and exhaustive analysis of how UI/UX design affects sales performance on e-commerce platforms. By doing so we will gain a better understanding of user interactions, which in turn can be utilized for more effective design strategies fueling improved user satisfaction and trust with increased chances to succeed within e-commerce.

1.4 Research Question

The research question was

Q1. What is the relationship between UI/UX design factors and consumer buying behaviour in e-commerce markets?

Q2. How can correlation analysis be utilized to understand design factors and buying intention behaviour?

1.5 Research Gap

Existing literature has examined different dimensions of user experience (UX), usability in e-commerce websites and consumer behaviour, but there's lacking of inclusive study that inspects how UI, UX could influence on consumers' purchase intentions within an ecommerce website by resonating with well-founded theory.

Other works have examined a particular attribute of display or usability, using predetermined terms and criteria [1], which are less likely to account for the full array of UI/UX influences on consumer behaviour. Studies in consumer interest, trust and loyalty for e-commerce have been conducted [2][3], however they are limited by lacking a sound theoretical foundation to provide an integrative understanding of the bases and relationships between them. Existing research has relied on secondary data [4], simplistic linear relationships [5], or limited context areas [6], which may not accurately capture the complex dynamics of consumer behaviour in e-commerce environments.

The research objective of this study is to contribute in filling this gap through a comprehensive review of effect of UI/UX on users' buying intention especially in e-commerce sites using Unified Theory of Acceptance and Use of Technology (UTAUT) model as theoretical framework. Through rigorous statistical methodology, such as correlation analysis and ANCOVA examination; this study can provide insights of associations between UI/UX elements associated with consumer behavioural intentions towards finding the moderating variables.

1.6 Research Objective

Collect User Response data with UTAUT Model implied questions : This aims to gather user perceptions and behaviours about Bangladeshi e-commerce platforms in a questionnaire which will be structured based the extended Unified Theory of Acceptance and Use of Technology (UTAUT) model earlier stated through which we may target on core constructs such as performance expectancy, effort expectancy, social influence, perceived Immersiveness etc. The resulting data will be used to understand the various ways in which these factors affect consumer buying behaviour.

Conduct correlation analysis for relationships between UI/UX design factors and consumer buying behaviour : This objective focuses on examining the relationships between various UI/UX design elements and consumer buying behaviour using correlation analysis. It analyzes the data collected from the UTAUT-based survey, the study will identify the strength and direction of these relationships, which can provide a clearer understanding of how specific design or user experience features impact user buying decisions. Furthermore, ANCOVA (Analysis of Covariance) will be used for examining the moderating role of demographic variables age, experience. This will assist in understanding to what extent these variables effect the relation between UI/UX and consumer buying behaviour.

1.7 Motivation of The Study

While The relevance of UI/UX design in driving user behaviour and sales productivity is already accepted, but there lacks a consensus on its exact impact. The existing research models have their limitations in that they help explain the user adoption behaviour and not exactly how the UI/UX helps a building drive up its sales number.

Outside the business sphere, suboptimal UI/UX experiences can add fuel to greater societal concerns widening socioeconomic inequality further and broadening the digital divide. Such user frustrations when shopping online and their resulting disengagement can slow down the journey to a more inclusive society, in which everyone has equal access into the digital economy.

Motivated by these challenges, this thesis aims to address the disconnect between technological development and user experiences in e-commerce. Interestingly the UTAUT model combines

different user adoption theories to create a framework. Building on this model and conducting primary data collection, the purpose of this study is to obtain a detailed view on how UI/UX design elements affect consumer buying behaviour in e-commerce settings.

1.8 Research Scope

This thesis seeks to investigate the association of UI/UX design with ecommerce consumer buying behavior in Bangladesh. We will be gathering 200 primary data on both male and female user response via UTAUT Model to determine how different user based restrains effect. The moderating effects of demographic variables will be examined using correlation analysis and ANCOVA. The study will explore six biggest e-commerce markets of Bangladesh and offer actionable recommendations in design leading to refining the user experience, reducing shopping cart abandonment.

This thesis will focus on various UI/UX elements such as navigational simplicity, searching, visual appeal, and ease of use completion. Additionally, while demographic variables will be analyzed, the data sample will primarily reflect a specific population segment, limiting the generalizability of other contexts. The research will not involve a longitudinal study, cultural differences beyond Bangladesh aspects of UI/UX design changes. We won't perform Exploratory factor analysis as the sample size is small. There won't be any technical implementation of e-commerce sites.

1.9 Summary

In this chapter an overview of the background, problem statement, research questions, objectives, motivation, and scope of the study were elaborated. The exponential growth of the e-commerce industry in Bangladesh and the challenges it faces was also discussed, which emphasizes the importance of effective UI/UX design. It also introduced the research gap and outlined the objectives, motivations, and scope of the study, setting the foundation for exploring the UI/UX-consumer behaviour relationship.

In the next chapter, the literature review will dive into theoretical frameworks, theories related to e-commerce, an overview of user acceptance models, including the UTAUT model, and previous literature in this field.

CHAPTER 2
LETARETURE REVIEW

2.1 Introduction

This chapter will explore the theoretical framework and previous literature related to the impact of UI/UX design on consumer behaviour in e-commerce. It defines e-commerce and its various types, B2C transactions, the crucial role of UX in catching buying intentions. This chapter will also provide an overview of user adoption models, selectively the UTAUT model, which is adapted to fit the e-commerce context in Bangladesh. Additionally, it will review previous literature, highlighting studies that have examined the influence of UI/UX design on e-commerce through various methodologies and models.

2.2 Theoratical Framework

2.2.1 E-Commerce

Electronic commerce, or e-commerce, has been defined as "economic activity that occurs online," by Niranjanamurthy et al. (2013). Every kind of business activity, including retail buying, banking, investing, and renting, are all included in e-commerce.

Different types of e-commerce has been defined by Nemat (2011) as follows:

- Business-to-business (B2B)
- Business-to-consumer (B2C)
- Business-to-employee (B2E)
- Business-to-government (B2G)
- Business-to-manager (B2M)
- Consumer-to-business (C2B)
- Consumer-to-consumer (C2C)
- Government-to-business (G2B)
- government-to-citizen (G2C)
- Government-to-employee (G2E)
- Government-to-government (G2G)

● Peer-to-peer (P2P)

Our thesis focuses exclusively on business-to-consumer (B2C) e-commerce, that refers to interactions combining a business and a consumer, especially when goods or services are being bought.

2.2.2 User Experience (UX) and Buying Intention

In e-commerce user experience (UX) play an integral role in deciding the buying intent of a consumer. A well-thought-out UX improves customer satisfaction so that the purchase can be a smooth and pleasant process, which eventually results in higher return rates. Research has it that a high level of satisfaction with the UX directly translates into an improved purchase intention and increased likelihood of return visits and referral. [9]

2.2.3 Navigation Design and User Engagement

A well-designed navigation ensures a website is easy to use and the system has been through Information architecture(a structure defining framework to support usability). Quick and efficient information retrieval is far less frustrating and more engaging for the users thanks to intuitive navigation. This is directly because, the more a user interacts with the website, they are that much closer to completing a successful purchase. [10]

2.2.4 Product Presentation and Perceived Value

High-quality images, detailed descriptions and reviews all influence perceived value and trust of the product being presented. A good product presentation will help to make a difference among the customers, get them the right information to build trust in their purchase and increase product conversions. [11]

2.2.5 Overview of user adoption model

User adoption models explain and predict how new technologies are taken up by individuals within organizations. Over the years, a number of models have been used to research and develop an understanding in how technological adoption and diffusion is influenced.

There are two broad categories of user adoption models, models for evaluating the adoption of already built technologies (ex-post models) and models for evaluating the adoption of technologies that are yet to be built (ex-ante models).

