Hochschule Bremen
City University of Applied Sciences

Jan-Valentin R. Pauw

The application of Chatbot Technology in Online Shopper Marketing of the German Fashion Industry

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Abstract

Since the internet has gained importance as a business platform, the world has seen an influx of ideas and new online tools. Internet as well as digitalisation have significantly altered the business landscape in many industries. One of the new tools that has been entering the market for several years now is the chatbot. The possibilities of chatbot technology are already quite well recognised in terms of its use as a service bot that answers simple recurring questions. However, for shopper marketing it is still a very new and hardly explored technology. The aim of this bachelor thesis is to assess the possibilities of chatbot technology in online shopper marketing. The fashion industry has been chosen as the target market for this research. For this purpose, an insight into the fashion industry is first given. In the course of this, it will be explained why online shopper marketing has gained such an importance for the fashion industry in recent years, as well as what activities are included in it. In this context the chatbot solution will be introduced. It will be dealt with the question how to maximise the utilisation of chatbot technology in order to improve online shopper marketing. In the course of this work, a survey will be conducted to clarify the acceptance of Germans towards chatbot technology as well as desired chatbot characteristics. The conclusion will provide guidance on how a chatbot should look like in the German fashion market and can be used by companies as a reference for the implementation of chatbot technology.

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List of Abbreviations

AI	Artificial Intelligence
Avg.	Average
NLP	Natural Language Processing
NLU	Natural Language Understanding
S-O-R Model	Stimuli-Organism-Response Model
QQ Plot	Quintile-Quintile Plot

I. Introduction

A. Relevance of the Topic

What value can chatbots offer to marketing? For a business, this is the crucial question when it comes to whether to adopt chatbot technology or not. For the use as a service bot to answer FQS and simple customer queries, the added value of chatbot technology has already been proven (Kohne et al., 2020). Chatbots are cheap and can answer questions in real time (see Chapter 3.). But is this already the greatest benefit that chatbot technology can offer? Or is there a greater potential that can still be exploited?

Online commerce has changed the business world dramatically. Increasingly, customers prefer to shop online instead of going to a real store (Gizycki, 2018). This changes the ways in which companies can communicate with their customers. It is a challenge for companies to maximise the opportunities offered by the internet and digitalisation. Gerald Zaltman (2003) claims that 95% of all purchasing decisions are made at the point of sale. This makes communication in online shops critically important. One possible channel that can be utilised in this regard is the chatbot. Well-known companies such as the Ford Automotive Company are already experimenting with chatbot technology as a communication tool in the shopper marketing of their online shops. The idea is to influence the customer at the point of sale, to guide them through the stages of the customer journey and finally to increase the total turnover of the store. To test scientifically whether the chatbot is able to do this would be a scope that cannot be explored within the framework of a bachelor thesis. Based on the information provided by chatbot developers such as Spectrm (2021) and Drift (2022) and authors such as Kohne et al. (2020) and Adamopoulou and Moussiades (2020), it can be reasonably claimed that it is possible from a technical point of view (see chapter 3).

Whether the application of chatbot technology in customer communication is technically possible is not the only question. Moreover, the question arises if customers even want to communicate with chatbots while shopping online? As Kohne et al. (2020) describe in their work, in order to answer this questions it is important to determine the acceptance of users towards chatbot technology. Furthermore, it is necessary to clarify

which characteristics and capabilities customers require from chatbots? The success of a chatbot project largely depends on whether the chatbot was programmed correctly (Kohne et al., 2020). As Zarouali (2018) shows in her work, customer satisfaction in the context of chatbots is largely based on perceived helpfulness. Defining the desired characteristics is essential in addition to determining the acceptance of chatbots. However, this cannot be stated generally, but must be answered specifically for each country and market.

One of the markets for which online retail is particularly important in Germany is the fashion industry (see Chapter 2 B). The share of online retail in the total turnover of the fashion market was over 30% in 2021 (see Appendix 1). This means that online retail is a major source of revenue (see Chapter 2 B). Consequently, online shopper marketing and online customer communication is gaining in importance. Companies are intensively looking for ways to outmanoeuvre the competition and to gain a comparative advantage (see Chapter 2 A and B). Based on this situation, the fashion industry has been chosen as the target market for this thesis.

I came into contact with the topic of chatbots during my internship at GTB in 2021 in Thailand. At GTB I worked on various chatbot projects for clients from South Africa, the Philippines, New Zealand and Thailand. The chatbots were intended for website shopper marketing and acted as conversational ads tasked with generating leads and converting customers along the customer journey. The requirements for the chatbot design varied from market to market. Cultural characteristics had to be taken into account. In addition, the design depended on targeted consumer groups. The interaction rate of website visitors with the chatbot varied from market to market. Likewise, the acceptance of chatbots varied between markets. Data on this cannot be shown, as this is company property. However, for me personally this led to the question of how the acceptance of chatbots in Germany is specifically related to the fashion industry, as one of the largest shareholders in the online retail market.

B. Research Objective

In order to define the research objective, the term chatbot must be clarified. The chatbot is "a computer program designed to simulate conversation with human users, especially over the internet" (Oxford University Press, 2022). For this work, it must be supplemented that only those chatbots possess relevance that are used in shopper

marketing. Shopper marketing is defined as "[...] the planning and execution of all marketing activities that influence a shopper along-and beyond-the entire path-to-purchase, from the point at which the motivation to shop first emerges through to purchase, consumption, repurchase, and recommendation" (Shankar, 2011, p. 4). For this paper, Shankar's definition is applied to the area up to purchase. Post-purchase actions are not relevant for this work. This paper investigates marketing chatbots used by companies in online shopper marketing along the customer journey and at the point of sale. The goal of these chatbots is to generate leads. The chatbot is used on the company's own website. Chatbot activities that take place on other websites such as Facebook or Instagram are not covered by this research.

As argued above, one of the central questions when it comes to the use of chatbots in shopper marketing in the fashion industry is the acceptance of consumers towards marketing chatbots. It should be noted that in comparison to a customer service bot, customers do not necessarily have to communicate with a marketing chatbot. For instance, if a customer has a question about returning a product, the service bot may be the easiest way to solve this problem. Other options, such as a telephone hotline or email, may require significantly more time. When a consumer visits an online shop, the consumer can shop without communicating with the marketing chatbot at all. The chatbot offers an additional service that is not necessarily needed by the customer. This makes it crucial to determine the acceptance of chatbots and thus the likelihood that customers will interact with them. Furthermore, chatbot features need to be highlighted. As argued above, customer satisfaction with a chatbot experience depends largely on whether a chatbot is perceived as helpful. Therefore, identifying desirable features of chatbots in relation to the fashion industry is also an objective. In order to clarify these questions, the following hypotheses are examined. For the formulation of the hypotheses, the requirements of Rosert and Roscher (2009) were used as a template. Particular attention was paid to finding controversial theses that could stimulate discussions (Rosert & Roscher, 2009).

HT1: The majority of the participants exclude communication with marketing chatbots.

HT2: When shopping online, subjects pursue the motive “Availability of Product Suggestions and Compilations”

HT3: When shopping online, subjects pursue the motive “Advice Availability”.

HT4: Subjects expect the chatbot to be able to answer questions about the characteristics of a particular item of clothing and to have the ability to suggest stylistically suitable supplements when putting together an outfit.

The first hypothesis (TH1) refers specifically to the acceptance of people towards chatbots. The hypotheses HT2 and HT3, refer to the support that customers would like to receive when shopping online in the fashion industry. At this point, the term chatbot is excluded. The reason for this is that chatbot is a term that has already been coined. The research should not be influenced by this. Hypothesis HT4 refers specifically to chatbot characteristics. The aim is to clarify how customers imagine an optimal chatbot.

C. Structure and Research Method

Now that the research objectives have been defined, it is described how the research in this thesis is structured. In order to work through the topic, a literature review is first carried out in chapters 2 and 3.

In chapter 2, the fashion industry is examined. With the help of Porter's Five Forces, the market is examined, and an overview is provided. In the following, industry-specific characteristics are presented and evaluated from the perspective of online retail. This includes a classification of the size of the online retail market in the fashion industry and a description of the market structure. This finally leads to the customer journey. The customer journey is explained and related to the online retail market of the fashion industry. A special focus is placed on shopper marketing. This plays a central role in the conversion of customers along the various phases of the customer journey. It will be illuminated how shopper marketing works and how it can contribute to improving the customer journey and the customer experience. Challenges for shopper marketing in online retail will also be taken into account. The challenges will be used to explain chatbot technology as a tool in shopper marketing and the added value it can offer.

Chapter 3 explicitly examines chatbots. First, the two most important chatbot concepts for shopper marketing are introduced. Then it will be clarified which limitations the chatbot concepts have and under which rules most chatbots operate today. Subsequently, the added value of chatbot technology in shopper marketing of the fashion industry is examined in more detail. Furthermore, the future development of chatbot technology is evaluated and an outlook on possible applications and

advantages is given. After the capabilities and future development have been examined, reference is made to the challenges. When implanting chatbots, there are important issues to consider, such as data security and the risk of frustrating customers with a poorly programmed technology. Chatbots are extensive programmes that need to be understood.

After the literature review part is completed, the research part of the thesis begins in chapter 4. This consists of a survey. The objectives and the theses to be investigated are presented in detail. Afterwards, the type of survey and its design are outlined. It is explained how the survey participants are selected and which methods are used to implement the survey. The data analysis ensures the quality of the survey by applying key values. Chapter 5 presents the empirical results. In the discussion in chapter 6, these results are analysed and interpreted against the background of the theses. Subsequently, a conclusion is drawn and recommendations for the implementation and development of chatbot technology are given.

The theoretical research in this thesis is based on systematic literature work. A wide range of primary and secondary sources are utilised in order to write a comprehensive content analysis. First, the topic is narrowed down with the help of a literature review in the fields of chatbot technology, chatbots in shopper marketing, chatbot communication methods, Artificial Intelligence, Online Retail, Shopper Marketing, Customer Communication and Fashion Industry. Open research questions and omissions in the current state of research on chatbot technology are searched for and the bachelor thesis is based on these. A detailed content analysis follows in the literature review of the thesis. A special focus is placed on the use of reliable primary sources.

In the research part of the bachelor thesis, a survey is conducted. Aspiration of the theses is to advance chatbot research in shopper marketing in Germany. Therefore, the theses deal with actual challenges and questions of chatbot research. A comprehensive survey will be conducted for this purpose. The results of the survey will be measured against the quality standards of descriptive statistics and statistically analysed. Based on this survey, the acceptance of customers towards chatbots will be determined and desired chatbot features defined. The results can be understood as a guideline for companies for the development of chatbot technology.

II. The Fashion Industry

A. Market Description (Porters Five Forces)

This section gives an overview of the market situation in the fashion industry. For this purpose, the Porter's five forces model is applied. “Porter's Five Forces” is a model that identifies and analyses five competitive forces that shape every industry and helps determine an industry's weaknesses and strengths. The stronger the forces, the more difficult it is to gain an advantage over competitors (Porter, 1980).

The first force is the potential of new entrants into the industry. The entry of new competitors into the market usually leads to an increase in price pressure. The risk of new entrants depends on the level of barriers to entry. Higher barriers mean a more protected position for existing competitors and thus increase the attractiveness of the sector (Porter, 1980). New entrants pose a threat to the established companies in the fashion industry. The fact that the market is open and there are no trade restrictions makes it easy for companies from abroad to gain a foothold in the German market (Sarnow & Schröder, 2019).

The second force is the power of suppliers. The bargaining power of suppliers determines the extent to which they can assert their interests in a business relationship with the company. A high bargaining power of suppliers has a negative impact on the company's profit potential (Porter, 1980). The bargaining power of the supplier can be defined as weak. Big fashion brands like H&M dominate the market. They can design value chains and choose between many partners in different countries. Suppliers are facing strong price competition (Hartmann, F., & Mietzner, D., 2020).

The third force is the power of customers. Similar to suppliers, the bargaining power of customers determines the extent to which they can assert their interests. A high bargaining power of customers has a negative impact on the company's profit prospects and thus on the attractiveness of the industry (Porter, 1980). In the German Fashion industry the bargaining power of buyers can be defined as strong (Kreutzer, 2013). Through various factors, the customer can exercise power over clothing companies. The lack of switching costs and the wide choice of alternatives are decisive for this (Sarnow & Schröder, 2019).

The fourth force is the threat of substitute products. A substitute is a product that satisfies the same need of the customer as the original offer. A substitute limits the potential profits of an industry (Porter, 1980). Since there are no substitutes for clothing and hardly anyone produces clothing themselves, the threat of substitute products can be defined as weak (Sarnow & Schröder, 2019).

The fifth force is the competition in the industry. This is about the intensity of competition within the market. High competition has a negative impact on price pressure and therefore also on profit prospects and market attractiveness (Porter, 1980). The stagnation of the market and the strong position of customers is leading to fierce competition in the German Fashion industry. The results are high marketing expenses and ever shorter collection cycles. In addition, customers' service requirements are constantly increasing. This poses new challenges for the companies (Sarnow & Schröder, 2019).

As you can see from Porter's five forces, the market in the fashion industry is highly competitive. Companies need to exploit all opportunities to gain advantages over each other. The upside for companies in the fashion industry is that their power over suppliers is strong and that clothes cannot be substituted. However, the companies have to fear new competitors and are subject to the bargaining power of customers, who can choose between many different brands. This forces companies to constantly look for new ways to improve customer loyalty and generate new shoppers. It is this compulsion to exploit new opportunities that has led the fashion industry to online retailing years ago. Today, online retail is one of the main distribution points for clothes. But companies are still looking for ways to optimise online retail and to outmanoeuvre their competitors.

B. Online Retail Fashion Industry

Online retail offers various advantages for companies. Customers can visit the online shop twenty-four hours a day, every day of the week (Hudson, 2018). In addition, customers can shop from the comfort of their own home. This means that the online shop is much easier and more convenient to reach than a conventional shop. It also eliminates significant costs that would be incurred for a shop's premises (Hudson, 2018). It is therefore not surprising that online retail has grown significantly over the past 20 years (see Figure 1). For instance, the entire e-commerce sector in Germany

turned over 20.2 billion euros in 2010 (Statista, 2021). In 2019, the turnover of the fashion industry in the e-commerce sector only was already higher (Statista, 2022b).

In 2020, the e-commerce sector in Germany turned over 72.8 billion euros (Statista, 2021). The fashion industry accounted for 21.18 billion euros of this (Statista, 2022b). This corresponds to a share of close to 30% (own calculation based on Statista, 2021 and Statista, 2022b). In the previous year (without the effects of the Covid-19 pandemic), it was as high as 31.6% (own calculation based on Statista, 2021 and Statista, 2022b). These figures show how large the fashion industry is in online retail. The importance will increase even further considering that the e-commerce sector of the fashion industry has grown at an average annual rate of 14.05% between 2010-2021 (13.86% without the Covid-19 pandemic affected years 2020 and 2021) (see Figure 1).