2.2.6 UTAUT Model - The Unified Theory of Acceptance and Use of Technology

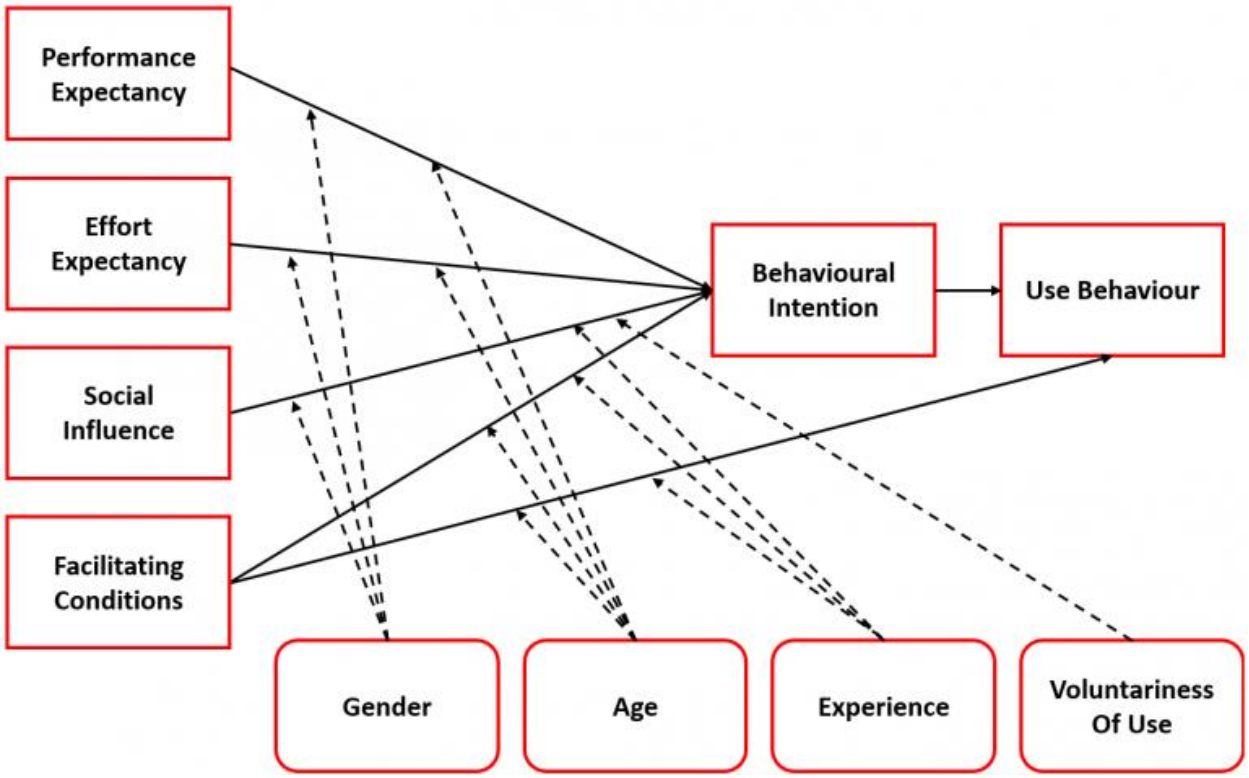

Figure 2.1 : The Unified Theory of Acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology (UTAUT), which was developed by Venkatesh et al. (2003), is an important ex-post model which brings together and builds on past theories and models about the way people accept and use technology. The strategy focused primarily on organisational settings and the technology-using people inside them. Some of the constraints of the original UTAUT were resolved when Venkatesh et al. (2012) expanded it to consumer situations. Hedonic motivation, price value, and habit are the three new constructs that

were added to the model and proposed UTAUT2. For our purposes, we shall modify and use UTAUT1 (2003) inside the framework of this thesis.

The UTAUT model is based on eight prominent models and theories, including the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model, Theory of Planned Behavior (TPB), Combined TAM and TPB, Model of PC Utilization, Innovation Diffusion Theory, and Social Cognitive Theory.

Four major factors are suggested by the UTAUT model as impacting a person's behavioural intention for using a technology:

Performance Expectancy: This refers to just how much a user expects to boost their job performance as a result of using the system. A few examples of these variables that impact are relative advantage, work fit, perceived usefulness, and outcome expectations.

Effort Expectancy: This one relates to how simple it is to utilise the website or system. It is influenced by things like perceived ease of use, easy accessibility, and complexity.

Social Influence: How strongly a person thinks that's important other people think they should use the new technology. Social influences, image, and subjective norms are some of the elements that impact this factor.

Facilitating Conditions: Associated with a person's perception that the system's technological and organisational foundation is in place to support its use. Compatibility, enabling situations, and perceived control of behaviour are some of the variables that affect this concept.

Four moderating variables are also included in the UTAUT model: gender, age, experience, and voluntariness of use. It is believed that these variables will affect the links between the major components and behavioural intention or use behaviour.

2.2.7 Modified UTAUT Model

We have adopted a modified version of the UTAUT model for this thesis, which desires to explore the impact of User Interface (UI) and User Experience (UX) elements on the purchase intentions of users of Bangladeshi e-commerce platforms.

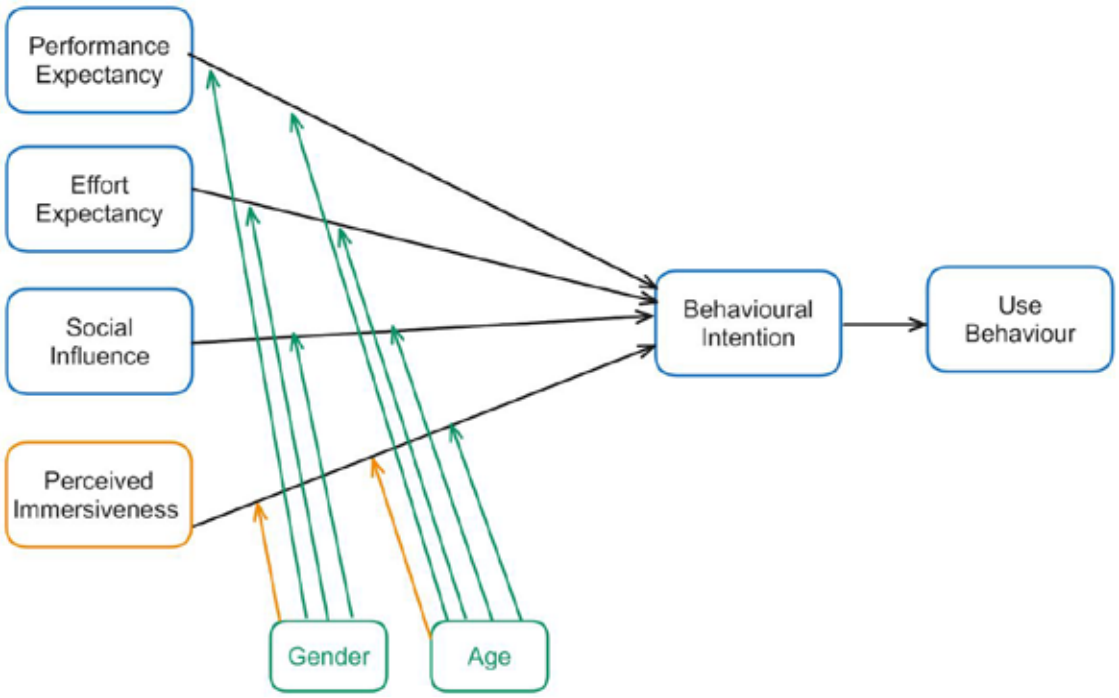

Figure 2.2: Modified UTAUT Model

We changed the UTAUT model by including an additional factor called Perceived Immersiveness (PI), which replaced the place of facilitating conditions, this new factor measures how much users find the UI and UX of the platform to be immersive and engaging. It is especially important in the context of e-commerce, where users' behaviours and purchase decisions can be greatly affected by an immersive shopping experience that includes product viewing in a more engaging manner.

Also, the original UTAUT model's moderating factors have been cut down to just age and experience. The original model used gender, age, experience, and willingness to use as moderating variables. For this study, we decided to focus on age and experience because they are more relevant to e-commerce and the Bangladeshi market.

It is important to look at the age moderator because it can show how individuals of different generations adopt and use technology. It can also show whether online shopping will continue to be popular for each generation because they are comfortable with e-commerce platforms or just because of generational differences.

Meanwhile, the experience moderator handles differences in how consumers have interacted with e-commerce platforms, which may affect how users view, expect, or use the website. This moderator will help in identifying the differences between the behaviour and needs of someone new and an experienced user, as they may differ significantly.