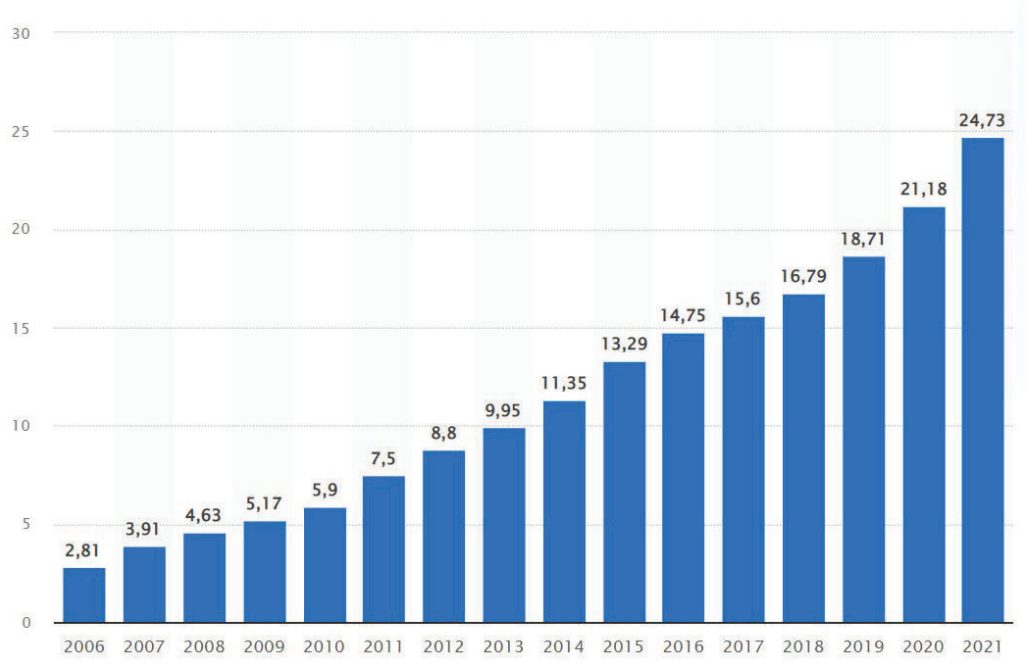

Figure 1: Revenues in online fashion retail in Germany in the years 2006 to 2021 (In billion euro) (Statista, 2022b)

The players in online retail in the fashion industry can be divided into 3 categories. The first category is fashion online retailers. These are retailers that specialise in selling clothes (Zaharia, 2019). A distinction can be made here between online fashion retailers and fashion brand shops. The first sell the products of various fashion brands. These include, for instance, Zalando (zalando.de). The second are online shops that are operated by the brand itself and only sell products of its own brand. These include, for instance, the Adidas Store (adidas.de), the H&M Store (hm.com) and the Zara Store

(zara.com). 2. are the Generalists retailers. These shops sell a wide range of products and offer, among others, the products of some fashion brands. These shops include Otto (otto.de) Galeria-Kaufhof (galeria-kaufhof.de) or Tchibo (tchibo.de) (Zaharia, 2019). The 3rd category is online trade held via Marketplace such as Amazon (amazon.de) (Zaharia, 2019).

The market leader is zalando.de with net sales of USD 2.61 billion (approximately 2.48 billion euros) (ecommerceDB, 2022a). This makes it the third largest online retailer in Germany overall (Statista, 2021). The second largest online retailer in the fashion industry is the generalist otto.de, which could turn over almost 2 billion USD (1.85 billion euros) (ecommerceDB, 2022a). The first shop owned by a brand is in third place, hm.com, with a turnover of almost 1 billion USD (950 million euros) (ecommerceDB, 2022a). These figures show that there are already some established players in the online retail market. However, the competition is also high. There are over 50 players in the market with a net sales volume of over 75 million USD (71 million Euro) (ecommerceDB, 2022b).

Taking into account the different competitor types and the number of operating brands, it can be concluded that the online retail market in the fashion industry is highly competitive. Furthermore, the growth of the market shows how vigorously brands and retailers are trying to increase their sales. The competitive situation in online retail results in the fact that the optimisation of the customer journey and shopper marketing is very important for companies and retailers. In order to understand how shopper marketing can be used to gain an advantage over competitors, the customer journey is examined in more detail below.

C. Customer Journey

“The customer journey is defined as a process that describes the customer's journey from the first contact with the brand to the actual purchase”[1] (Böcker, 2015, p. 167). More recent models divide the customer journey into a pre-purchase phase, a purchase phase and a post-purchase phase (Klein et al., 2020). Such models include post-purchase customer management in the Customer Journey. However, these

[1] Original text by the author: “Die Customer Journey ist als Prozess vom ersten Kaufimpuls bis zum Kaufabschluss definiert".

activities are not discussed in this paper, therefore, the classic definition of Böcker is applied.

The interaction between the customer and the brand is decisive. This takes place through various phases and contact points (Zinkann & Mahadevan, 2018). The contact points are where the brand can interact with the customer and convince him of its own product, service or brand (Duncan & Moriarty, 2006).

The starting point of the model is the unawareness stage. This group of people is not aware of the product or not in need of it. This is where every respondent is at the beginning (Zinkann & Mahadevan, 2018). The first stage of the customer journals is the awareness stage. People are assigned to this group when they come into contact with the brand, the product or the service. The first impulse can happen, for instance, through other consumers (word of mouth) (Kirchgeorg et al., 2020) or through marketing impulses (Böcker, 2015). The second stage is the Consideration Stage. In this phase, the customer considers purchasing a product. He weighs up different brands and obtains detailed information. This phase can vary in length for different products. For more expensive or complicated products, it usually takes longer than for uncomplicated and inexpensive products (Kirchgeorg et al., 2020).

The Consideration Stage leads to the Decision Stage. In this stage, the customer takes a decision. He now has all the information together and finally decides to purchase the product resp. decides in favour of one of the providers (Kannan & Kulkarni, 2022). This phase ends with the purchase of the product (Zinkann & Mahadevan, 2018). All further interactions are assigned to the post-purchase phase, which is not part of the classic customer journey.

Converting customers through the different stages of the customer journey is very important for companies. The main question is what communication and incentives does a company need to use to convert a customer from one stage to another? This can be very different for each stage. Someone who is in the awareness stage might want to get more information about the company. Someone who is in the decision stage might want to make an attractive offer. Communication with customers is crucial. Marketers have various channels at their disposal for this purpose (Reinartz, 2018). In order to understand the communication channels and tools, shopper marketing is examined in more detail below.

D. Shopper Marketing and decision making

In the introduction, shopper marketing is defined as "[...] the planning and execution of all marketing activities that influence a shopper along-and beyond-the entire path-to-purchase, from the point at which the motivation to shop first emerges through to purchase, consumption, repurchase, and recommendation" (Shankar, 2011, p. 4).For this paper, Shankar's definition is applied to the area up to purchase. Post-purchase actions are not relevant for this work. Shankar's definition includes a wide range of marketing activities. These include promotion, customer communication, design and atmosphere of the online shop, in-store assortment and merchandising, etc. (Shankar, 2011). The exact scope of shopper marketing activities is defined variably in the literature and can include additional activities depending on the applied definition.

Stafflage (2015) describes shopper marketing as a concept for which customer understanding is fundamental. The greater the understanding of the target group, the more precisely shopper marketing can act. At this point, the Mehrabian and Russell's (1974) Stimulus-Organism-Response Model (S-O-R Model) must be mentioned (see Figure 2). It can be seen that the variable in the model is the organism. The response of the organism depends on several factors. These include involvement, culture and reference group (Backhaus & Paulsen, 2018). Based on the S-O-R model, it can be identified that knowledge that enables the qualification of the organism/customer can be exploited to apply the right stimuli to the right customer (see Figure 2). The qualification of shoppers and the personalisation of communication with them is increasingly important (Bruhn & Hadwich, 2020a). The above-described customer journey is one of the models applied in this context (Shankar, 2011).

When using stimuli, one must refer to the two processing levels. These are the affective level and the cognitive level. The affective level processes stimuli emotionally and often subconsciously. The cognitive level processes stimuli rationally (Schumacher, 2007). Shankar (2011) further describes in his work that the reason for shopping activities can be based on affective or cognitive motives. The reason for shopping activities does not have to follow a logical reason but can be purely emotional. In this context, the customer experience plays an important role. This has an immense influence on affective decision-making and the general perception of the brand. The objective is to make the interaction with the brand/shop as pleasant as possible and to ensure the most positive experience (Gerdes, 2018). A successful experience results in a

particularly strong provider and brand identification and increases customer loyalty (Gerdes, 2018).

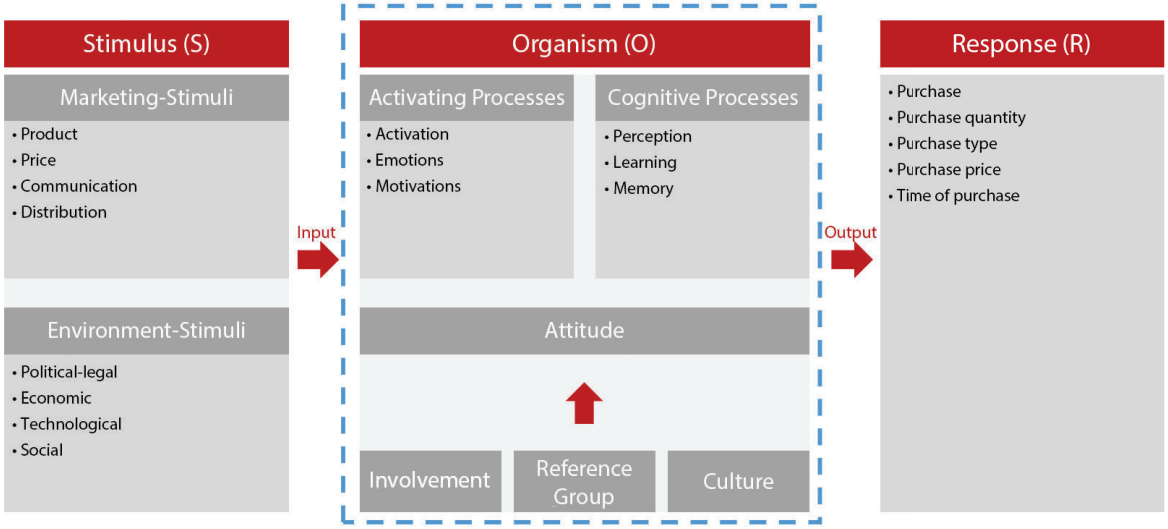

Figure 2: S-O-R Model (Mehrabian & Russell, 1974; Pispers & Dabrowski, 2011)

What needs to be mentioned in the context of shopper marketing is the importance of the point of sale. Point of sale is the place where products are sold (Gröppel-Klein, 2006). Stafflage (2015) writes in his work that 70% of the purchase decision is made at the point of sale. Häusel (2010) likewise reports that 65% of purchases are made spontaneously. However, when looking at this figure, the product category must be taken into account. The number of spontaneous purchases varies for different product categories. Nevertheless, it is an indicator of the importance of shopper marketing. In this context, the key figure website traffic conversion to sales should be mentioned. This figure describes the percentage of website visitors who actually purchase a product. It also allows to compare expenditure with actual sales. A customer experience, for instance, is more difficult to quantify and has long-term consequences for a company's sales. It is therefore one of the main objectives of shopper marketing.

A new marketing tool that can be used at the point of sale is the Lead Generating Marketing Chatbot. Some websites are already using this tool to enhance their online shop and improve website traffic conversion rates. As described above, one of the main challenges in today's shopper marketing is to qualify the customer correctly and to persuade them to make a purchase by using the right stimuli. In this field (personalised marketing), one suspects great potential in the use of chatbots. These are able to qualify customers and assign them to the right leads. Furthermore, well-

programmed chatbots have a positive effect on the customer experience. In the following, this topic will be examined in more detail and the capabilities and challenges of chatbot technology will be highlighted.

III. The Concept of Chatbots in Shopper Marketing

A. Chatbot Approaches

In the following, the two most important chatbot approaches in relation to shopper marketing are presented. These are 1. the ruled based chatbot and 2. the AI and NLP based chatbot.

1. Rule-based Chatbot

The rule-based chatbot is based on giving strict rules. It can recognise input (key words) and give previously formulated answers. There are defined response mechanisms for each stimulus (Kaushik et al., 2017). The communication patterns have to be created, written and organised manually. The chatbot is not able to write answers on its own (Kaushik et al., 2017). A rule-based chatbot can be based on text input by the user as well as on a predefined decision tree (Drift, 2022). If the chatbot is based on text input, it can give defined answers to users' questions. For instance, to a question containing the key word "sustainability", the previously defined text about the sustainability of the company is displayed. The chatbot cannot understand the quality of the question. For instance, the user might ask if the company wants to improve sustainability in the future or if sustainability is a problem at the production site in a certain country. However, the chatbot only understands the keyword sustainability and would display the same answer regardless of the circumstances of the question.

In the case of a decision tree, the interactor can follow a flow structure. Both questions and answers are then already predefined and the user can move within the flow structure. (Drift, 2022). Nevertheless, it is also possible to mix both approaches. The AdLingo chatbot, which is used by the provider Spectrm, can offer the user a decision tree and also allow user questions. (Spectrm, 2021).

Another disadvantage of rule-based chatbot approach is, that if there are stimuli that have not been defined for the chatbot beforehand, it cannot respond to them satisfactorily. Since the chatbot is only able to respond to the previously defined keywords (Adamopoulou & Moussiades, 2020). This can become frustrating for the user. Companies therefore tend to connect the chatbot with real people who can intervene and continue the dialogue. This can be done through live chat or a hotline

service. In addition, the chatbot is not able to learn independently. All knowledge that the user can retrieve must have been entered manually by the developer beforehand.

One type of ruled-based chatbot is the lead generating marketing chatbot/ conversational ads. By interacting with the chatbot, the user is supposed to follow paths that eventually lead to leads (Spectrm, 2021). Such leads can be: Website link, brochure, purchase, view offers, find shop, register, etc. (Spectrm, 2021). Conversational ads can appear on the internet website of the shop in the context of shopper marketing, but it can also be linked to an advertising banner on, for instance, Facebook (Spectrm, 2022).

2. AI and NLP based Chatbot

A chatbot works either on the basis of defined rules (also called "rule-based") or on the basis of artificial intelligence. As mentioned before Rule-based chatbots use a catalogue of defined questions and answers. AI-based chatbots can write texts themselves (Adamopoulou & Moussiades, 2020).

The AI-based chatbots are usually based on Natural Language Understanding (NLU) and Natural Language Processing (NLP). This technique is essential for communication with the user. The NLU, i.e. the understanding of language, is part of the NLP, i.e. the processing of language (Adamopoulou & Moussiades, 2020). NLU and NLP aim to extract meaning and context from natural language user input. The speech input can be written or spoken (Jung, 2019). The chatbot should not only be able to understand the words and match keyword to specific responses, but to understand the actual sentence, recognise the user's intention and formulate a response on its own (Kaushik et al., 2017).

The NLP and AI-based chatbot is a free-text bot that understands natural language and identifies content by factual meaning and intention (Kaushik et al., 2017). Most NLP programmes have the capability of artificial intelligence and are able to learn and evolve independently. The chatbot learns through every dialogue (Adamopoulou & Moussiades, 2020).

The knowledge that NLP and AI-based chatbots can access can be unlimited. If the chatbot is connected to an Open Domain, it can access the entire internet to answer questions (Adamopoulou & Moussiades, 2020). Examples of this are Apple's Siri. The

chatbot can understand the user's spoken language and access a variety of online data to answer (Adamopoulou & Moussiades, 2020).

It must be mentioned that most chatbots used in marketing today follow at least a basic structure in the sense of a rule-based chatbot. They can also be equipped with AI and NLP, but the basic structure of, for instance, lead generating marketing chatbots is that of a rule-based chatbot. However, the AI chatbot must be mentioned. Particularly when you consider the possibilities that a sophisticated AI chatbot would bring. In the following, the capabilities of the chatbot will be examined.

B. Chatbots in Shopper Marketing

Now an outlook is given on how chatbots can be used in shopper marketing. The expected future development of chatbot technology and the associated business benefits are described subsequently

1. Chatbot Capabilities and Benefits for a Business

As outlined above, in today's business world, communication between brand and customer has become increasingly important. It is crucial to approach customers in the right way. Furthermore, the customer experience is becoming more and more important in order to retain customers in the long term (Drift, 2022).

One of the qualities that makes the chatbot attractive is simple implementation and low cost. With little effort, a chatbot can be adapted to the individual needs of a company and its customers (Adamopoulou & Moussiades, 2020). Adamopoulou and Moussiades (2020) states further about chatbots: “Most implementations are platform-independent and instantly available to users without needed installation” (p. 373). Lasek and Jessa can also prove that setting up a chatbot is relatively easy. A chatbot that is used in a specific field does not even need a large database in order to be able to answer many questions (Lasek & Jessa, 2013).

Furthermore, the chatbot is available to customers 24/7, on 365 days of the year. The number of interactions that a chatbot can carry out simultaneously is almost unlimited. This makes the company accessible at all times, regardless of customer volume (Ranoliya et al., 2017). A comparable service through life chat or a telephone hotline would mean significantly higher costs (Ranoliya et al., 2017). The chatbot only needs

servers and can be managed by a small team. A hotline or life chat for a major company would require numerous employees, office space, computers and other equipment.

Moreover, improved reachability leads to a significant increase in customer satisfaction. If the customer is helped quickly with a problem or has a question answered immediately, he is more satisfied than if he is stuck in lengthy telephone waiting loops. Especially considering that many customers have similar problems and questions, the chatbot is suited to answer a large part of customer enquiries (Kohne et al., 2020). Online shoppers usually bring little time and patience with them (Kohne et al., 2020). Customers do not want to spend a lot of time clicking through websites and downloading PDFs to get to the information they need. A chatbot can prevent this by navigating and guiding the user. It can link the customer directly to the desired information (Drift, 2022). Thus, the customer experience can be improved.

The chatbot provider Spectrm (2021, Headline) writes on its website that its chatbot is capable of „Generate more qualified leads by having personalized conversations at scale”. Furthermore, Spectrm (2021, Second subheading) states: „Prospect, qualify and acquire customers in a single conversation”. These statements must be understood in the context that Spectrm is marketing its product, the chatbot. The statements are not neutral. Nevertheless, it can be considered as an indicator for assessing the capabilities of chatbots. The promise that Spectrm makes to their customers is to generate qualified leads. This means that the chatbot is able to assign a suitable lead to a given user. A website visitor who is still in the “Consideration Stage” of the customer journey and looking for information may be qualified for a brochure. While a visitor who is already in the "Decision Stage" will be provided with a suitable offer.

Murtarelli's statement is of interest in this context. He writes that "chatbots help organisations automate and aggregate human data at a large scale in order to explore and understand consumers' behavioural patterns" (Murtarelli et al., 2021). Murtarelli further argues that this information can be used to optimise marketing activities and customer communication. The fact that chatbots are able to guide customers in different stages of the customer journey has also been proven by Kohne et al (2020).

The ability of the chatbot to collect information and process it, as described by Murtarelli's, can also provide added value in the context of the S-O-R model. As described above, the challenge of the S-O-R model is to define the organism (the black box).

Converting website traffic into sales is one of the central tasks in online shopper marketing. Companies spend a lot of effort to get customers to visit their website. However, of the subjects who visit the website, only 0.25%-1.0% buy a product, according to Porter (2022). That mean 99% of people who visit a website do not purchase anything. Shopper marketing is crucial for the conversion rate. The chatbot is one of the tools being used today to convert more website traffic into sales. That the chatbot is capable of doing this was shown in the study by Lasek and Jessa (2013). In the study, 4165 conversations (17413 user statements) were examined. The data was collected from four websites of hotels (2) and guesthouses (2). The data was gathered from March to August 2011 in Poland. The group of respondents consisted of persons who wanted to book overnight stays on the websites. A success in increasing the turnover could be determined with comparable values from the previous year. However, this value must be taken carefully. There could also be other reasons behind the increase in sales that are not related to the chatbot. The fact that a chatbot has a positive effect on the website traffic conversion rate can also be proven by Kohne et al. (2020). At this point, it must be noted that this applies to a properly implemented and properly programmed chatbot. A faulty and insufficient chatbot may have the opposite effect.

Another purpose of the chatbot is to be able to promote specific products. The chatbot can be used for a promotion campaign. For instance, the Adidas store could build a chatbot around promoting a certain shoe. It is also possible to combine the chatbot with an advertising campaign that takes place on other platforms (Drift, 2022).

Furthermore, the chatbot can be programmed to answer the customer's questions about products and services (Kohne et al., 2020). In this case, the aim of the chatbot is not to lead the customer directly to leads. Instead, it merely provides passive support to the shopper. Since such questions are often similar, a chatbot is ideally suited to answer them and to replace a salesperson at low cost (Kohne et al., 2020). At this point, it is important to mention that chatbots can provide significant added value for a company that goes beyond shopper marketing. For instance, chatbots are able to

provide a 24/7 service for all kinds of questions and complaints. That a chatbot is successful in dealing with customer complaints was shown in the work of Xu et al. (2017). That chatbots are very successful in dealing with simple customer questions can be proven by Kohne et al. (2020).

Another point is that a chatbot has the ability to increase user engagement. The chatbot can actively engage website visitors. Besides answers to questions, a chatbot has a lot more to offer: quizzes, announcements, small talk or other advertising and marketing activities.

In general, it can be said that the chatbot is a very flexible tool with many different capabilities and advantages. The chatbot is easy to setup and can save enormous costs. Furthermore, it can enhance customer service through constant availability. In addition, the chatbot is able to gather information about the customer and choose the communication strategy based on this information. Another important area where the chatbot can add value is website traffic conversion. The many advantages make the chatbot an exciting tool overall. Therefore, it is not astonishing that the chatbot is constantly being further developed and improved. The expected development of the chatbot is described in the following.

2. Expected Future Development

The chatbot is a tool whose full potential has not yet been exhausted. Chatbot technology is constantly being advanced and new possibilities are being explored. The combination of Big Data analytics, artificial intelligence technologies and the fast and extensive computing capacities enables the fast and efficient provision of personalised services (Cohen, 2017).

In the future, it can be expected that Artificial Intelligence will be increasingly used in chatbots (Adamopoulou & Moussiades, 2020). It can also be expected that Natural Language Processing and Natural Language Understanding will be optimised. This will enable chatbots to better understand messages and provide better responses (Adamopoulou & Moussiades, 2020). This development will make the chatbot even more interesting as a tool in shopper marketing. The chatbot is getting better at imitating a real human. In some cases, it is not obvious to users whether they are communicating with a human or a chatbot (Murtarelli et al., 2021). Due to the enormous

cost advantage chatbots have over live chats with real people or telephone hotlines (Ranoliya et al., 2017), the chatbot could increasingly replace those methods.

It must also be considered that voice control of chatbots has made enormous progress in recent years (Murtarelli et al., 2021). Examples include Amzon's Alexa and Apple's Siri (Adamopoulou & Moussiades, 2020). This also applies to the voice of the chatbot, which is becoming more and more similar to the voice of humans (Murtarelli et al., 2021). This development will also be further exploited in the future and make the chatbot even more similar to humans. This could lead to chatbots being able to act as a telephone hotline and carry out entire telephone calls independently.

Another area where further improvement is expected is the degree of customisation. Robra-Bissantz et al. (2020) argues that the degree of customisation will become increasingly crucial in the future. The ability to respond individually to customer requests and to provide customers with personalised offers is important. Robra-Bissantz et al. (2020), argues that marketing technologies will be optimised in this regard. Even today, chatbots are already capable of responding to customers individually. This is argued by chatbot developers such as Spectrm (2021) and Porter (2022). Furthermore, the chatbot already has the ability to obtain and process detailed information about the customer (Murtarelli et al., 2021). Putting these arguments together, it can be assumed that chatbots will be able to act in an even more personalised way in the future. Especially taking into account that chatbot technology is constantly being developed and advanced (Cohen, 2017).

Overall, it can be expected that chatbot technology will continue to be developed in the coming years and will offer new features.

C. Challenges

Previously, it was outlined what added value the chatbot can offer. This is at least true for chatbots that are well designed. If a chatbot is used poorly, the effect can turn negative. In the following, the challenges that need to be taken into account when using chatbots are considered.

Chatbots are often branded with the feature of artificial intelligence. For some, this creates the image of a tool that can answer pretty much anything, like Apple's Siri, for instance. However, this is not the case with most other chatbots. Many chatbots are

based on less sophisticated technology than for instance Apple's Siri. Expectations need to be kept realistic (Kohne et al., 2020).

As previously explained, the chatbot is capable of collecting data on a large scale about the user. However, this requires the trust of the interactor. In order to communicate successfully with the chatbot, the user must provide information (Bruhn & Hadwich, 2020b). If there is no trust, the user does not share the information and the chatbot cannot work properly. It is therefore not astonishing that the topic of data security has become very important. Data scandals, data abuse or data theft can become a damaging scandal for a company (Barker, 2021). Kohne et al. (2020) also argues how image damaging a lack of data security is for a company's reputation. It is therefore necessary to guarantee the security of customer data. For this, the handling of data must be done carefully. Furthermore, the chatbot must be hack-proof in order to avoid theft (Barker, 2021).

Like most technologies, success comes down to deploying them properly. Doing so sounds simpler than it is. It is necessary that the company understands and fully exploits the benefits and opportunities of the technology. Kohne et al. (2020) describes in his work, innovation for the sake of innovation. By this he means that companies adopt new technologies just because their competitors are doing so. However, they miss the opportunity to deal intensively with the technology. This leads to many chatbots being immature and faulty (Kohne et al., 2020).

The core task for a chatbot is to be helpful (van den Broeck et al., 2019). A chatbot that cannot assist or cannot answer many questions will cause frustration for the user. Therefore, it is crucial that the chatbot can access as large a database. According to Brandtzaeg and Følstad (2017) obtaining information is one of the main objectives of users when interacting with chatbots.

Another challenge is to constantly develop the chatbot. The aforementioned database must be adapted to user requests and should be constantly expanded. Gaps in the database need to be closed. Kohne et al. (2020) even advise intensive training before the chatbot is launched. Continuous development also applies to the conversation processes and their optimisation (Kohne et al., 2020).

To ensure a correct application, a chatbot must be adapted to the personal requirements of a company. This means defining the target groups of the

company/product/campaign and designing the chatbot accordingly (Kohne et al., 2020). The usability must also be mentioned here. A chatbot with a too complicated and unclear interface would probably only lead to frustration.

Dubrova (2018)explains in her article the problem of chatbots misunderstanding the user's intention. "Unlike machines who know one and only possible way of saying things - people do it in a variety of ways" (Dubrova, 2018, 6th paragraph). This creates the risk of user frustration. Misunderstandings can be due to the misinterpretation of user emotions (Barker, 2021) but also to the use of slang words (Lasek & Jessa, 2013). The importance of emotional understanding for chatbots is also argued by Xu et al. (2017). They argue that many requests to chatbots are of an emotional nature and that understanding them, as well as dealing with emotionally charged humans, is a key challenge for chatbot developers (Xu et al., 2017).

It must also be mentioned that a chatbot that is only rule-based and not equipped with Natural Language Processing cannot understand the user's emotions and their intentions at all. As previously mentioned, this type of chatbot is only able to respond to keywords.

Xu et al. (2017) point out that a large proportion of customer enquiries are emotional and informal. Taking this into account, the external design of the chatbot must also be adapted. Human likeness can be suggested by using visual cues like human figures, identity cues like human associated names. Furthermore, when designing the flow structure of the chatbot, attention should be paid towards using natural language and writing styles(Go & Sundar, 2019).

Chatbots are missing human qualities. Even if organisations enhance the personability of chatbots by providing user-friendly software, it is still a robot. A chatbot cannot judge a situation by itself, it has no empathy and cannot discretion. The chatbot follows the algorithm and makes decisions based on it (Murtarelli et al., 2021). The algorithm may know the correct way to deal with a number of situations, but there is also the risk that situations are not understood and the chatbot reacts in an inappropriate way. Bruhn and Hadwich (2020b) argue that as digitalisation and automatization progress, the customer must not be forgotten. Reinartz (2018)writes in his work that customers have an increasing need for interaction with the brand and want to be accompanied along

the customer journey. It is therefore important to pay attention to the extent to which chatbots are used, as it is not certain whether a robot can fully meet this desire.

The arguments presented by Bruhn and Hadwich (2020b), as well as Reinartz (2018) lead to the next challenge, the lack of individuality. A chatbot in marketing is designed to talk to a large number of customers. This bears the risk that the communication with the customers appears impersonal (Bruhn & Hadwich, 2020b). In this context, it is also important that a chatbot does not appear inflexible and unadaptable (Bruhn & Hadwich, 2020b). It is a challenge to design the chatbot in such a way that it gives the customer a feeling of personalisation.

When innovations are introduced to the market, it usually takes some time for them to become established on the market (Kohne et al., 2020). This phenomenon can be explained by Rogers' diffusion theory. According to this, there is a share of 13.5% of users who are very quickly open to new technologies. This group is called "early adopters". However, it is necessary to win the majority for the innovation and this takes time (OnlineMarketing, 2013). Acceptance is a crucial challenge. A chatbot can be very helpful, but if it is not accepted, it cannot survive on the market. Examining how high the acceptance and how high the reservation towards chatbots is elementarily important in order to evaluate the perspective of the chatbot technology on the German market.

As outlined above, there are quite a few challenges in relation to chatbot technology. It is important to keep the expectations of chatbots at a realistic level. Also, companies should be careful how they handle the data they gain and the user trust. Furthermore, the application is a key challenge. Every advantage a chatbot can offer depends on the right design. The customer's emotions must be taken into account and misunderstandings have to be avoided. It is therefore not surprising that chatbot developers try to make the chatbot human-like. Human names and profile pictures are often used. A central problem, however, is that it has no empathy or judgement. A chatbot can only follow the algorithm, which is why decision-making is purely rational. Another danger that chatbot developers face is the loss of individuality. Customers want personal contact. It is questionable whether the chatbot can grant this extensively. The last point is customer hesitation. It is important to overcome the fundamental reservations of customers towards chatbot technology and to increase

acceptance. In the following, a precise focus will be placed on this topic. It will be revealed how great the rejection of chatbots is in Germany.

IV. Methodology

A. Research Objectives and Hypotheses

The research objective of this study is to identify two aspects. 1. to show the acceptance of recipients towards chatbots. Acceptance is understood to be either a positive attitude towards the innovation, a behavioural intention to use the innovation or the actual use of the innovation (Kohne et al., 2020). This is an elementary part to determine whether chatbots have a chance in the fashion industry in Germany. As we know, cultures differ all over the world. This means that some things are accepted in one country and not in another. Therefore, it is important to define the acceptance for the fashion industry in Germany. If, for instance, this study comes to the conclusion that chatbots are widely rejected, much more educational work may be needed. The chatbot design would have to look different. 2. the desired chatbot characteristics should be worked out. Determining acceptance is one thing. It is also essential to know what features recipients expect from chatbots. Can the chatbot help design an outfit? Should the chatbot be able to answer questions about product features? Would recipients like a digital assistant to accompany them when shopping online? These are elementary questions that need to be answered. The following 4 theses were developed to explore this.

> **HT1:** The majority of the participants exclude communication with marketing chatbots.
>
> **HT2:** When shopping online, subjects pursue the motive “Availability of Product Suggestions and Compilations”
>
> **HT3:** When shopping online, subjects pursue the motive “Advice Availability”.
>
> **HT4:** Subjects expect the chatbot to be able to answer questions about the characteristics of a particular item of clothing and to have the ability to suggest stylistically suitable supplements when putting together an outfit.

The first thesis is aimed at the complex of topics described above regarding the acceptance of users towards chatbots. The second thesis aims to determine how important the availability of compilations and product suggestions in relation to fashion articles are for recipients. Since these can be characteristics of chatbots in the fashion industry, it is reasonable to explore this. The third thesis describes how important the availability of suitable advice and support from third parties is to subjects when shopping online in the fashion industry. This is also a possible characteristic of

chatbots. The fourth thesis specifically describes potential characteristics of chatbots. The study aims to show whether recipients desire these features or not.

B. Choice of Method

In empirical survey research, a fundamental distinction is made between two different methods (Kelle et al., 2017). Qualitative research uses unstructured methods of data collection (e.g., participant field observation, narrative interview) in the course of a circularly or iteratively structured research process. This will result in qualitative or non-numerical data (e.g., text, image, video material). These can be subjected to interpretative methods of data analysis (Döring & Bortz, 2015). Quantitative research uses structured methods of data collection (e.g., standardised questionnaire surveys, psychological test procedures, physiological measurements), from which numerical data (measured values) result. These data sets can be subjected to statistical methods of data analysis (Döring & Bortz, 2015).