This updated version of the UTAUT model includes moderating variables and, by adding Perceived Immersiveness, makes more sense in an e-commerce setting and aligns with our research goal. With this modification, more aggressive objectives are set for how UI and UX aspects affect consumers' intentions to buy.

The main components of this model can be modified to evaluate how UI and UX elements affect performance expectation, effort expectancy, social influence, and perceived immersiveness, all of which have an impact on e-commerce customer behavioural intentions to purchase.

The Performance Expectancy (PE) construct measures how users' views on the benefits of utilising e-commerce platforms for their purchases are influenced by user interface and user experience. For instance, users' opinions about platform performance can be significantly impacted by how quickly product pages load and how efficiently product searches work, both of which are dependent on UI/UX. These factors can also help users be more productive when it comes to their shopping goals.

Similarly, e-commerce platforms are evaluated according to their ease of use and user friendliness based on the Effort Expectancy (EE) construct. Features that lower the perceived difficulty of using a platform, including interactive filter and sort capabilities, simple section navigation, or attractive layouts, might increase users' intention to use it.

Taking into account the UI and UX aspects, the Social Influence (SI) construct captures the impact of family and social networks on users' opinions and adoption of e-commerce platforms. This concept acknowledges that aesthetically pleasing and intuitive user interfaces can have a beneficial

impact on social impressions and recommendations from others, which in turn helps increase platform adoption.

Furthermore, the Perceived Immersiveness (PI) construct holds particular importance in the e-commerce context as it measures the extent to which customers find the UI and UX of the e-commerce platform to be captivating and immersive. An immersive shopping experience can impact customers' purchase intents. Features like zoom capabilities for product photos, accurate product presentations through images and videos, and interactive elements like 3d product view are all able to create this kind of experience.

Our research will provide important insights into the impact of UI and UX elements on numerous drivers of technology adoption and usage by adding these constructs and tailoring the UTAUT model to the e-commerce context. This will ultimately provide insight on how these aspects affect purchase intentions.

2.3 Previous Literature

Various models and approaches have been used to study consumer behaviour and examine the influence of UI/UX design on e-commerce implementation, as well as its effect on enhancing user experience. Gunawan et al. (2021) reported The results of a systematic literature review (SLR) on User Experience showing that the effectiveness of interface design significantly improves usability and satisfaction. However, the study was restricted to predetermined parameters and conditions, which hampered its application [1]. In their study, Teguh et al. (2017) employed the UTAUT-2 model to investigate consumer behaviour towards online music items. We have also employed this model in our thesis and found that performance expectancy, effort expectancy, and social influence have favourable effects on buying intentions. However, the study's The drawback was that it did not consider moderating variables such as age and experience. These variables might have offered more extensive insights into any changes in the correlation between limitations and purchase intention [7]. In their study, Abraham et al. (2022) applied a quantitative research approach to investigate the influence of customer interest on the utilisation of user interface (UI) and user experience (UX) in the context of e-commerce. Their findings underlined the significance of following to user-centric design principles. Nevertheless, the study's dependence on

questionnaires proved unsatisfactory in revealing complex underlying connections and factors[2]. Aslam et al. (2019) adopted the Technology Acceptance Model (TAM) and its extended version, TAM2, to determine the elements that impact consumer trust and loyalty. Their study highlights the significance of perceived ease of use and utility as crucial drivers. However, the absence of solid correlation data restricts the conclusiveness of their conclusions [3]. In their study, Natalia and Jorge (2018) constructed an empirical model of user experience (UX) through the application of theme analysis. This model provides a thorough perspective on the various components that contribute to user experience. The study's drawback is its narrow focus on factor analysis, which hampers the extent of statistical validation [8]. In their study, Yinusa and Abdul (2023) conducted secondary research to investigate customer happiness in the field of e-commerce. Their exploratory factor analysis demonstrated that customer satisfaction is significantly influenced by service quality and website functionality. The utilisation of secondary questionnaire data may create biases that have the potential to result in biassed findings [4]. Christia and Michaela (2021) assessed the influence of navigation UI design on user satisfaction and purchasing behaviour by employing the Information System Success model. They discovered that a clear and intuitive navigation system boosts these outcomes. However, it is important to note that the study's simplistic linear relationship method restricts the scope of its findings [5]. Tenia et al. (2020) examined the usability of e-commerce by employing heuristic evaluation and the System Usability Scale (SUS) questionnaire. Their study emphasised the significance of usability in fostering favourable user experiences. The study is constrained by a narrow context region and a constraint of only ten predetermined questions, which hinders the ability to uncover accurate findings [6]. Anshu and Hegde (2010) conducted a study to examine the influence of web page usability guidelines on aesthetics and user perceptions. Their primary research revealed that using prototypes in an online survey may not completely capture the dynamic nature of user interactions. However, they did find significant improvements in user perceptions and satisfaction.

Additional study corroborates these findings. In their study, Park and Kim (2003) found that a UI design that is seamless and intuitive has a direct impact on consumer trust and perceived ease of use. These factors, in turn, influence consumers' intentions to make a purchase [13]. In a similar vein, Manganari et al. (2009) discovered that e-commerce websites that are visually appealing and user-friendly have a substantial impact on consumer happiness and loyalty [14].

This thesis aims to overcome these constraints by integrating a wider array of moderating variables from the UTAUT-modified model. This approach will enable us to better understand the intricate connections between UI/UX design and e-commerce performance. Our research will combine primary data gathering that is matched with the model and advanced correlation techniques to provide a thorough and detailed analysis of user interactions. This approach seeks to address the deficiencies mentioned in prior research, providing more profound understanding of how improvements in user interface and user experience can positively impact customer pleasure, trust, and ultimately, the success of e-commerce.

2.4 Summary

This chapter offers a detailed analysis of the theoretical framework and literature review on the influence of UI/UX design on consumer behaviour in e-commerce. This chapter covers the definition of e-commerce and its various types, as well as the importance of user experience (UX) in influencing purchasing decisions. In addition, the user adoption models, especially the modified UTAUT model, have been established. The chapter has examined prior literature and studies, while analysing the approaches and models employed in the investigation of the impact of UI/UX design on e-commerce, including any current constraints.

Hence, the next chapter presents the proposed approach, including a brief outline of the model selection, adaptation for the current study objectives, data collecting, analysis techniques, and population sampling. By employing a thorough approach, it is expected that a methodical examination of the correlation between UI/UX design and customer behaviour in the context of e-commerce in Bangladesh will be accomplished.

CHAPTER 3

METHODOLOGY

3.1 Introduction

The study used a quantitative research methodology, led by the expanded Unified Theory of Acceptance and Use of Technology (UTAUT) paradigm, to examine the connections between UI/UX elements and purchase intentions. The chapter covers the selection and adaptation of the UTAUT model, the process of collecting data, statistical analyses such as Bivariate Correlation and ANCOVA, and the strategy for selecting the population. Additionally, it offers a summary of the methodological research strategy, which offers understanding into the target population and sampling process, with a particular focus on the importance and accuracy of the selected sample size and demographic characteristics.