The reason why quantitative research has been chosen for this thesis is that this method offers many advantages and fits best to the examined topic. In this survey, it should be shown how high the acceptance of respondents is towards chatbots and which features consumers would like to see. In order to map this in a meaningful way, as many opinions/perspectives as possible are needed. It is important to reach a large number of people. This is feasible with quantitative research (Kelle et al., 2017). In addition, it is one of the objectives to find out whether these variables vary with changes in factors (age, level of education, gender, income, etc.). Also in this case, quantitative research can illustrate this better (Döring & Bortz, 2015). Furthermore, quantitative research offers many advantages. One of the advantages is the anonymity of the respondents. This means that respondents are more willing to answer truthfully (Döring & Bortz, 2015). Furthermore, a large number of respondents can be reached with little effort (Kelle et al., 2017). This makes quantitative research attractive. It should also be considered that questions in quantitative questionnaires tend to be narrowly defined and subjects have little room to express themselves (Döring & Bortz, 2015). Nevertheless, this research method is ultimately the one that best suits the investigated issue. The aim is to measure opinion and determine possible correlations.

C. Survey Design

The survey contains 13 questions spread over 5 pages. In addition, there is an introductory and an end page. Participants should be able to complete the survey within 10 minutes. For the creation of the questionnaire, the software of soscisurvey (www.soscisurvey.de) was used.

The survey begins with the introduction. The introduction briefly explains the topic and the reason for the survey. Moreover, the participant is informed about his or her rights and obligations. The respondent is informed that the survey will be conducted anonymously and that only the survey creator and the responsible professors have access to the survey results. In addition, the participant undertakes to answer the survey truthfully and also assures that he/she is carrying it out voluntarily. The participant must agree to the information provided in order to start the questionnaire.

The second page of the questionnaire contains questions 1-5, which are related to categorising the participant (socio-demographics). The questions ask about gender, age, professional qualification, income and interval of online shopping. These questions allow to classify the participant. The choice of gender, age and monthly income categories is based on Zaharia (2019). The topic of the study is shopping motives in online shops. Since the topic is related, the demographic characteristics of the study can be used as a model. The ranges of monthly income (SD04) used are also based on Zaharia (2019). In addition to the demographic characteristics of Zaharia, the characteristics professional qualification (SD03) and buying behaviour (SD05) were examined. Professional qualification was examined to provide a measure of the respondent's level of education. Buying Behaviour was assessed to determine if there are differences between frequent buyers of fashion items and infrequent buyers of fashion items. If there is a strong discrepancy, the frequency of purchase should be taken into account in the evaluation of the answers. This is because someone who very rarely buys fashion items is probably less valuable to companies than someone who buys them regularly.

The third page of the questionnaire consists of question 6 (OS01) and 7 (OS02), which relate to online shopping behaviour in relation to fashion in general. This section deals with what kind of support participants desire when shopping online. The motives "Availability of Product Suggestions and Compilations" (HT2) and "Advice Availability"

(HT3) are examined. It makes sense to examine online shopping behaviour in general, as this allows to work out the users' wishes without using the labelled term chatbots. This is advisable since it can be argued that chatbot is a term with which recipients already associate an opinion. To determine the attitude of the participants, a 5-point Likert scale is applied. The concept of the Likert scale is that respondents can rate statements on a scale of approval and disapproval. In this way, the degree of approval or disapproval can be determined (Likert, 1932). The five levels applied are “Strongly Disagree” (1), “Disagree” (2), “Neutral” (3), “Agree” (4) and “Strongly Agree” (5). The choice of this value is based on Likert (1932) and on Zaharia (2019), who used this scale range for her research.

Page four consists of question 8 (AC01). The participant is asked if they have ever communicated with a chatbot. To avoid misunderstandings, the term chatbot is defined and explained at this point. If the participant answers “no”, he or she will skip the following page 5. The questions on page 5 refer to the experiences that participants have made in interacting with chatbots. These questions are pointless for recipients who have never communicated with a chatbot.

On page five there are question 9 and 10. Question 9 (AC02) refers to the situation in which the respondent communicated with the chatbot. Question 10 (AC03) clarifies how helpful the interaction with the chatbot has been. This outlines the experiences that participants have had with chatbots and how positive or negative this was. Helpful is asked because, according to Zarouali et al. (2018), the perceived helpfulness is elementarily important when an experience with a chatbot is rated as positive.

On page 6 of the questionnaire, there are questions 11 (AC04), 12 (CC01) and 13 (CC02). Question 11 is intended to determine the participants' acceptance of chatbots. A 5-point Likert scale is used for this purpose. The participant can rate a total of 9 topics. Questions 12 and 13 likewise utilise Likert scales. Question 12 comprises 8 topic points and is intended to determine which characteristics chatbots should have in the fashion industry. Question 13 is structured similarly. The participants are shown 6 scenarios. The scenarios are about chatbots in online stores in the fashion industry. The respondent can evaluate the functions that the chatbots have in the different scenarios in terms of their usefulness. In this way, desired chatbot features can be determined. The items of section CA are assigned to thesis 1, while the CC section is valid for thesis 4.

The last page (7) marks the end of the questionnaire. Here, the respondents are thanked for their participation.

The following points were taken into special consideration. Firstly, it was ensured that each question was meaningful and targeted. Furthermore, it was checked that all questions contribute to the research topic. The objective was to avoid excessive processing time, since this could lead to many respondents abandoning the questionnaire (Diem, 2002). Moreover, attention was paid to formulate the questions in an engaging manner to encourage participants to answer them. Furthermore, it was made sure that there was not too much content on the pages. Especially at the beginning of the questionnaire, only a little content per page was used. In addition, the questionnaire was divided into sections to provide more clarity (Diem, 2002).

D. Pretest

A pretest was conducted to ensure the quality of the questionnaire and to eliminate errors. The aim was to ensure that the questionnaire met the required standards and that each question was understandable and clearly defined (Collins, 2003). The pretest is based on what Presser et al. (2004) describes as conventional pretesting. This procedure is based on selecting a number of subjects to complete the questionnaire before the actual start of the survey. The participants are asked for their opinion and invited to make comments. In this way, errors, misunderstandings and incomprehension's can be clarified in advance (Presser et al., 2004).

For the pretest of this questionnaire 6 participants were used. The pretest took place between 06.06.2022 and 13.06.2022. As a result of the pretest the following points were identified. The introduction was shortened. In addition, it was discovered that the introduction could be skipped without clicking on the Agree field. This error was corrected. Furthermore, some wording on pages 2 and 6 was improved. Question 12 was shortened. After these points were improved, the pretest was completed.

E. Sample Selection and Implementation

After the pretest was completed, the survey was published. The questionnaire was accessible online via a web link. For the selection process of the participants, active selection was chosen. This means that survey participants were approached and interviewed actively (ADM Arbeitskreis Deutscher Markt- und Sozialforschungsinstitute

e.V, 2001). It would also be possible to use passive selection. This would mean only providing the link online in forums and not contacting candidates directly (Thielsch, 2008). This method was not applied since passive selection can lead to a bias in the survey (ADM Arbeitskreis Deutscher Markt- und Sozialforschungsinstitute e.V, 2001). Participants were contacted by email or text message via messenger services, utilizing active selection.

For the acquisition of participants, the convenience sampling approach was applied. This approach describes a procedure in which subjects are selected who are easy to contact (Saunders et al., 2007). This has the advantage that a large number of participants can be approached (Saunders et al., 2007). Convenience sampling is cheap, quick and readily available (Henry, 1990). This makes it attractive to many researchers (Henry, 1990) and is thus also suitable for bachelor theses that are not financially supported. However, the convenience sampling approach does not use random sampling and the likelihood that convenience sampling will lead to a representative result is low (Saunders et al., 2007).

The survey was conducted between 17.06.2022 and 10.07.2022. The data was downloaded on 11.07.2022. A total of 494 people clicked on the link. Of these, 413 people started the questionnaire. All questions were answered by 296. 295 data sets could be defined as valid for the evaluation. The original target was set at a value of 250 participants. This target was reached and even exceeded. Furthermore, a dropout rate of 29.5% was determined. Since the content of the survey is technical and complicated, the high dropout rate was expected. It must also be mentioned that only complete data sets were considered in the evaluation so that the socio-demographics do not vary between sections of the survey. This allows comparability and consistency between questionnaire sections.

Total Views	**Total Interviews**	**Data sets Finished**	**Valid Cases (=N)**	**Dropout rate**
494	413	296	295	28,3%

Table 1: Survey facts

F. Data Analysis

To ensure the validity of the results, a quality check of the data was conducted. Excel and the analysis programme JMP 16 were used to carry out the analysis. The first part

of the quality analysis is to compare the distribution of the values with the normal distribution. This was examined visually and with the help of goodness-of-fit tests.

For the visual evaluation of the distribution, (1) the value distribution was compared with the normal distribution and (2) the quintile-quintile plot was drawn. Overall, a positive result can be observed. For OS01 a high agreement is found. Good agreement is observed for OS02 and HT4;2. However, a deviation from the normal distribution can be determined for OS02 and HT4;1. In addition, (3) the Shapiro-Wilk Goodness-of-Fit test (Shapiro & Wilk, 1965) and (4) the Anderson-Darling Goodness-of-Fit test (Neuberger et al., 2014) were applied. Both tests are characterised by high significance (Hanusz et al., 2016; Zaiontz, 2022) and determine the level of deviation from the normal distribution. The goal for both tests is to achieve a p value greater than 0.05 (Neuberger et al., 2014; Shapiro & Wilk, 1965). However, for this survey, this could not be achieved in most cases. When evaluating the values, it must be noted that the sample size of n=285 is small. Furthermore, a scattering of only 5 values is permitted. Therefore, a deviation of the values is not surprising.

	Visual evaluation Distribution Graph	**Visual evaluation QQ Plot**	**P-value Shapiro-Wilk**	**P-value Anderson-Darling**
Preferences when shopping fashion items online I (OS01)	Low degree of derivation	High level of approximation	0.002	0.0048
Preferences when shopping fashion items online II (OS02)	High degree of derivation	Medium level of approximation	<.0001	<.0001
Perception of Chatbot (AC04)	Medium level of derivation	High level of approximation	0.0848	0.0068
Ability to answer simple questions (HT4;1)	Medium Level of derivation	Low level of approximation	<.0001	<.0001
Ability to make suitable product suggestions (HT4;2)	Low level of derivation	Medium level of approximation.	0.0024	0.0004

Table 2: Value Distribution (See Appendix 3.1-3.5/ For the purpose of the graphs and the values, contrary formulated statements were coded inversely.)

The second part of the quality analysis is the Inter-item correlation, also known as Cronbach's alpha. This variable is used to determine the internal consistency of the

statements (Cronbach, 1951). For the analysis, the negatively formulated questions/statements were coded inversely. This means that high agreement for a negative item is reflected in a low score and vice versa (University of Lincoln, n.d.). After the inverse coding, the internal consistency of the participants' statements can be determined. Gansser and Krol (2015) give a benchmark score of 0.7. This can be exceeded for each of the items. According to this, the inter-item correlation is large enough to indicate meaningful results.

Item Section	**Cronbach's Alpha**
(Preferences when shopping fashion items online I (OS01)	0.7623
Preferences when shopping fashion items online II (OS02)	0.7847*
Perception of Chatbots (AC04)	0.7885*
Ability to answer simple questions (HT4;1)	0.7815
Ability to make suitable product suggestions (HT4;2)	0.7317

*Table 3: Inter-item correlation (See Appendix 3.6-3.10/ * Contrary formulated questions were inversely coded in order to calculate Cronbach's alpha.)*

Based on this analysis, the results must be critically questioned. Some significant deviations from the normal distribution are identified. However, as mentioned above, the significance of the Shapiro-Wilk and Anderson-Darling Goodness-of-Fit tests is limited due to the sample size (n=285). The optical examination comes to a positive result. Furthermore, the Inter-item correlation (Cronbach's alpha) for all items examined is in a good range. Therefore, the significance of the study can be assumed, even if there are certain reservations.

V. Empirical Findings

The results of the study are shown below. As was mentioned above 295 records could be declared valid. However, of the 295 participants, 10 stated that they do not purchase fashion items online. Therefore, these participants were subsequently excluded from the study as they offered no added value.

1. Socio-Demographics

Considering the total of 295 cases, the proportion of men is 35% and that of women 66%. After deducting the "non-online shoppers", the ratio is 33% men to 66% women. In addition, there is a share of 1.4% who identify themselves as diverse.

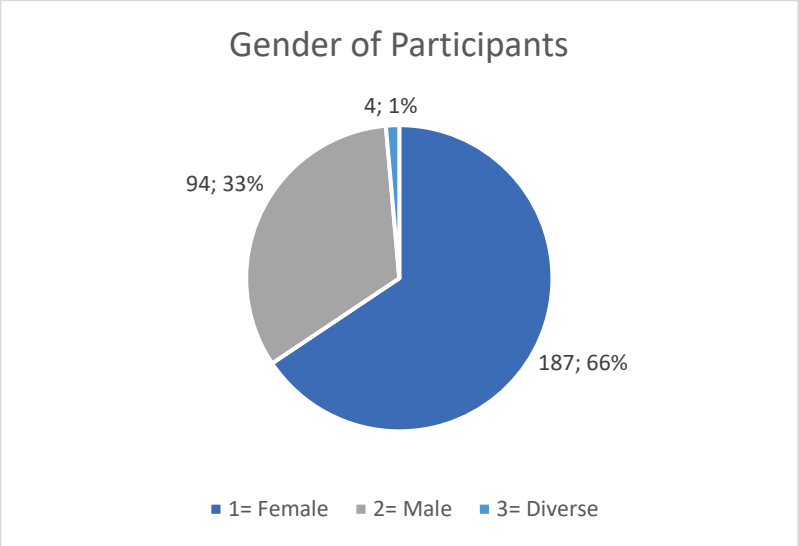

Figure 3: Gender of Participants (SD01); N=285

There is a strong concentration in the age structure in the segment 20-24 (see Figure 4). In fact, the proportion of 20–24-year-olds is just under 55%. The share of 20–29-year-olds reaches 82%. In the age segment 30 to 39, 30 test persons (just under 10%) can be recorded. The 40–49-year-olds make up 2% of the participants and the 50–65-year-olds 1%. Furthermore, 12 participants are under 20 years old (4% of the participants). The average age is 25.18 years.

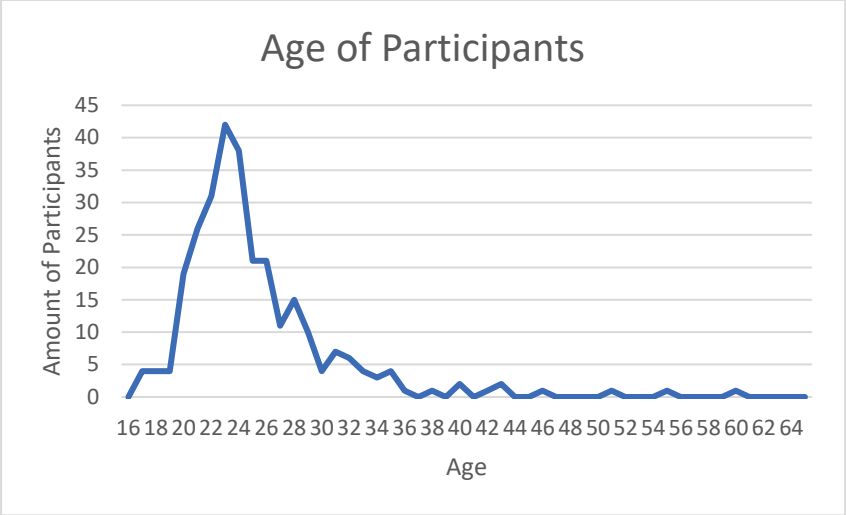

Figure 4: Age of Participants (SD02); N=285

In order to determine the level of education of the respondents, the participants were asked about the highest qualification they are aiming for or have achieved. It was found that 89% of the test persons were studying for a bachelor's degree or had completed at least a bachelor's degree. Of them 23% hold or are pursuing a higher degree than Bachelor and 56% of the participants are currently studying for a bachelor's degree or have a bachelor's degree as their highest qualification. There are 21 high school graduates (7%). However, 14 of them are still under 23 years old. Therefore, it can be assumed that a higher educational level can still be achieved. Furthermore, 8 (just under 3%) participants have completed professional training. 2 respondents (less than 1%) cannot prove any of these degrees and are not aiming for any of these degrees.

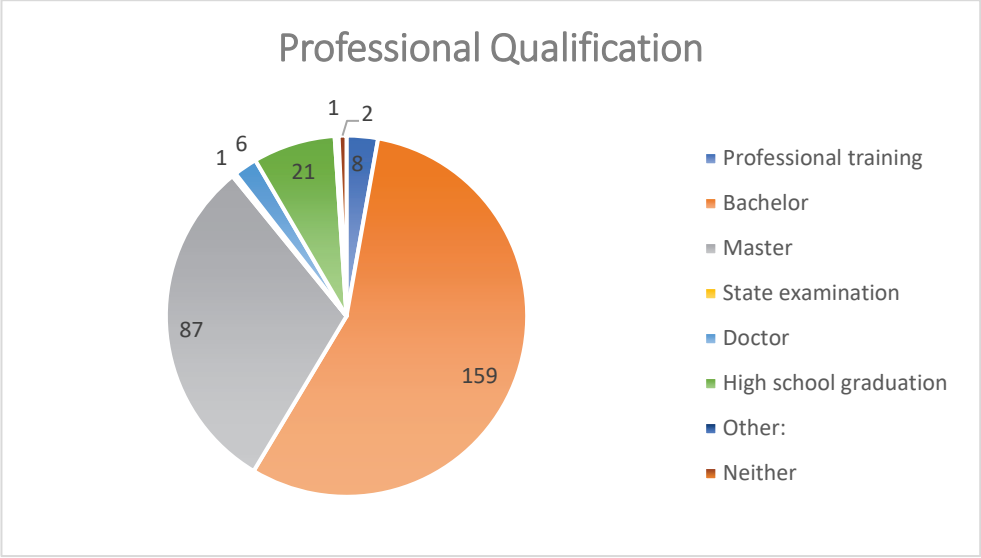

Figure 5: Professional Qualification (SD03); N=285

Regarding income, it can be stated that a large part of the test persons (68%) are in the low-income segment with an income of less than 1499€ per month. About 10% have an income of between €1500 and €1999. An income that exceeds 2000€ is recorded by nearly 14.5% of the participants. It should also be noted that 7.5% do not want to give any information about their income.

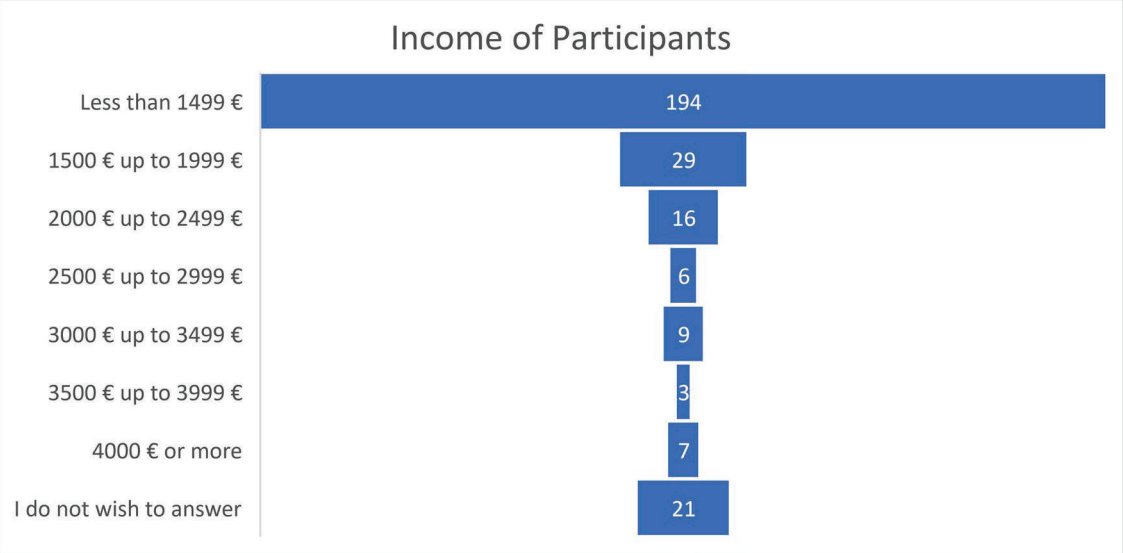

Figure 6: Income of participants (SD04); N=285

Now the purchase interval of the respondents is examined. Here a concentration on 2 characteristics can be observed. 1. once a month (25.61%) and 2. less than once in three months (30.88%). 12.63% of the respondents shop more often than once a month. 5.26% of the participants shop in a fashion online store once in six weeks, 11.93% every two months and 13.68% once in three months. When distinguishing between women and men, it can be seen that women consume clothing items online more frequently. For the interval once a month or more often, females have a value of 16.58%. Only 4.26% of men shop in an online fashion store at least once a month. Another significant difference can be found in the segment of those who shop online in a fashion store less than once every three months. The figure here is 41.49% for men and 25.13% for women.

It should be mentioned that 3.39 % of the original 295 participants stated that they never shop online (8 men and 2 women). This accounted for almost 8% of men. Due to the above-mentioned meaninglessness of these respondents' answers, they were removed from the data material and the column is marked 0 in the table described below.

Purchase Interval	Amount per Interval	Amount per Interval in Percent	Amount per Interval Male	Amount per Interval Male in %	Amount per Interval Female	Amount per Interval Female in %
More than once a week	3	1,05%	1	1,06%	2	1,07%
Once a week	13	4,56%	0	0,00%	12	6,42%
Once in two weeks	20	7,02%	3	3,19%	17	9,09%
Once a month	73	25,61%	23	24,47%	49	26,20%
Once in six weeks	15	5,26%	4	4,26%	11	5,88%
Once in two months	34	11,93%	10	10,64%	24	12,83%
Once in three months	39	13,68%	14	14,89%	25	13,37%
Less than once in three months	88	30,88%	39	41,49%	47	25,13%
Never*	0 {10 of 295)}	0,00% {3,39%}	0 {8 of 102}	0,00% {7,84%}	0 {2 of 189}	0,00% {1,05%}
Total	**285**		**94**		**187**	

*Table 4: Buying Behaviour (SD05); N=285 (295) *The subjects who indicated "Never" were removed from the study for the reasons mentioned above. The original values are given in {...}.*

2. Preferences when shopping fashion items online I: Suggestions and Compilations

The first set of topics "Preferences when shopping fashion items online I" consists of 8 statements. The respondent can rate these using a 5-point Likert scale. (Please find overview tables in Appendix 4.1 and 4.2)

Statement 1 of the topic (OS01_01) scores an average Likert scale value of 3.1 points. 44% of the participants stated that they like to buy several fashion items that match their style. The statement OS01_02, whether respondents like to put together entire outfits online, was rather rejected. 68% disagreed. The average Likert score is 2.3 points. The statement whether respondents like to look at compilations of pre-selected products in the online shop (OS01_03) resulted in a balanced average Likert score of 3.0. The number of respondents who agreed with the meaning of the statement amounts to 45%. Subsequently, the participants were asked whether they like to receive matching product suggestions for already selected products (OS01_04). Almost 50% of the respondents agreed with this. The average Likert scale value shows a positive impact of 3.2. The statement OS01_05 refers to whether respondents like to

receive personalised product suggestions based on their shopping behaviour with the online retailer. 40% of the participants agreed with this. The average Liker Scale score is 3.0. The majority disagreed with whether respondents miss the advice of salespeople when shopping online (64% disagree). The average Likert scale score is 2.3. Next, we look at statement OS01_07. The question focused on whether the selection of fashion items in the online shop can be overwhelming. This question was answered by 68% of the participants with yes and an average Likert scale score of 3.8. The last statement of this sub-theme deals with the topic of whether respondents like to receive product suggestions that enable them to put together an outfit. 47% of the participants agreed with this. The average Likert scale score reached 3.1 points.

Overall, an average Likert scale value of 3.0 (2.97) can be achieved in this topic complex.

3. Preferences when shopping fashion items online II: Advice Availability

In the following, the 8 statements of the topic " Preferences when shopping fashion items online II " (OS02) are examined. These statements are likewise rated by the participants using a 5-point Likert scale. ((Please find overview tables in Appendix 4.3 and 4.4)

The first statement is OS02_08, which asks whether respondents miss the advice of salespersons when shopping online. This statement was rejected by 67% of the participants, almost 40% of them strongly disagreed. The average Likert scale value is 2.2 and thus indicates a strong rejection tendency. The statement whether participants like shopping with friends and getting their advice (OS02_09) is disagreed by 59% of the participants. The average Likert scale value is 2.4. The statement OS02_10 is whether respondents like to use the chat function or other consultation tools of an online shop. The average Likert scale value for this question is 1.8. The strong disagreement is also reflected in the summed disagreement, which reaches 79%. 54% even strongly disagree with the question. Question OS02_11 is similarly strongly rejected. It examines the topic of whether respondents would like support on the phone when shopping online. This was disagreed by 78% of the participants, 63% of the participants disagreed strongly. An average Likert scale value of 1.7 could be determined. Next, the statement whether it is important for respondents to interact with friends when shopping online (OS02_12) is tested. This statement achieved an

average Likert scale value of 2.6. 30% of the participants agreed with the meaning of the statement, 52% disagreed. 25% strongly disagreed. The statement OS02_13

explains whether respondents like to be informed about the latest fashion trends. 30% of the respondents agreed with this, with an average Likert scale value of 2.6. The rejection reached a value of 51%, of which 25% strongly disagreed. The statement that one prefers to shop online alone and is not interested in the opinion of others (OS02_14) was agreed upon by 59% of the participants. The average Likert scale value is 3.6 and thus indicates a clear positive tendency. A similar average Likert scale value is achieved by the statement OS02_15 with a value of 3.5. The statement is whether test persons do not want any support from friends or sellers when shopping online. 58% of the participants agreed, 25% disagreed.

4. Have you already communicated with a chatbot?

Question AC01 shows that the vast majority have already communicated with chatbots. The proportion is just under 74%. Of these 74% (210 respondents), 80% interacted with a customer service bot (see Table 5). Extrapolated to the total number of participants, this amounts to a share of 59%.

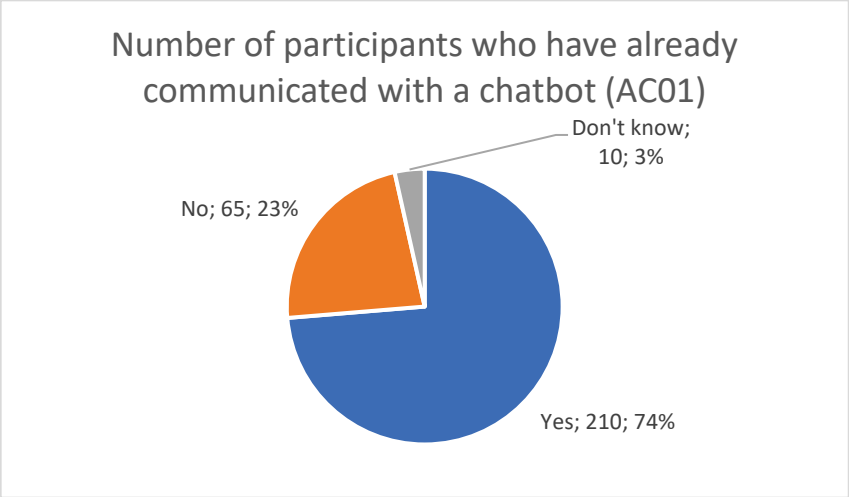

Figure 7: Number of participants who have already communicated with a chatbot (AC01); N=285

The number of respondents who had already communicated with a website marketing chatbot is less than 30% of all participants. (See Table 5)

Questions	No	Yes	Percentage value of "Yes" calculated on N_{AC02}	Percentage value of "Yes" calculated on the total number of participants
Messenger chatbot	122	88	42%	30,88%
Advertising banner	187	23	11%	8,07%
A website's own marketing chatbot	125	85	40%	29,82%
Customer service bot	42	168	80%	58,95%
Other:	205	5	2%	1,75%

Table 5: Type of chatbot with which participants have communicated (AC02); N=210 (N is reduced since participants who answered question AC01 with "no" were excluded from this question)

5. How do you rate the communication with the chatbot(s) afterwards?

Regarding question AC03, 36% of the participants described their communication with the chatbot as helpful. However, only 4% described it as "very helpful". The most pronounced segment is "somewhat helpful" with 37%. A average Likert Scale score of 3.1 is achieved.

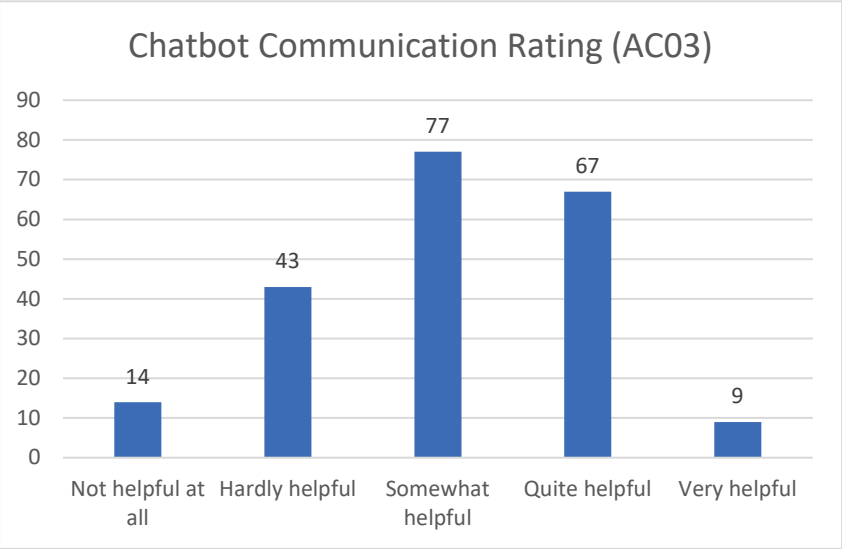

Figure 8: Chatbot Communication Rating (AC03); N=210 (N is reduced since participants who answered question AC01 with "no" were excluded from this question)

6. Perception of Chatbots

We will now look at the statement series AC04 "Perception of Chatbots". The series consists of 9 statements, which are rated on a 5-point Likert scale. (Please find overview tables in Appendix 4.5 and 4.6)

The first statement (AC04_01) of the series deals with whether participants consider chatbots to be very helpful and therefore expect companies to provide a functioning chatbot. A total of 45% of the respondents agreed with the statement. However only 5% of the participants agreed strongly. The average Likert scale score reached 3.1,

showing a slight swing towards agreement. The statement whether chatbots can be helpful reached a clearly positive average Likert scale value of 3.7. Overall, almost 70% agreed with the statement, 19% of them strongly. Next, statement AC04 is examined. The statement is, "Chatbot technology needs to be developed further before it can help". This was agreed by 61% of participants, with 22% strongly agreeing. The average Likert scale value of 3.7 also shows a clear positive tendency. 58% of the participants disagreed with the statement AC04_04 "Chatbots are a useless gimmick". Nevertheless, 15% also agreed with the statement. The average Likert scale value is clearly on the disagree side with a value of 2.4. Next, the statement AC04_05 "Chatbots are a redundant technology" is examined. 35% of the participants agreed with the statement. Of these, 7% agreed strongly. 48% of the participants disagreed with the statement. The average Likert scale value shows a swing in the disagree direction (2.7). The statement AC04_06, "Chatbots are inscrutable" shows a strong neutral concentration (35%). Overall, 28% agreed and 37% disagreed with the statement. The average Likert scale value of 2.8 can also be described as tending towards neutral. A similar result can be seen for the statement, "Chatbots are manipulative" (AC04_07). 23% of the participants agreed with the statement, 42% disagreed. 12% clearly disagreed. The average Likert scale value reached a score of 2.7. The following statement AC04_08 "Marketing chatbots only want to stimulate purchases" was agreed by 56% of the participants, only 15% of the participants disagreed. However, 1/5 of the participants strongly agreed. The average Likert scale value shows a clearly positive swing of 3.6. The last statement in the series AC04_09 describes the topic of whether it is uncanny to communicate with a machine. 55% of the participants disagreed with the statement, 26% of them strongly. Only 22% agreed with the statement, of which only 5% agreed strongly. The average Likert scale value of 2.5 likewise indicates a rejection stance.