3.2 Proposed Methodology

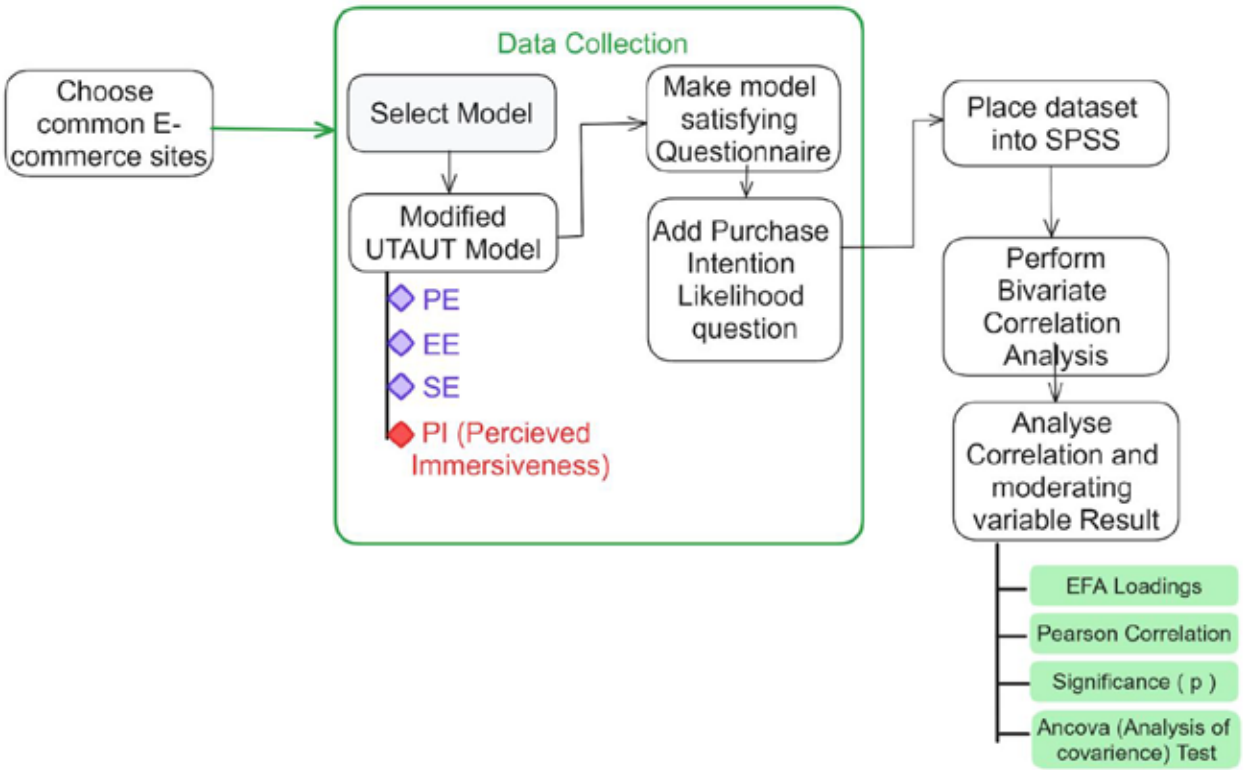

Figure 3.1 : Proposed Methodology

In this study, we have used a quantitative research methodology to explore the elements of User Interface (UI), and User Experience (UX) that affect the purchase intentions of Bangladeshi e-commerce users. The theoretical foundation for this study is the extended Unified Theory of Acceptance and Use of Technology (UTAUT) model that guides the research design. The model comprises of several constructs that include Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and the latest introduction is Perceived Immersiveness (PI). These are the constructs which measures the concept of study i.e independent variables that influence dependent variable, Purchase Intention.

The main goal of this research is to assess the impact of UI/UX factors, as represented by the UTAUT constructs, on the purchase intentions of users of the selected Bangladeshi e-commerce platforms (Daraz, Pickaboo, AjkerDeal, Rokomari, Chaldal, and Priyoshop).

To achieve this goal, the following analyses will be conducted:

Bivariate Correlation Analysis: Pearson's correlation examines the relationships between independent variables (PE, EE, SI and PI) and a dependent variable (Purchase Intention) by computing Pearson's correlation coefficients. This provides cues to the extent and direction of relations involved among UTAUT constructs and purchase intention in estimate, helping recognize which UI/UX variables have an impact on purchasing behaviour.

Moderating Variable Analysis: Analysis of Covariance (ANCOVA) tests will be performed to find out the potential moderating effects of demographic variables, such as gender or age on the relationships between the independent variables and the dependent variable. This analysis will help identify whether the influence of the UTAUT constructs on purchase intention varies across different demographic groups, providing a more clear understanding of the moderating factors.

Bivariate correlation analysis will be used to know the relationships between independent variables (UI/UX factors) and dependent variable (purchase intention), while ANCOVA analysis is another step to investigate whether these relationships has been moderated by demographic variables. Basing on this its purpose is to investigate how UI/UX elements might be in influencing purchasing intention in the framework of Bangladeshi e-commerce, taking into account potential moderating effects by cross-analyzing these analyses.

3.3 Methodological Research Approach

Quantitative research approach is chosen for this study. This study aims to quantify the effects of different UI & UX factors on e-commerce purchase intention in an objective manner. Quantitative methods allow for the use of statistical tools to provide measurable evidence of these relationships. It also enables the collection of data from a larger sample size, enhancing the generalizability of the findings to a broader population of e-commerce. Although the sample size in this thesis is relatively small, standard practice for user acceptance studies typically involves using quantitative data to enable large-scale analysis.

The UTAUT model, which serves as the theoretical framework for this study, lends itself well to a quantitative approach. Also primary data is collected for this quantitative research approach. This model requires the measurement of specific constructs (performance expectancy, effort expectancy, social influence, perceived immersiveness), which can be effectively captured through structured questionnaires and analyzed using statistical methods.

3.4 Population & Sampling

3.4.1 Population

The target population for this study includes internet users of Bangladesh who have experience with or are familiar with the selected Bangladeshi e-commerce sites. This includes individuals who actively engage in online shopping and buys from these platforms.

The number of internet users in Bangladesh is approximately 66.94 million as of January 2023 (source: datareportal.com). Users in the e-commerce market number 10.77 million in 2024 and is projected to reach 15.92 million (www.statista.com). These statistics highlight the rapid growth and substantial size of the e-commerce user base in the country. The e-commerce platforms selected for this study collectively serve a large portion of this user base, which make them the representative of the online shopping community in Bangladesh.

3.4.2 Sample Size

A sample size of 200 participants was chosen for this study. This sample size was determined based on the need to balance statistical power and feasibility. With 200 participants, the study can achieve meaningful insights.

3.4.2 Sampling Technique

The purposive sampling technique was utilized to select participants who meet specific criteria:

Age Group: Participants aged 20-40, as this group is highly representative of the active e-commerce user demographic in Bangladesh.

Experience with E-commerce: Participants who have experience with or are familiar with the selected e-commerce platforms, ensuring the relevance of their responses.

Purposive sampling was employed to ensure that the participants had been chosen due to their significance in terms of the research concerns. This positivist approach has been used to draw data from the experts residing in densely populated cities based on their knowledge about e-commerce scenario of Bangladesh. The study was intended to be both representative and meaningful by focusing on a specific age group known for being active users of popular e-commerce platforms.

3.5 Summary

In this chapter, The methodology for studying how UI/UX affects Bangladeshi e-commerce purchase intentions is outlined. It makes use of quantitative techniques directed by the UTAUT model and statistical analysis such as ANCOVA and Bivariate Correlation.

In order to get insight into the relationship between UI/UX design and e-commerce purchase intents, the data collection process ,which includes instrument development, questionnaire design, and data visualisation techniques will be covered in detail in the upcoming chapter.

CHAPTER 4
DATA COLLECTION

4.1 Introduction

This chapter focuses on the data collection instrument and questionnaire design which is used to examine the impact of user interface and experience on e-commerce purchasing behavior in Bangladesh. The questionnaire is distributed via Google Forms and QR codes, which covers questions aligned with the extended UTAUT model that we've made. Data collected will be statistically analyzed to understand correlations and potential moderating effects of age and gender. Additionally, data visualization techniques will be elaborated as well.

4.2 Data Collection Instrument

The questionnaire was created and distributed through Google Forms, which was both a convenient and also an effective way to distribute and organize the questionnaire. The form was circulated through the link both online and offline to cover a large population. In the university campus, QR code were displayed that linked to Google Form, enabling students and staff to participate using their smartphones.

4.3 Questionnaire Design

This questionnaire is designed to gather data on user experiences and perceptions of e-commerce websites in Bangladesh with likeart scale, specifically focusing on the influence of user interface and experience dynamics on purchasing behaviour. The questions align with the extended UTAUT model which was elaborated in theoretical framework section, measuring factors like Performance Expectancy, Effort Expectancy, Social Influence, Perceived Immersiveness(Extended) and Usage Behaviour. Data collected will be analyzed to understand the impact of these factors on purchase intention, also if age or gender have any moderating influence on that correlation can be seen.

Section 1: Demographic Information

Age Range

20 - 24

25 - 29

30 - 34

35 - 40

Gender

Male

Female

E-commerce Site Visited Since Last Year

Daraz

Pickaboo

AjkerDeal

Rokomari

Chaldal

Priyoshop

Section 2: Performance Expectancy (PE)

[PE] : How would you rate the speed of the website when loading product pages?

Very Slow ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Very Fast

[PE] : How satisfied are you with the website's product search function in terms of speed and accuracy?

Not satisfied ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Very Satisfied

Section 3: Effort Expectancy (EE)

[EE] : How easy is it for you to navigate through the different sections of the website (e.g., categories, search bar, cart)?

Not easy ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Much easy

[EE] : How user-friendly are the filtering and sorting options on the website for refining your product search?

Not easy ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Much easy

Section 4: Social Influence (SI)

[SI] : The review section under product helps me to gain trust in the product and purchasing.

Disagree ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Agree

[SI] : How likely are you to recommend this site to others based on its visually appealing user interface design?

Not likely ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Much likely

Section 5: Perceived Immersiveness (PI)

[PI] :The zoom feature on product pictures to closely examine product details (e.g., texture, stitching, color) is a good option to have.

Agree ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Disagree

[PI] :How realistic do you find the product images and videos on the website in representing the actual product?

Not realistic ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Fully realistic

Section 6: Usage Behavior (UB)

[UB] :Considering your experience with this e-commerce site, how likely are you to make a purchase in the future?

Not likely ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Much likely

4.4 Data Visualization

To gain insights into the e-commerce landscape and user perceptions within the Bangladeshi context, primary data was collected through a survey targeting users of prominent e-commerce platforms. The following visualizations present key findings from the survey responses along with some demographics information.All the data are collected and converted to numeric data to be used on SPSS to reach our objectives , finding corelation and their type and measure moderating variable effects. For every UTAUT Constraints (PE, EE, SI and PI) single question's data is demonstrated below while there is two of them for every constraint in the main questionnaire.