7. Chatbot Characteristics I

The following topic deals with the characteristics of chatbots desired by the participants. The statement series CC01 consists of 8 statements, which the participants can rate using a 5-point Likert scale. (Please find overview table in Appendix 4.7)

The first statement, statement CC01_15, is "Chatbots should be able to answer questions regarding the material the clothes are made of." The statement was rated

highly agreed by the participants, with an average Likert scale score of 4.3. Overall, 89% of the participants agreed with the statement, of which 43% strongly agreed. Only 3.5% of the participants disagreed with the statement. The following statement CC01_16 describes whether chatbots should be able to name the country of origin. The statement achieved the same approval rating of 4.3 as statement CC01_15. The percentage of agreement is also similarly high with 87%. Almost 50% even strongly agreed with the statement. Next, we look at statement CC01_18. This deals with the topic of whether chatbots should be able to answer questions about dispatch. This question received strong agreement. Overall, 91% agreed with the statement, 55% of which agreed strongly. The average Likert scale score was 4.4. The same average Likert scale score was achieved for CC01_19. CC01_19 asked participants to rate whether chatbots should be able to answer questions about returns. Overall, 87% of participants agreed, of which 53% strongly agreed. The next statement is " Chatbots should be able to give advice regarding outfits" (CC01_20). This statement was agreed by 32% of the participants, but also disagreed by 35%, of which 13% strongly disagreed. The average Likert scale value shows a neutral tendency with a score of 2.9. The statement CC01_22, "Chatbots should be able to help with designing an outfit (e.g., suggest stylistically suitable supplements to selected products", also shows a neutral tendency. The average Likert scale value reaches 2.8. Overall, 41% disagreed with the statement, of which 15% strongly disagreed. The neutral segment has a strong concentration of 29%. Now we look at question CC01_24. It deals with the topic of whether chatbots should be able to give discounts on certain items when shopping. 65% of the participants agreed with the statement. Only 14% disagreed. The average Likert scale value indicates a clearly positive tendency with a score of 3.7. The following question CC01_26 makes the statement that one would rather communicate verbally with a chatbot than text with one. 66% of the participants disagreed with this statement. Only 10% agreed with the meaning of the item. The average Likert scale value is clearly negative with a value of 2.1.

8. Chatbot Characteristics II

Next, we look at Chatbot Characteristics II (CC02). This consists of 5 scenarios that users can rate on the basis of usefulness. Again, a 5-point scale is applied (5= very useful; 1= not useful at all). (Please find overview table in Appendix 4.8.)

The first scenario is CC02_26, which describes the following situation: "You enter the online website of a fashion store. A chat window pops up and shows you a fashion item that is on sale." 45% of the participants stated that they did not find the chatbot useful in this situation, only 28% found the chatbot useful. The average rating score of 2.7 is also on the "not useful" side. The following scenario CC02_27 reads: "You enter the online website of a fashion store. A chat window pops up and offers you a fashion item at a discount. It is a product you were looking at the last time you visited the website". 59% of the participants found the chatbot helpful in this situation, 20% even found it very helpful. Only 16% of the participants indicated a negative attitude. The average rating score of 3.6 is also clearly positive in terms of usefulness. Now the scenario CC02_28 is examined. The following situation is described: "You enter the online website of a fashion store. A chat window pops up saying 'Do you want to see the latest trend?' After writing 'Yes' in the chat, you are shown some items from the store's new collection." In this scenario, 41% of participants found the chatbot useful and 29% did not. The highest concentration of responses can be found in the range "Somewhat helpful" to "rather helpful". The average score of 3.1 shows a neutral tendency. Scenario CC02_29 shows a neutral tendency likewise. The scenario reads: "You visit the online website of a fashion store. After a few minutes you find a suitable fashion item. When you select the fashion item (a T-shirt), a chat window appears. The chat window (a chatbot) offers you a pair of trousers matching the style of the T-shirt." The average score of 2.8 can be described as neutral to negative. Overall, 38% of the participants felt that the chatbot was not useful in the situation and 30% that it was useful. The strongest concentration can be found in the segment "Somewhat helpful" (33%). Scenario CC02_30 provides the following situation: "You are on the online website of a fashion shop. As you look at an item, you notice that it is no longer available in your size. You click on a chat icon and ask when the item will be back in stock. Within three seconds, the chatbot tells you that you will probably have to wait another two weeks." 85% of respondents stated that they found the chatbot helpful, of which 51% found it very helpful. Only 7% perceived the chatbot as not useful. The average score of 4.3 is clearly on the "helpful" side. The last scenario in the series is CC02_31, which asks the participants to evaluate the following situation: "You are on the online website of a fashion shop. Once you have selected an item (a jacket), you want to buy a matching hat. You click on a chat icon and ask for a hat that matches the style. Within three seconds, the chatbot suggests a selection of five items that

match the colour of the selected jacket." In this scenario, 61% of the participants judged the chatbot to be helpful. 24% of the participants perceived it as very helpful. Only 15% rejected the use of chatbots in these situations. The average score of 3.6 indicates a tendency towards the usefulness of the chatbot.

VI. Discussion

A. Hypotheses Testing

HT1: The majority of the participants exclude Communication with marketing chatbots

In order to answer the hypothesis 1, the items AC01-04 are taken into account. As argued above the willingness to communicate with a Chatbot is based on its acceptance. Acceptance is understood to be either a positive attitude towards the innovation, a behavioural intention to use the innovation or the actual use of the innovation (Kohne et al., 2020). Therefore, one of the investigated factors is the number of participants who have already communicated with a marketing chatbot. The number is 30% in relation to all participants of the study (see Table 5). It is also of interest to measure how high the perceived helpfulness of chatbots is among participants who have communicated with a marketing chatbot already. It can be seen that there is a neutral to positive tendency in this respect (see Table 6). The average Likert scale value of 3.2 shows a neutral to positive tendency.

/	Not helpful at all	Hardly helpful	Somewhat helpful	Quite helpful	Very helpful
How do you rate the communication with the chatbot(s) afterwards?	4	16	31	30	4
In Percent	4.71%	18.82%	36.47%	35.29%	4.71%

Table 6: Rating of chatbot helpfulness. (Only considering participants who have communicated with a marketing chatbot)

Now the statement series AC04 (Appendix 4.5 and 4.6) is considered. Of the nine statements, two are formulated positively (Statement AC04_01 and 02) and seven are formulated negatively (Statement AC04_03-09). To calculate the mean values, the negatively worded questions were coded inversely (A definition of inversely coding can be find in Chapter 4 F). The mean values determined show that many respondents have a thoroughly positive image of chatbots. A significant number of respondents can be defined as having an attitude towards chatbots that is not negative.

Average Rejection of Chatbots	Average Consents towards Chatbots	Average Likert Scale Value
30.02%	42.77%	3.17

Table 7: Average Results of Statement Series AC04 (Inverse coding of negatively formulated statements)

From the sum of the examined vectors, the thesis has to be rejected. The counterhypothesis that the majority of participants would communicate with chatbots can be accepted. (For the development of the counter-hypothesis, the standards of Brell et al. (2017) were applied.)

HT2: When shopping online, subjects pursue the motive "Availability of Product Suggestions and Compilations"

To evaluate the thesis, the statement series OS01 "Preferences when shopping fashion items online I" is examined (Appendix 4.1 and 4.2). The values show a neutral tendency. Although 68% of the respondents say that they are overwhelmed by the selection in online stores. However, 64% of the participants also say that they do not miss the support of salespeople or friends. In addition, 68% of participants disagree with the statement that they like putting together entire outfits. Overall, a slight majority can be found in favour of the thesis. On average, 42% of the participants agree with the thesis, while 39% disagree. The thesis is approved with reservations, since a strong neutrality is evident. The decisive factor is that a significant proportion of the participants are pursuing the motive "Availability of Product Suggestions and Compilations".

Average Rejection	Average Consents	Average Likert Scale Value
39.04%	42.15%	2.97

Table 8: Average Results of Statement Series OS01

HT3: When shopping online, subjects pursue the motive "Advice Availability"

To answer the thesis, the statement series OS02 is considered (Appendix 4.3 and 4.4). This contains eight statements, two of which are formulated in a negative way (statement OS02_14 and 15). In order to be able to calculate meaningful mean values, statement OS02_14 and 15 are coded inversely.

Average Rejection	Average Consents	Average Likert Scale Value
63.03%	21.58%	2.29

Table 9: Average Results of Statement Series OS02 (Inverse coding of negatively formulated statements)

A clear rejection can be observed. The motive "Advice Availability" is not of great importance for many customers. Hypothesis 3 must be rejected. The counterhypothesis, "when shopping online subjects do not pursue the motive 'Advice Availability'" is accepted. (For the development of the counter-hypothesis, the standards of Brell et al. (Brell et al., 2017) were applied.)

HT4: Subjects expect the chatbot to be able to answer questions about the characteristics of a particular item of clothing (1) and to have the ability to suggest stylistically suitable supplements when putting together an outfit (2)

In order to assess thesis 4, the statement series CC01 and CC02 are considered (see Appendix 4.7, 4.8, 5.1 and 5.2).

The thesis consists of two elements. 1. the element “Subjects expect Chatbots to be able to answer questions about the characteristics of a particular item of clothing” and 2. “Subjects expect Chatbots have the ability to suggest stylistically suitable supplements when putting together an outfit.” Three further possible characteristics of chatbots were examined and compared in order to properly gauge the items.

The first element is reflected in statements CC01_15, 16, 18 and 19 and scenario CC02_30. On average, these items receive 87% agreement. Of these, an average of 50% even strongly agree. Only 4% disagreed with these items on average (Appendix 5.1). Compared to the other characteristics examined, item 1 ranks 1st (Appendix 5.2). Based on this information, a strong agreement in the sense of the first element of the thesis "Subjects expect chatbots to be able to answer questions about the characteristics of a particular item of clothing" can be determined.

For the second element of the thesis, “Subjects expect Chatbots have the ability to suggest stylistically suitable supplements when putting together an outfit”, the statements CC01_20 and 22 and the scenarios CC02_29 and 31 are considered. On average, these items receive 37% agreement, of which 10% strongly agree. Disagreement averages 32%, of which 11% strongly disagree. The area of neutral is significantly prominent with 30% (Appendix 5.1). Special consideration should be given to item CC02_31. This item experiences a clearly above-average agreement of 61%, where 24% strongly agree (Appendix 5.1). The difference in this scenario is that there is explicit talk of a chatbot that only becomes active on demand from the customer (passive chatbot). This will be discussed in more detail during the interpretation (Chapter 6. B).

Overall, element 2 performs moderately compared to the other characteristics (Appendix 5.2). It is behind the discount feature, but also well ahead of the "Voice Control" feature. With the property "Able to inform about the latest fashion trends", it is on level. After all, the consent for element 2 is slightly higher than the rejection. But it

should be noted that the suggestion of stylistically suitable supplements should happen passively.

The thesis is approved. The two elements "chatbot to be able to answer questions about the characteristics of a particular item of clothing" and "chatbots should have the ability to suggest stylistically suitable supplements when putting together an outfit" belong to the desired properties. For the second item, the passive character of the chatbot should be considered as a required attribute.

B. Interpretation

In the following, the empirical results of the survey will be interpreted and classified against the background of the literature. One difficulty arises in this regard. Compared to other topics, there are no comparable surveys for chatbots in shopper marketing in the German fashion industry that could be used for interpretation. Therefore, only limited literature on the subject can be consulted for classification.

Suggestions and Compilations (OS01)

/	Overall	Shopping Fashion items online at least once per month	Shopping Fashion items online at less than once per month	Shopping Fashion items online once in three month or less
Average Likert Scale Score	2.97	3.14	2.87	2.81
Deviation from the Overall Average Likert Scale Value	/	5.56%	-3.44%	-5.63%
Average Consents	42.15%	47.48%	38.85%	36.12%
Deviation from Overall Consents (in percent points)	/	5.33%	-3.30%	-6.03%

Table 10: Frequent vs. infrequent shoppers (OS01)

For the motive “Suggestions and Compilations”, a neutral to positive tendency can be defined. This suggests that there is a significant group of buyers who are open to suggestions and compilations (Chapter 6 A). If we differentiate between frequent shoppers (at least once a month) and infrequent shoppers (less than once a month / once in three months or less), one can find a difference. For frequent shoppers, the Likert scale score is 0.14 points above the overall Likert scale average. For infrequent shoppers, the value is 0.13 and 0.19 points below the overall average Likert scale value (Table 10). This shows that frequent shoppers are more open to product suggestions and compilations than infrequent shoppers. This is significant because

frequent shoppers probably generate more revenue for the company than infrequent shoppers and are therefore more valuable to the company.

It should also be noted that in this case, participants are asked about a scenario that most participants have never or rarely experienced. One can assume that participants are not necessarily aware of the advantages of "product suggestions and compilations".

Advice Availability (OS02)

Next, section OS02, Advice Availability, is considered. This motive was clearly rejected (See Chapter 6A) Based on statements OS02_10 and 11, it can be seen that advice via the telephone or chat function is strongly rejected (Appendix 4.3). It suggests that participants prefer not to interact with others when shopping online. Even the statement about interacting with friends while shopping online receives rejection. Item 14 "I like to shop online alone. (...)" experiences agreement (Appendix 4.3). It can be concluded from this that if there is advice from a chatbot, then it should be in the form of goal-oriented product suggestions that lead the customer directly to the desired target. This goes hand in hand with the findings of Zarouali et al. (2018) that customers found chatbots to be good if they were helpful, i.e. provided quick solutions.

Perception of Chatbots (AC)

The acceptance towards chatbots proved to be high. As mentioned above, a significant group was found to be fairly open to the chatbot technology (Chapter 6 A).

In the context of this survey, it was also confirmed that test persons who have already communicated with a chatbot have a more positive attitude towards it than participants who have never communicated with a chatbot. If the contrary formulated statements 03-08 of the AC04 series are coded inversely, mean values can be calculated in relation to the acceptance of chatbots. Table 11 shows a difference of 0.43 points between respondents who have already communicated with chatbots compared to those who have never communicated with chatbots. This can be defined as a significant difference. The more positive attitude goes hand in hand with the necessary habituation to new technologies described by Kohne et al. (Kohne et al., 2020). It can therefore be assumed that as the interaction rate of the population increases, the acceptance of chatbots will continue to rise as well.

Items	n	Mean Average	Mean Rejection	Mean Consents
All participants	285	3.17	30.02%	42.77%
Already communicated with a chatbot	210	3.27	27.99%	47.72%
Never communicated with a chatbot	65	2.84	37.26%	28.03%
Don't know	10	/		

Table 11: Acceptance differentiation Table (AC04) (Contrary questions were coded inversely)

Chatbot Characteristics (CC01,02)

As can be seen from the results of hypothesis 4 (Chapter 6 A), the chatbot that can answer simple questions enjoys great approval in the shopper marketing of the fashion industry. Looking at this in relation to the scenarios of topic CC02, it can be seen that a "passive" chatbot was rated significantly more positively than an "active" chatbot. In this case, active means a chatbot that independently contacts customers. A passive chatbot only becomes active when it gets contacted (see Table 12).