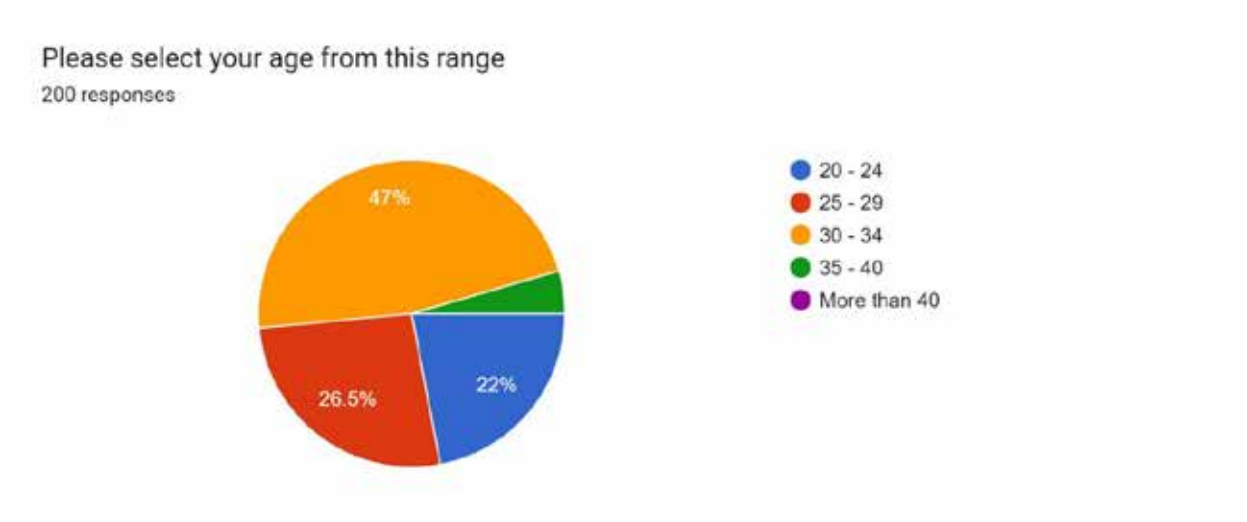

Figure 4.1 : Demographic Pie Chart : Age

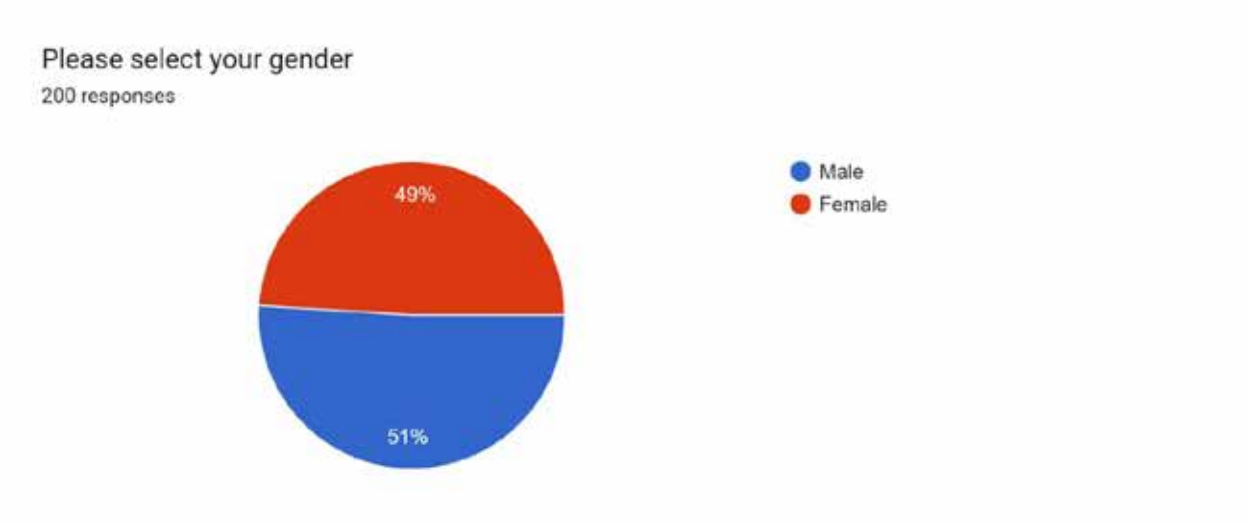

Figure 4.2 : Demographic Pie Chart : Gender

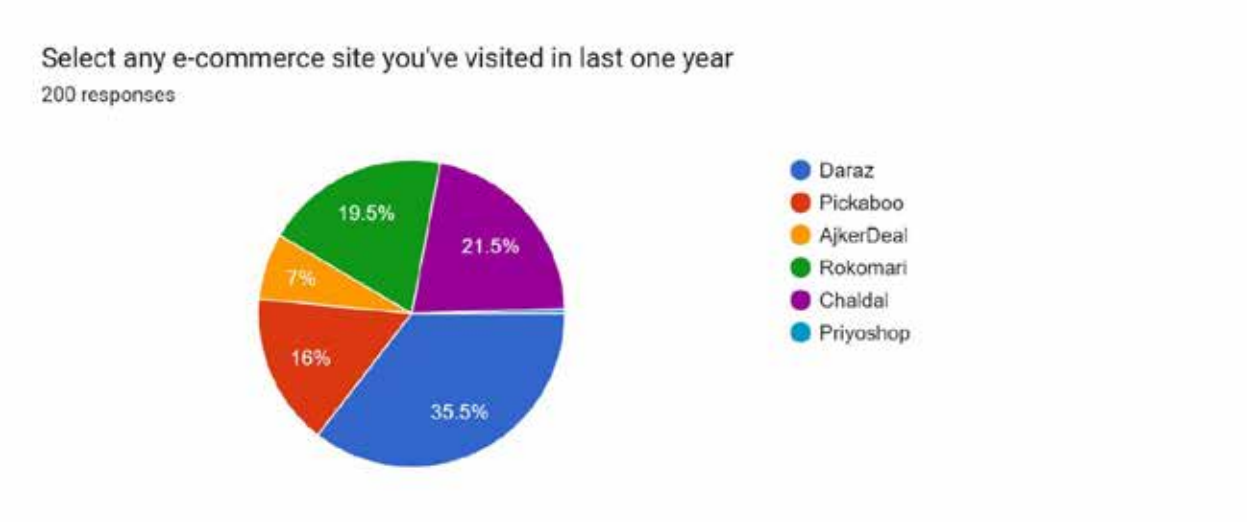

Figure 4.3 : Demographic Pie Chart : Visited Ecommerce Sites

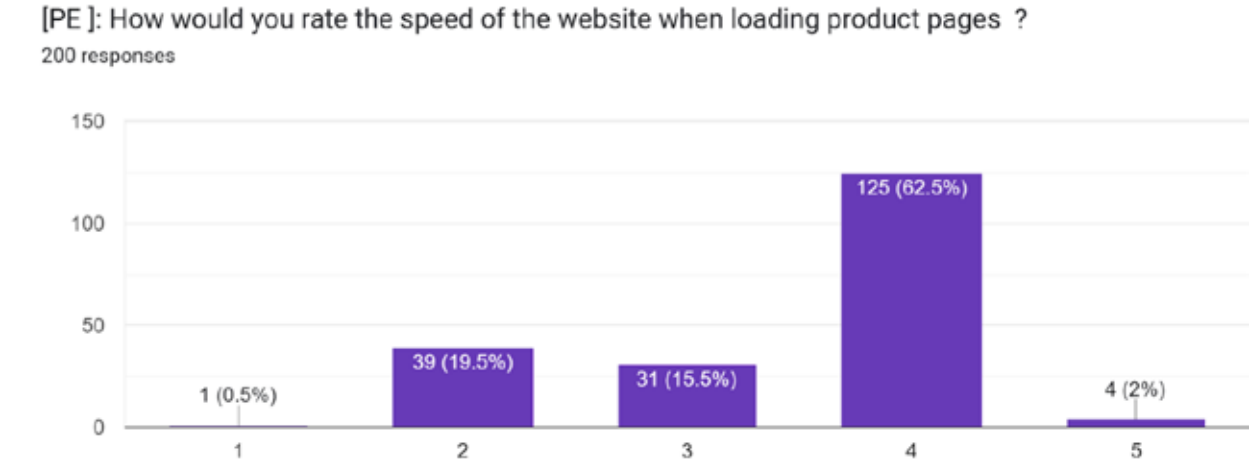

Figure 4.4 : Performance Expectancy Question 1

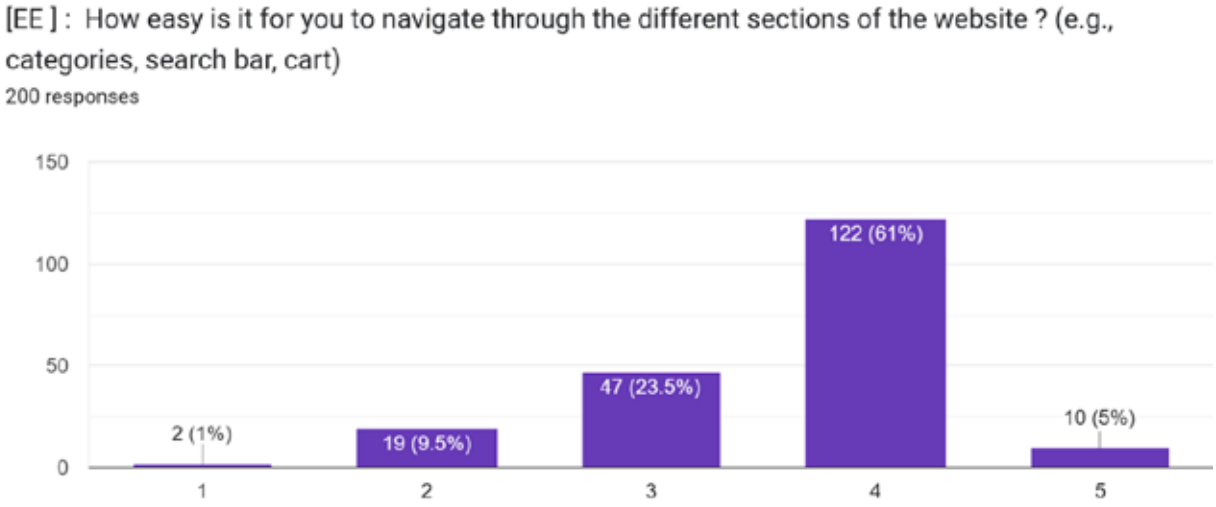

Figure 4.5 : Effort Expectancy Question 1

Figure 4.6 : Social Influence Question 1

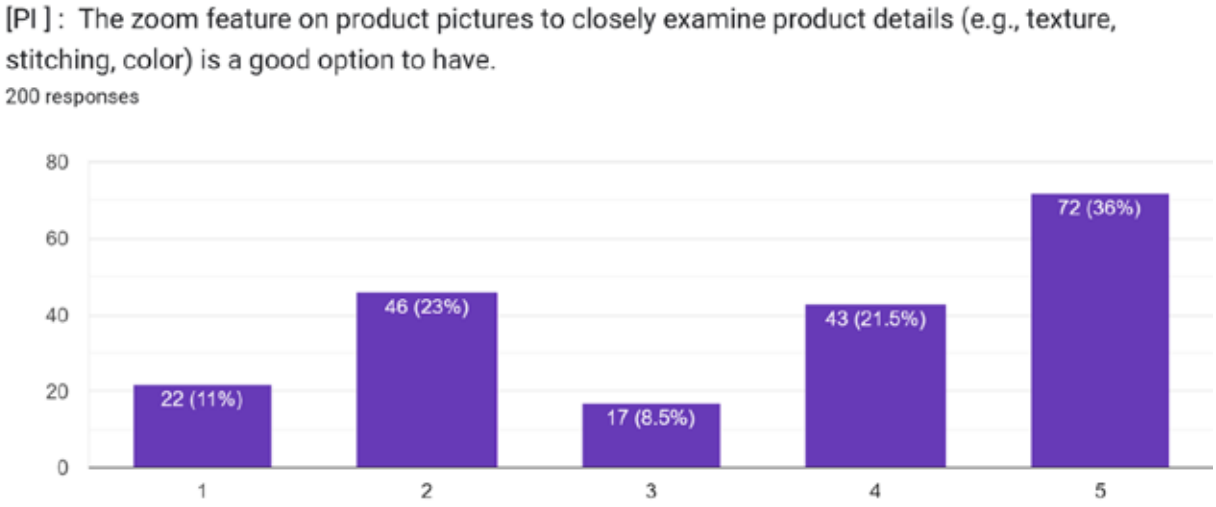

Figure 4.7 : Perceived Immersiveness Question 1

Figure 4.8 : User Behaviour / Buying Intention Question 1

4.5 Summary

In this chapter, the focus was on detailing the data collection instrument and questionnaire design to explore the influence of user interface and experience on e-commerce purchasing behavior. Data collected through the survey will undergo statistical analysis to unravel correlations and potential moderating effects of age and gender.

The next chapter will discuss about the results and analysis of this thesis, including findings from correlation analyses and ANCOVA tests, providing deeper insights into the relationships between UI/UX factors and purchase intentions.

CHAPTER 5

RESULT

5.1 Data Analysis

The collected data from the questionnaires is analyzed using the Statistical Package for Social Sciences (SPSS) software. The statistical analyses conducted are as follows:

Bivariate Correlation Analysis: Pearsons correlation coefficients are computed to find out the relationships between independent variables (PE, EE, SI & PI) with dependent variable (Purchase Intention). This analysis gives details about the power and direction of relationships among UTAUT constructs and purchase intention.

Moderating Variable Analysis: Analysis of Covariance (ANCOVA) tests are performed to find out the potential moderating effects of demographic variables, such as gender, age, or experience, on the relationships between the independent variables and the dependent variable. This analysis helps identify whether the influence of the UTAUT constructs on purchase intention varies across different demographic groups.

The statistical analyses aim to test the hypotheses and answer the research questions related to the influence of UI/UX factors on purchase intention in the Bangladeshi e-commerce context. The findings from this study are expected to contribute to the understanding of UI/UX design considerations and their impact on consumer purchase behaviour in the e-commerce domain.

5.2 Bivariate Correlation Analysis

Correlations

		[UB] : Purchase Intention
[PE]: Speed of the website when loading product pages	Pearson Correlation	.280
	Sig. (2-tailed)	.000
	N	200
[PE] : Product search functionality	Pearson Correlation	.274
	Sig. (2-tailed)	.000
	N	200
[EE] : Ease of use and Navigation	Pearson Correlation	.350
	Sig. (2-tailed)	.041
	N	200
[EE] : Filtering and Searching	Pearson Correlation	.160
	Sig. (2-tailed)	.024
	N	200
[SI] : Review section towards trust	Pearson Correlation	.116
	Sig. (2-tailed)	.101
	N	200
[SI] : Recommendation based on Visual Appeal	Pearson Correlation	.202
	Sig. (2-tailed)	.004
	N	200
[PI] : Zoom Feature on product photo	Pearson Correlation	.812
	Sig. (2-tailed)	.000
	N	200
[PI] : Product photo realistic to actual	Pearson Correlation	.866
	Sig. (2-tailed)	.000
	N	200

Figure 5.1: Bivariate Correlation Analysis

The Pearson correlation coefficients indicate the strength and direction of the linear relationship between each factor and the purchase intention ([UB]). A positive value means a direct relationship (an increase in the factor leads to an increase of purchase intention), while a negative value expresses an inverse relationship.

The significance level (Sig. (2-tailed)) means the probability of observing the correlation coefficient if the null hypothesis of no correlation is true. Values less than the chosen significance level (0.05) indicate that the correlation is statistically significant.

The Pearson correlation coefficients and their corresponding significance levels (p-values) are shown for each factor.

[PE] Speed of the website when loading product pages: Correlation coefficient = 0.280 Significance level (p-value) = 0.000 . This positive correlation coefficient indicates that the speed of the website when loading product pages has a moderately positive relationship with purchase intention. As the website loading speed improves, users are more likely to have higher purchase intentions. The p-value of 0.000 suggests that this relationship is statistically significant.

[**PE] Product search functionality**: Correlation coefficient = 0.274, Significance level (p-value) = 0.000 There is a moderate positive correlation between product search functionality and purchase intention. Effective product search functionality is associated with higher purchase intentions among users. The p-value of 0.000 indicates that this relationship is statistically significant.

[EE] Ease of use and Navigation: Correlation coefficient = 0.350 ,Significance level (p-value) = 0.041, The positive correlation coefficient suggests a positive relationship between ease of use and navigation with purchase intention. However, the correlation is stronger than PE, and the p-value of 0.041 indicates that this relationship is statistically significant.

[EE] Filtering and Searching: Correlation coefficient = 0.160 Significance level (p-value) = 0.024 There is a weak positive correlation between filtering and searching capabilities and purchase intention. The p-value of 0.024 suggests that this relationship is statistically significant, which tells us that better filtering and searching functions may slightly increase purchase intentions.

[SI] Review section towards trust: Correlation coefficient = 0.116 Significance level (p-value) = 0.101 The slight positive correlation coefficient suggests that the review section, contributing to trust, has a weak positive relationship with purchase intention. However, the p-value of 0.101 indicates that this relationship is not statistically significant.

[SI] Recommendation based on Visual Appearance: Correlation coefficient = 0.202, Significance level (p-value) = 0.004 There is a weak positive correlation between recommendations based on visual appearance and purchase intention. The p-value of 0.004 suggests that this relationship is statistically significant.

[PI] Zoom Feature on product photo: Correlation coefficient = 0.812 Significance level (p-value) = 0.000 The zoom feature on product photos has the strongest positive correlation with purchase intention, indicating that this feature significantly influences users' purchase decisions. And this constraint PE-Percieved Immersiveness was introduced in our Modified UTAUT Model. It can be easily said that customers enjoy seeing the products immersively and it drives them towards buying the product. The p-value of 0.000 confirms that this relationship is statistically significant.

[PI] Product photo realistic to actual: Correlation coefficient = 0.866 Significance level (p-value) = 0.000 There is also one of the strongest positive correlation between realistic product photos and purchase intention. Users would like to make purchases when product photos accurately represent the actual product. The p-value of 0.000 suggests that this relationship is statistically significant.

here's a ranking of the UI/UX factors from best (strongest positive correlation) to worst (negative or weakest positive correlation) in terms of their relationship with purchase intention:

[PI] Product photo realistic to actual ($r = 0.866$, $p = 0.000$)

[PI] Zoom Feature on product photo ($r = 0.812$, $p = 0.000$)

[EE] Ease of use and Navigation ($r = 0.350$, $p = 0.041$)

[PE] Speed of the website when loading product pages ($r = 0.280$, $p = 0.000$)

[PE] Product search functionality ($r = 0.274$, $p = 0.000$)

[SI] Recommendation based on Visual Appearance ($r = 0.202$, $p = 0.004$)

[EE] Filtering and Searching ($r= 0.160$, $p = 0.024$)

[SI] Review section towards trust ($r = 0.116$, $p = 0.101$) - Not statistically significant

This ranking shows that the factors with the strongest positive correlations with purchase intention are related to the realistic representation of products with accurate photos and zoom functionality, followed by ease of use and navigation, website speed and product search capabilities. Recommendations based on visual appearance and filtering and searching also have a positive correlation, but weaker. Review section towards trust also indicates a weak positive relation but it's statistically significant.

5.3 Moderating Variable Analysis (ANCOVA Test)

Tests of Between-Subjects Effects

Dependent Variable: [UB] : Purchase Intention

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	285.496[1]	56	5.098	31.893	.000
Intercept	45.788	1	45.788	286.439	.000
PE_all * gender_num	1.349	5	.270	1.688	.141
EE_all * gender_num	3.368	7	.481	3.010	.006
SI_all * gender_num	.776	5	.155	.970	.438
PI_all * gender_num	3.981	8	.498	3.113	.003
PE_all * age_numeric	1.425	5	.285	1.783	.120
EE_all * age_numeric	2.326	7	.332	2.079	.049
SI_all * age_numeric	3.267	5	.653	4.088	.002
PI_all * age_numeric	5.622	8	.703	4.396	.000
Error	22.859	143	.160		
Total	2951.000	200			
Corrected Total	308.355	199			

1. R Squared = .926 (Adjusted R Squared = .897)

Figure 5.2: Moderating Variable Analysis

This table presents the results of an Analysis of Covariance (ANCOVA) test, which examines the effects of moderating variables on the relationship between the independent variables (UI/UX factors) and the dependent variable (Purchase Intention).

The corrected model p value is under 0.05 meaning the overall prediction of the model is significant. The moderating variables considered in this analysis are gender and age. The independent variables (PE, EE, SI, and PI) are tested separately for their interactions with gender

and age to determine if these demographic factors moderate the relationships with Purchase Intention.

Here's an explanation of the key findings:

Interaction effects with gender:

PE_all * gender_num (p = 0.141): The interaction between Performance Expectancy factors and gender is not statistically significant, indicating that gender does not significantly moderate the relationship between PE and Purchase Intention.

EE_all * gender_num (p = 0.006) : The interaction between Effort Expectancy factors and gender is statistically significant, which tells us that gender moderates the relationship between EE and Purchase Intention.

SI_all * gender_num (p = 0.438): The interaction between Social Influence factors and gender is not statistically significant, indicates no moderation effect of gender.

PI_all * gender_num (p = 0.003) : The interaction between Perceived Immersiveness factors and gender is statistically significant, indicating that gender moderates the relationship between PI and Purchase Intention.

Interaction effects with age:

PE_all * age_numeric (p = 0.120): The interaction between Performance Expectancy factors and age is not statistically significant, suggesting no moderation effect of age.

EE_all * age_numeric (p = 0.049): The interaction between Effort Expectancy factors and age is statistically significant, indicating that age moderates the relationship between EE and Purchase Intention.

SI_all * age_numeric (p = 0.002): The interaction between Social Influence factors and age is statistically significant, suggesting that age moderates the relationship between SI and Purchase Intention.

PI_all * age_numeric (p = 0.000): The interaction between Perceived Immersiveness factors and age is statistically significant, indicating that age moderates the relationship between PI and Purchase Intention.

In summary, the ANCOVA test shows that gender moderates the relationships between Effort Expectancy (EE) and Perceived Immersiveness (PI) factors with Purchase Intention. Age moderates the relationships between Effort Expectancy (EE), Social Influence (SI), and Perceived Immersiveness (PI) factors with Purchase Intention. These findings suggest that the influence of certain UI/UX factors on purchase intentions may vary depending on the user's gender and age. For example, the impact of Effort Expectancy factors (ease of use, filtering, searching) on purchase intentions is moderated by both gender and age, meaning that their influence may differ across different gender and age groups.

The test also provides other key statistics, such as the F-values, degrees of freedom (df), and p-values (Sig.), which can be used to assess the overall significance of the model and the individual effects.