Item	Scenarios containing "active" chatbots (CC02_26-29)	Scenarios containing "passive" chatbots (CC02_30, 31)
Average consent in percent	39.65%	72.11%
Mean Average Likert Scale Score	3.05	3.95

Table 12: Passive vs. Active Chatbot (CC02)

In summary, the result is a chatbot that acts passively and is able to answer simple questions. With regard to "to suggest stylistically suitable supplements when putting together an outfit", it can be stated that a significant proportion of participants are open to product suggestions from chatbots. One can therefore claim that chatbots should make product suggestions. However, these should not be too intrusive, so that those who do not desire this feature can avoid it. Based on the results, it can be argued that product suggestions should only happen on demand (in the sense of a passive chatbot). However, it is questionable whether this is the most effective way to encourage customers to make a purchase. A chatbot that actively suggests products to customers may generate more sales, even if it annoys some users.

Another result is that 66% of the participants state that they do not want voice control (CC01_26/ Appendix 5.1;5.2). Considering that market-leading chatbots such as Siri or the Amazon Echo feature voice control, this is somewhat surprising. Especially since it could make online shopping much easier. It would probably be possible to speak to a chatbot/online store and ask for products, which would then be displayed. You could operate the entire website with voice control and specifically ask the chatbot for items.

It can be speculated that the added value of voice control was not obvious to the participants.

The topic of discounts is dealt with in items CC01_24 and CC02_26, 27. The consent of the participants with regard to this item is positive (Appendix 5.1). This is hardly surprising, as one can assume that discounts generally meet approval. It is interesting, however, that the consent is not as high as for other items, like the ability to answer product related questions (see Appendix 5.2). From this, it can be concluded that a chatbot that can give discounts is perceived as useful but does not receive as much approval as other features. It is also important to remember that discounts come at a cost to the company.

A further subject is the chatbot, which can inform about the latest fashion trends (CC02_28/ Appendix 5.1). This chatbot also received approval. It is therefore advisable to take this feature into account when programming a chatbot.

Overall, important insights for chatbot development and for the design of chatbots in online shopper marketing in the German fashion industry have been gained. In the following, a summary of the work is presented, and recommendations are made based on the results interpreted in this section.

C. Limitations

The research also has its limitations. Some of these have already been mentioned above.

The socio-demographic of this work shows a clear concentration on relatively young people (compared to total germany (Statista, 2022a)). It would be of interest to examined how the attitude towards chatbots differs for people in the age groups for instance 40-50 and 50-60. In addition, most of the participants have a university level of education. The survey does not show whether the attitude towards chatbots and the desired chatbot features vary for test persons with different qualifications. These two factors indicate that the survey does not reflect German society as a whole. That the sample can be defined as rather homogeneous as long this socio-demographic characteristics is of course due to the fact that a significant proportion of the survey participants were found via the City University of Applied Sciences Bremen. Although this was expected, it nevertheless limits the significance of the study with regard to

Germany overall. As mentioned above, the Convenience Sampling approach was utilized, and Radom Sampling was dispensed with. Random Sampling would have guaranteed a higher significance for the entire country, but for cost reasons it could not be carried out within the scope of the bachelor's thesis.

It should also be mentioned that the Shapiro-Wilk and Anderson-Darling test showed deviations from the normal distribution. In this context, it has to be noted that this is partly due to the relatively small number of participants. A larger number of participants leads to a distribution that rather corresponds to the normal distribution (Yap & Sim, 2011). Furthermore, the optical analysis and the inter-item correlation yielded significantly better results. Nevertheless, the high deviation from the normal distribution found by the Shapiro-Wilk and Anderson-Darling tests is an indicator that has to be remembered when evaluating the test results.

The last point to consider is that when defining chatbot characteristics, one is dealing with matters that most subjects could only hypothetically imagine. Since the described chatbot features are rarely used in practice today, the evaluation of the participants is based on their individual imagination. Imagining the benefit of an invention/ feature does not necessarily correlate with the actual added value of the invention/ feature. This means that the test persons might have evaluated the chatbot characteristics differently if they had experienced the characteristics on a real chatbot. Having subjects tested chatbot features on real chatbots in shopper marketing would have guaranteed more meaningful results. However, developing, programming and designing a chatbot was not possible within the scope of this bachelor thesis.

VII. Conclusion and Recommendation

The bachelor thesis began with introducing the topic Fashion Industry in Germany. Using Porter's five forces, it was determined that the competition in the fashion industry is intense. The bargaining power of the customers is considered as high, since they can choose between different brands. In order to gain an advantage, companies are looking for ways to outmanoeuvre the competitors. Therefore, the fashion industry entered the online retail market years ago and is now one of the largest industries in the market. As has been shown, online retail now accounts for a significant part of the total turnover of the fashion industry. This increase in importance makes online shopper marketing significant. Important elements of the shopper marketing strategy are to influence customers at the point of sale and to convert them through the phases of the customer journey. The idea arose to utilise chatbot technology in this context, since it offers several opportunities for communication design. Chatbots are a tool which is still in the process of further development and testing. A distinction must be made between the rule-based chatbot, and the AI (Artificial Intelligence) and NLP (Natural Language Processing) based chatbot. While the rule-based chatbot is based on a fixed flow structure and rules, the AI and NLP chatbot is able to understand and write answers on its own. The AI and NLP chatbot also has the ability to learn. The rule based chatbot can only give prescribed answers to previously programmed keywords and stimuli. Nevertheless, the chatbots used in shopper marketing today are at least fundamentally based on a rule structure in the sense of a rule-based chatbot.

The use of chatbots in shopper marketing offers several advantages. For instance, the 24/7 availability and the low maintenance costs. The chatbot can thus save considerable costs in customer service. A further advantage is the acquisition of customer information. This can be used to qualify the customer and choose a communication strategy. It has also been shown that chatbots can increase the website traffic conversion rate. In term of the future of chatbot technology, it can be assumed that it will be further developed in the course of the next few years and will thus increase in importance. The potential of NLP in combination with AI has to be mentioned. If this is optimised, it could enable chatbots to communicate independently with customers and to better imitate a human assistant. Among other things, this would also enable a high degree of personalisation. However, there are also challenges related to chatbot technology. For instance, the correct application and use of chatbot

technology. Also important is data security and the issue of emotional misunderstandings, which arise from the fact that chatbots cannot understand the emotional component in messages at all or only partially. It is also important to ensure that chatbots do not lead to a significant loss of individuality. Furthermore, customers' reservations about communicating with chatbots should be remembered.

Now the research part of the thesis will be summarized. The research consists of a survey comprising 285 valid cases. To ensure the quality of the research, a statistical quality analysis was carried out and an acceptable level of significance was determined. In the course of the survey, it was investigated how pronounced the acceptance of chatbots is (HT1). Furthermore, the motives that people pursue when shopping online (HT2 & HT3) and which characteristics are desired in chatbots (HT4) were investigated.

As mentioned above, hypothesis 1 (HT1) can be rejected. The hypothesis states: "The majority of the participants exclude communication with marketing chatbots". This does not correspond to the results of the study, as a significant proportion of the test persons actually communicated already with chatbots and described the communication as helpful. In addition, acceptance of chatbots can be rated as high. The counterhypothesis that the majority of participants would communicate with chatbots was acceptable.

The second hypothesis 2 (HT2) "When shopping online, subjects pursue the motive 'Availability of Product Suggestions and Compilations'" is fulfilled. It was possible to define a significant proportion of subjects who want product suggestions and compilations.

Hypothesis 3 (HT3) states: "When shopping online, subjects pursue the motive 'Advice Availability'". In the case of this hypothesis, a clear trend was observed. The motive "Advice Availability" was rated low. Therefore, the hypothesis HT3 is rejected. The counterhypothesis, "when shopping online subjects do not pursue the motive 'advice availability'" was accepted.

Thesis 4 (HT4): „Subjects expect the chatbot to be able to answer questions about the characteristics of a particular item of clothing and to have the ability to suggest stylistically suitable supplements when putting together an outfit" was accepted. For the first element of the thesis "Subjects expect the chatbot to be able to answer

questions about the characteristics of a particular item of clothing", high agreement was defined. The second element of the thesis, "Subjects expect the chatbot to have the ability to suggest stylistically suitable supplements when putting together an outfit" could also be confirmed, although the level of predominance was defined as low. The caveat is that the chatbot should make passive product suggestions rather than active ones.

That participants preferred the passive chatbot was observed among a number of scenarios. The problem concerning passive chatbots is, that they do not stimulate interaction. However, this is necessary for marketing. It would therefore be interesting to find out what the optimal level of proactivity of chatbots is. And what the communication start should look like. A further noteworthy finding is that test persons who have already interacted with chatbots have a more positive attitude towards them. From this it can be deduced that the acceptance of chatbots would increase further under the premise of a rising rate of interaction in the population. As chatbots are increasingly used in various forms and activities, an increasing interaction rate in the population can be expected.

Overall, it was confirmed that the chatbot is a tool with great potential. There is a high level of acceptance and chatbots have the potential to establish themselves in the fashion industry market. However, it must be noted that the examined group exhibits a fairly young composition, and the data analysis could only confirm the validity of the study to a limited extent. Whether the chatbot can establish itself in shopper marketing in the fashion industry remains to be shown in practice.

Recommendations

The following recommendations can be seen as the main result of this paper. These describe characteristics that were defined as desired by the participants. The recommendations offer a guideline for companies that want to implement chatbot technology for their online shops in Germany. This applies in particular to companies in the German fashion industry.

It can be stated, that chatbots should have the ability to answer simple questions regarding the products and FAQs. This feature is simple to program and desired by the customers. Since a significant proportion of the respondents want product suggestions, these should also be integrated into the chatbot. However, these

suggestions should be very direct and highly personalised. Detailed and lengthy advice is not desired. In addition, the chatbot should be able to offer suggestions when customers purchase a product and want to acquire a suitable supplement. Another desirable feature is discount promotions via the chatbot. The integration of this is quite simple. Besides, the chatbot makes it possible to personalise these discount promotions. Since the chatbot is able to qualify the customers, it can link the right customer to the right discount. For the qualification, frameworks such as the customer journey can be utilised to locate the right customers to receive a certain discount.

Another important finding is that consumers do not want a chatbot that is too active. Respondents have a more positive attitude towards passive chatbots. However, it is necessary to consider that a purely passive chatbot does not stimulate communication and therefore does not encourage interaction. A chatbot that is either purely passive or rarely attempts to make contact (for example, only when entering the website) is recommended. A chatbot that frequently writes to the customer and interrupts the shopping process is definitely not recommended.

As has been mentioned, there is still a lot of research to be done on chatbots. It is a tool with great potential which is far from being fully exhausted yet. There is the question, of how proactive a chatbot should ideally be? Determining this rate is the next step in optimising the design of the chatbot in shopper marketing. Furthermore, it should be researched which language style is most successful in Germany? Should the language be casual or formal? Should the chatbot be light-hearted or serious? In the area of language and communication, significant questions are yet to be answered. Furthermore, the possibilities of how the chatbot can support the product search in the store need to be examined. Matching customers to the right products as quickly and easily as possible could lead to a significant improvement in the shopping experience. The potential for this feature should be explored in more detail.

	Recommended Characteristics
1.	The ability to answer simple questions regarding the products and FAQs (e.g. Shipping, size, product characteristics, etc.)
2.	Target-oriented and personalized product suggestions - offer suggestions when customers purchase a product - passive suggestions/ Customer can ask the chatbots for products
3.	Personalized discounts (located the right customer and link him/her to the right discount)
4.	The character of the chatbot should be passive. Only a low level of proactive contact is recommended
5.	Support product search within the online shop

Table 13: Table of Recommendations

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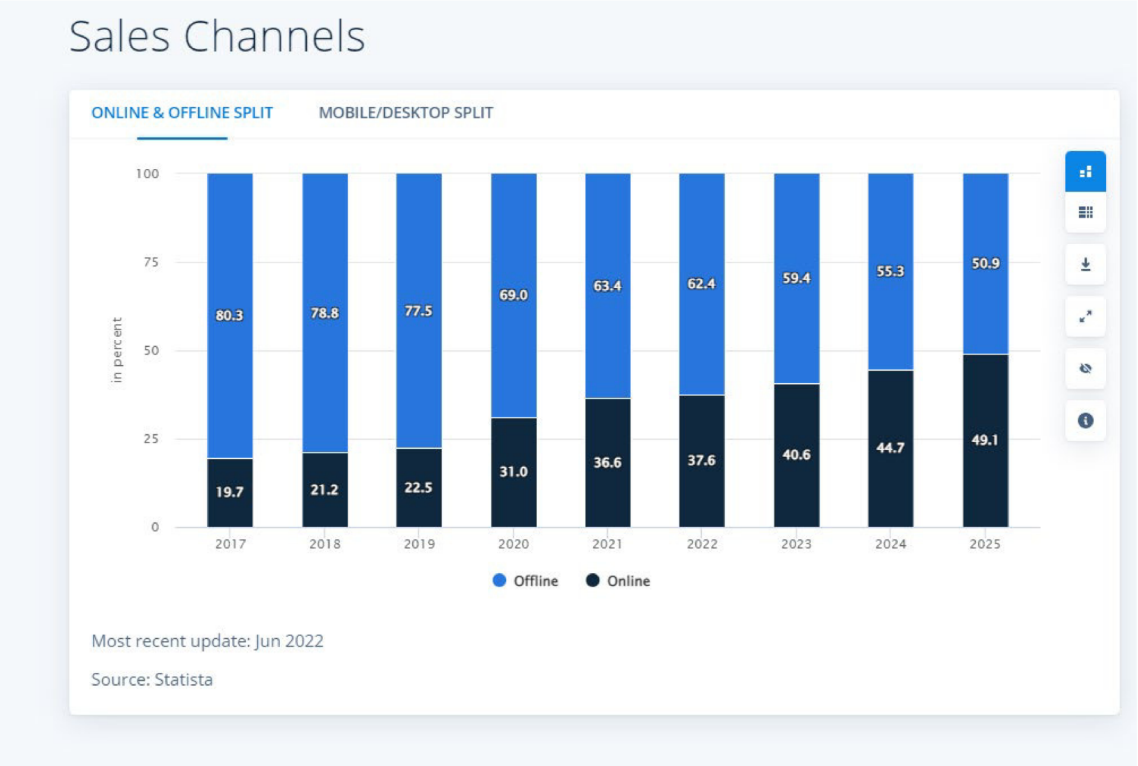
Appendix

1. Digital Market Outlook (Germany)



Source:

Statista. (2021). *Umsatz im E-Commerce in Deutschland bis 2020.* Statista. https://de.statista.com/statistik/daten/studie/3979/umfrage/e-commerce-umsatz-in-deutschland-seit-1999/

2. Survey Questionnaire

2.1. Questionnaire

SD01

1. What is your gender?

- ○ Female
- ○ Male
- ○ Diverse

SD02

2. How old are you?

I am [ ] years old.

SD03

3. Please indicate which degree you are currently pursuing or have already completed.

- ○ Professional training
- ○ Bachelor
- ○ Master
- ○ State examination
- ○ Doctor
- ○ High school graduation
- ○ Other: [ ]
- ○ Neither

SD04

4. What is your monthly net income?

Net income is defined as your total income after tax and social security deductions.

[Please choose]

SD05

5. How often do you buy a fashion item from an online retailer?

[Please choose]

OS01

6. Preferences when shopping fashion items online I

Rate the following statements based on your personal opinion.

	Totally disagree	Rather disagree	Neutral	Rather agree	Totally agree
I like to buy two or more stylistically matching fashion items (trousers, top, shoes, headwear, etc.).	○	○	○	○	○
I like getting product suggestions that help me to put together an outfit.	○	○	○	○	○
I like to view a compilation of pre-selected products in the online shop.	○	○	○	○	○
When I shop online, I miss the fashion advice from store staff and friends.	○	○	○	○	○
I like to receive matching product suggestions from the online retailer for products I have already selected.	○	○	○	○	○
Sometimes the range of fashion items in the online shop overwhelms me.	○	○	○	○	○
I like to put together entire outfits in the online shop (trousers, top, possibly headgear and or shoes, etc.).	○	○	○	○	○
I like to receive personalised product suggestions that match my buying behaviour with the online retailer.	○	○	○	○	○

OS02

7. Preferences when shopping fashion items online II

Rate the following statements based on your personal opinion.