CHAPTER 6

DISCUSSION

6.1 Discussion

The study's goals were accomplished successfully by employing the UTAUT model to gather user response data and by utilising ANCOVA and correlation analysis to examine the connections between UI/UX design elements and customer buying habits in the Bangladeshi e-commerce ecosystem. The results of this study show that a number of UI/UX components, including website speed, product search capabilities, ease of use, navigation, and immersive features, significantly positively correlate with purchase intention. Features like the zoom capability and realistic product images in particular had a significant impact on what customers decided to buy. This means that prioritising these elements on both new and current e-commerce sites can increase sales.

The findings also highlight the moderating effects of demographic variables. Gender moderates the corelation of effort expectancy and percieved immersiveness towards buying intention, meaning navigation and product search functionality, immersive product view motivates different genders differently towards buying.

Age difference also moderates the corelation of effort expectancy, social influence, perceived immersiveness towards buying intention. Which means website speed, product search functionality, review recommendation, immersive product view drives different aged people differently.

By acknowledging these correlation and motivating of gender and age, e-commerce platforms can effectively tailor their UI/UX strategies, enhancing user experiences and driving increased purchase intentions across various consumer segments. This understanding not only contributes to the academic discourse but also provides actionable insights for businesses seeking to optimize their e-commerce platforms and maximize their sales potential in the ever-evolving digital landscape.

CHAPTER 7
CONCLUSION

7.1 Research Finding

Using the UTAUT model as a framework, this thesis investigated the effects of UI/UX design on consumer purchasing behaviour within the Bangladeshi e-commerce sector. Comprehensive insights into user views and behaviours were obtained from the 200 respondents who participated in the original data collection. Significant positive connections between UI/UX variables and purchase intents were found by using Pearson correlation analysis. These findings highlight the significance of elements such as website speed, product search capabilities, ease of use, and immersive product features.

Furthermore, the ANCOVA study showed that the associations between UI/UX elements and purchase intentions are strongly moderated by demographic variables, such as age and gender. This suggests that in order to properly optimise user experiences, e-commerce platforms need to take these demographic variations into account.

Overall, this study demonstrates how important well-designed UI/UX components are to raising customer happiness, trust, and buy intents. As a result, it provides insightful advice for strengthening Bangladeshi e-commerce platforms. The study's conclusions help us understand how customised UI/UX methods might reduce high cart abandonment rates and increase sales in the quickly changing digital industry.

7.2 Contribution

This thesis fills an important research gap by investigating the impact of the UI/UX design on consumer adoption in e-commerce with the reference of the UTAUT model. Although there aren't many studies that combine UTAUT with UI/UX in the context of e-commerce, this one stands out since it uses ANCOVA to incorporate the moderating effects of demographic variables like age and gender. In addition, we introduced an extra construct, perceived immersiveness, to the UTAUT model. This update shows how immersive components have a big impact on customer behaviour and is in line with e-commerce studies. We improved the applicability and efficacy of the UTAUT model in predicting user acceptance and purchase intentions in online retail environments by doing this. Beyond contributing to theoretical knowledge, this paper provides specific suggestions for the UI/UX design of e-commerce platforms to help them align their design with customer expectations and thus improve sales performance.

7.3 Limitations

Although the study allowed for meaningful discoveries, it has several limitations. The data sample primarily reflects a specific segment of the Bangladeshi population, which limits the generalizability to other contexts. The cross-sectional design captures user perceptions and behaviors at a single point in time, will not be effective for temporal changes. The study focused on key UI/UX factors but did not explore all potential elements influencing consumer behavior in e-commerce sites. The reliance on self-reported data introduces bias, as respondents may not accurately reflect their actual behaviors or perceptions.

Additionally, the statistical methods employed have limitations. While correlation and ANCOVA analyses were conducted, this study did not perform exploratory factor analysis (EFA) due to the relatively small sample size. EFA could have provided deeper insights for underlying constructs. The test also provided key statistics such as F-values, degrees of freedom (df), which are crucial for measuring the overall significance of the model and individual effects, but were not exhaustively explored in this study.

7.4 Future Work

Future research should extend the sample size and diversity to generalise across demographics and countries and overcome this limitation. With a longitudinal study design, it is possible to investigate how user perceptions and behaviors develop over time. The effects of other UI/UX aspects, and how they may interact with cultural and economic variables, should be incorporated in future studies to provide a better overall picture of their implications on e-commerce sales. Employing objective data collection methods, such as tracking actual user behaviors on e-commerce platforms, would counter the biases of self-reported data.

When bigger sample sizes are available, future research should also use exploratory factor analysis (EFA) to identify underlying factors and confirm the measurement model. Besides, usage of appropriate statistical tools like structural equation modelling (SEM) would yield better understanding of relationship among variables. Evaluating the efficacy of particular UI/UX design interventions in real-world environments may provide e-commerce platforms with useful suggestions for improving user experience and lowering cart abandonment rate.

7.5 Implication

Individual Level:

The results of this study provide important implications for individual users of ecommerce platforms. In other words, better UI/UX design improves the overall user experience, making it more intuitive and easier to navigate. his not only results in happy users, but also increased trust & purchase intent. For example, improved product search functionality and quick page loading reduce annoyance and increase the chances of future purchases. Understanding these elements allows sellers to optimizingly enhance their websites to improve user engagement and conversion rates. This means that sellers can focus on aspects of the user interface like great product photography, useful filtering options and simple navigation that we know can change purchasing behavior. Improved user interfaces can enable users to better select the product that is right for them, thereby increasing overall consumer satisfaction and loyalty.

Societal Level:

On a broader societal level, the research helps all e-commerce platforms to grow which is good for the economy over all. By identifying key factors that influence consumer behavior, businesses can optimize their websites to reduce shopping cart abandonment rates, which will increase sales and revenue. This optimization can lead to more competitive and efficient markets, benefiting consumers with better services and products. Further, the insights can help e-commerce companies to design products that are more inclusive, serving a larger user base and improving digital inclusivity.

The significance of these implications point to the need for brands to invest in user-centered design principles to recruit greater user experiences, surge consumer trust, and positively influence e-commerce success on every level.

CHAPTER 8
REFERECES

1. M. Gunawan, et al., "Systematic literature review on the effect of UI design on user experience," 2021.
2. K. Abraham, et al., "Consumer interest and its impact on UI and UX in e-commerce: A quantitative study," 2022.
3. M. Aslam, et al., "TAM and TAM2 models in identifying factors influencing consumer trust and loyalty," 2019.
4. M. Yinusa and A. Abdul, "Customer satisfaction in e-commerce: An exploratory factor analysis," 2023.
5. M. Christia and T. Michaela, "Navigation UI design and its impact on user satisfaction using the Information System Success Model," 2021.
6. R. Tenia, et al., "E-commerce usability: Heuristic evaluation and System Usability Scale (SUS) questionnaire," 2020.
7. A. Teguh, et al., "Applying UTAUT-2 model to examine consumer behavior concerning online music products," 2017.
8. E. Natalia and R. Jorge, "Empirical model of user experience using thematic analysis," 2018.
9. S. Y. Tzeng and C. H. Yeh, "The impact of user experience on buying intention: A case study in online shopping," *International Journal of Human-Computer Interaction*, 2017.
10. J. Y. L. Thong, S. J. Hong, and K. Y. Tam, "The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance," *International Journal of Human-Computer Studies*, 2006.
11. J. D. Wells, J. S. Valacich, and T. J. Hess, "What signal are you sending? How website quality influences perceptions of product quality and purchase intentions," *MIS Quarterly*, 2011.

12. S. Anshu and R. Hegde, "Impact of web page usability guidelines on aesthetics and perceptions," 2010.

13. J. Park and J. Kim, "The effect of UI design on consumer trust and perceived ease of use," 2003.

14. E. E. Manganari, et al., "Store atmosphere in web retailing," 2009.

15. R. Nemat, "Taking a look at different types of e-commerce," *World Applied Programming*, vol. 1, no. 2, pp. 100-104, 2011.

16. M. Niranjanamurthy, N. Kavyashree, S. Jagannath, and D. Chahar, "Analysis of e-commerce and m-commerce: advantages, limitations and security issues," *International Journal of Advanced Research in Computer and Communication Engineering*, vol. 2, no. 6, pp. 2360-2370, 2013.