	Totally disagree	Rather disagree	Neutral	Rather agree	Totally agree
I like to get informed about the latest fashion trends.	○	○	○	○	○
When shopping online, I miss the option of asking a salesperson for advice.	○	○	○	○	○
I like to shop online with friends who advise me while shopping.	○	○	○	○	○
I like to use the chat function or other consultation tools of an online shop.	○	○	○	○	○
When shopping online, I don't need the advice of friends or sellers.	○	○	○	○	○
When shopping online, personal product advice on the phone is important to me.	○	○	○	○	○
Interaction with friends is important for me when shopping fashion items.	○	○	○	○	○
I like to shop online alone. I'm not interested in other people's opinions about my fashion items.	○	○	○	○	○

8. Have you already communicated with a chatbot? CA01

A chatbot is a computer program designed to simulate a conversation with a human. The chatbot usually appears in a chat window. An example of a chatbot can be found on the Spectrm website (spectrm.io).

- ○ Yes
- ○ No
- ○ Don't know

1 Active Filter(s)
Filter CA01/F1
If any of the following options is selected: **2**, 3
Then jump to page **jump2** after the next button was clicked

9. Where did the interaction with the chatbot took place and what type of chatbot was involved? CA02

(More than one answer is possible)

- ☐ Messenger chatbot (Facebook, Instagram, WhatsApp, SMS, ...)
- ☐ Advertising banner (This is a chatbot that replaces an advertising banner on e.g. websites, Facebook, Instagram or Google and has the objective of promoting one or more products).
- ☐ A website's own marketing chatbot (This type of chatbot is usually characterised by the fact that it seeks contact with the customer. E.g. the Mercedes chatbot on the Mercedes website, the Zalando chatbot on the Zalando website. This chatbot also has the objective of promoting one or more products.)
- ☐ Customer service bot. (This chatbot does not actively write to the customer itself. This chatbot is available to the customers in case of problems).
- ☐ Other:

10. How do you rate the communication with the chatbot(s) afterwards? CA03

	Not helpful at all	Hardly helpful	Somewhat helpful	Quite helpful	Very helpful
-	○	○	○	○	○

11. Perception of Chatbots CA04

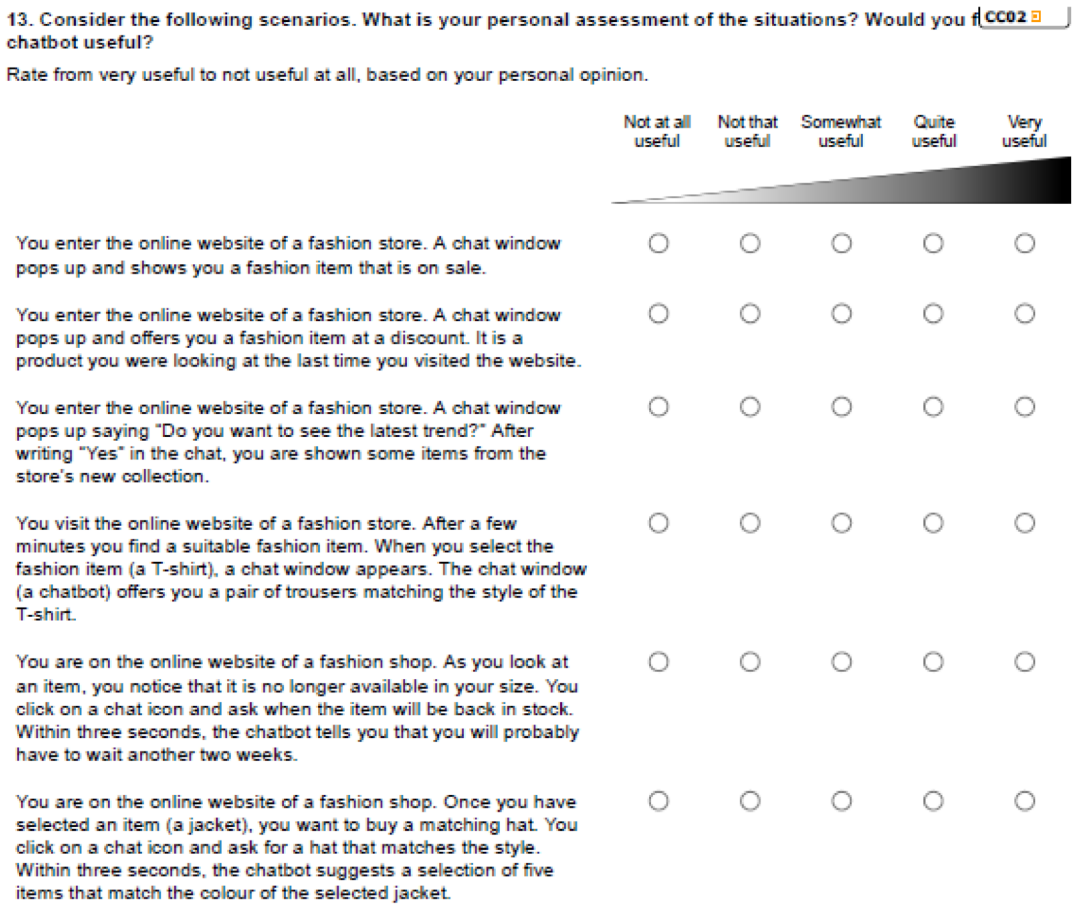
Rate the following statements based on your personal opinion.

	Totally disagree	Rather disagree	Neutral	Rather agree	Totally agree
I consider chatbots to be very helpful and expect companies to provide functioning chatbots.	○	○	○	○	○
Chatbots are a redundant technology.	○	○	○	○	○
Chatbots are manipulative.	○	○	○	○	○
Chatbots are inscrutable.	○	○	○	○	○
Chatbot technology needs to be developed further before it can help.	○	○	○	○	○
Marketing chatbots only want to stimulate purchases.	○	○	○	○	○
Chatbots can be helpful.	○	○	○	○	○
Chatbots are a useless gimmick.	○	○	○	○	○
It's uncanny to communicate with a machine.	○	○	○	○	○

12. Which characteristics should a chatbot have in online fashion stores? CC01

Rate the following statements based on your personal opinion.

	Totally disagree	Rather disagree	Neutral	Rather agree	Totally agree
Chatbots should be able to answer questions regarding the material the clothes are made of.	○	○	○	○	○
Chatbots should be able to give advice regarding outfits.	○	○	○	○	○
Chatbots should be able to name the country where the clothes were made.	○	○	○	○	○
Chatbots should be able to answer questions regarding dispatch/ shipping.	○	○	○	○	○
Chatbots should be able to answer questions concerning the retour (e.g. postmark, etc.).	○	○	○	○	○
Chatbots should be able to help with designing an outfit (e.g. suggest stylistically suitable supplements to selected products).	○	○	○	○	○
Chatbots should be able to give me discounts on certain items while shopping.	○	○	○	○	○
I would prefer to communicate verbally with a chatbot when shopping rather than typing.	○	○	○	○	○



13. Consider the following scenarios. What is your personal assessment of the situations? Would you f CC02 chatbot useful?

Rate from very useful to not useful at all, based on your personal opinion.

	Not at all useful	Not that useful	Somewhat useful	Quite useful	Very useful
You enter the online website of a fashion store. A chat window pops up and shows you a fashion item that is on sale.	○	○	○	○	○
You enter the online website of a fashion store. A chat window pops up and offers you a fashion item at a discount. It is a product you were looking at the last time you visited the website.	○	○	○	○	○
You enter the online website of a fashion store. A chat window pops up saying "Do you want to see the latest trend?" After writing "Yes" in the chat, you are shown some items from the store's new collection.	○	○	○	○	○
You visit the online website of a fashion store. After a few minutes you find a suitable fashion item. When you select the fashion item (a T-shirt), a chat window appears. The chat window (a chatbot) offers you a pair of trousers matching the style of the T-shirt.	○	○	○	○	○
You are on the online website of a fashion shop. As you look at an item, you notice that it is no longer available in your size. You click on a chat icon and ask when the item will be back in stock. Within three seconds, the chatbot tells you that you will probably have to wait another two weeks.	○	○	○	○	○
You are on the online website of a fashion shop. Once you have selected an item (a jacket), you want to buy a matching hat. You click on a chat icon and ask for a hat that matches the style. Within three seconds, the chatbot suggests a selection of five items that match the colour of the selected jacket.	○	○	○	○	○

2.2. Questionnaire Item Coding

Preferences when shopping fashion items online I

Code	Item
OS01_01	I like to buy two or more stylistically matching fashion items (trousers, top, shoes, headwear, etc.).
OS01_08	I like getting product suggestions that help me to put together an outfit.
OS01_03	I like to view a compilation of pre-selected products in the online shop.
OS01_06	When I shop online, I miss the fashion advice from store staff and friends.
OS01_04	I like to receive matching product suggestions from the online retailer for products I have already selected.
OS01_07	Sometimes the range of fashion items in the online shop overwhelms me.
OS01_02	I like to put together entire outfits in the online shop (trousers, top, possibly headgear and or shoes, etc.).
OS01_05	I like to receive personalised product suggestions that match my buying behaviour with the online retailer.

Preferences when shopping fashion items online II

Code	Item
OS02_13	I like to get informed about the latest fashion trends.
OS02_08	When shopping online, I miss the option of asking a salesperson for advice.
OS02_09	I like to shop online with friends who advise me while shopping.
OS02_10	I like to use the chat function or other consultation tools of an online shop.
OS02_15	When shopping online, I don't need the advice of friends or sellers.
OS02_11	When shopping online, personal product advice on the phone is important to me.
OS02_12	Interaction with friends is important for me when shopping fashion items.
OS02_14	I like to shop online alone. I'm not interested in other people's opinions about my fashion items.

Perception of Chatbots

Code	Item
AC04_01	I consider chatbots to be very helpful and expect companies to provide functioning chatbots.
AC04_05	Chatbots are a redundant technology.
AC04_07	Chatbots are manipulative.
AC04_06	Chatbots are inscrutable.
AC04_03	Chatbot technology needs to be developed further before it can help.
AC04_08	Marketing chatbots only want to stimulate purchases.
AC04_02	Chatbots can be helpful.
AC04_04	Chatbots are a useless gimmick.

Chatbot Characteristics I

Code	Item
CC01_15	Chatbots should be able to answer questions regarding the material the clothes are made of.
CC01_20	Chatbots should be able to give advice regarding outfits.
CC01_16	Chatbots should be able to name the country where the clothes were made.
CC01_18	Chatbots should be able to answer questions regarding dispatch/ shipping.
CC01_19	Chatbots should be able to answer questions concerning the retour (e.g. postmark, etc.).
CC01_22	Chatbots should be able to help with designing an outfit (e.g. suggest stylistically suitable supplements to selected products).

CC01_24	Chatbots should be able to give me discounts on certain items while shopping.
CC01_26	I would prefer to communicate verbally with a chatbot when shopping rather than typing.

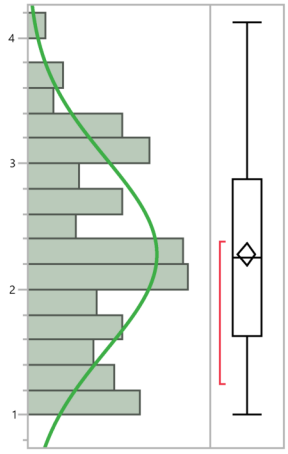
Chatbot Characteristics II

Code	Item
CC02_26	You enter the online website of a fashion store. A chat window pops up and shows you a fashion item that is on sale.
CC02_27	You enter the online website of a fashion store. A chat window pops up and offers you a fashion item at a discount. It is a product you were looking at the last time you visited the website.
CC02_28	You enter the online website of a fashion store. A chat window pops up saying "Do you want to see the latest trend?" After writing "Yes" in the chat, you are shown some items from the store's new collection.
CC02_29	You visit the online website of a fashion store. After a few minutes you find a suitable fashion item. When you select the fashion item (a T-shirt), a chat window appears. The chat window (a chatbot) offers you a pair of trousers matching the style of the T-shirt.
CC02_30	You are on the online website of a fashion shop. As you look at an item, you notice that it is no longer available in your size. You click on a chat icon and ask when the item will be back in stock. Within three seconds, the chatbot tells you that you will probably have to wait another two weeks.
CC02_31	You are on the online website of a fashion shop. Once you have selected an item (a jacket), you want to buy a matching hat. You click on a chat icon and ask for a hat that matches the style. Within three seconds, the chatbot suggests a selection of five items that match the colour of the selected jacket.

3. Data Analysis

3.1 Distribution Summary: Preferences when shopping fashion items online II (OS02)

Distributions



Compare Distributions

Show	Distribution		AICc	BIC	-2*LogLikelihood
[x]	Normal		657.05727	664.3197	653.01472

Quantiles

100.0%	maximum	4.125
99.5%		4.07125
97.5%		3.73125
90.0%		3.375
75.0%	quartile	2.875
50.0%	median	2.25
25.0%	quartile	1.625
10.0%		1.25
2.5%		1
0.5%		1
0.0%	minimum	1

Summary Statistics

Mean	2.2763158
Std Dev	0.7622015
Std Err Mean	0.0451489
Upper 95% Mean	2.3651848
Lower 95% Mean	2.1874468
N	285

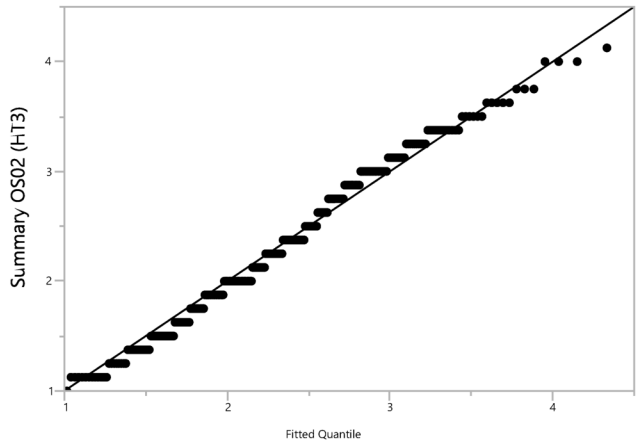
Fitted Normal Distribution

Parameter		Estimate	Std Error	Lower 95%	Upper 95%
Location	μ	2.2763158	0.0451489	2.1874468	2.3651848

Parameter		Estimate	Std Error	Lower 95%	Upper 95%
Dispersion	σ	0.7622015	0.0320095	0.7043421	0.8304979

Measures	
-2*LogLikelihood	653.01472
AICc	657.05727
BIC	664.3197

QQ Plot



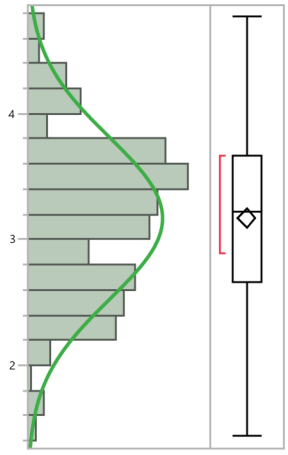
Goodness-of-Fit Test

	W	Prob<W
Shapiro-Wilk	0.9733102	<.0001*

	A2	Simulated p-Value
Anderson-Darling	1.7849344	<.0001*

3.2 Distribution Summary: Perception of Chatbot (AC04)

Distributions



Compare Distributions

Show	Distribution	AICc	BIC	-2*LogLikelihood
[x]	Normal	560.30664	567.56907	556.26409

Quantiles

100.0%	maximum	4.7777778
99.5%		4.7777778
97.5%		4.4277778
90.0%		4
75.0%	quartile	3.6666667
50.0%	median	3.2222222
25.0%	quartile	2.6666667
10.0%		2.3333333
2.5%		1.9055556
0.5%		1.4922222
0.0%	minimum	1.4444444

Summary Statistics

Mean	3.1676413
Std Dev	0.6432111
Std Err Mean	0.0381005
Upper 95% Mean	3.2426366
Lower 95% Mean	3.092646
N	285

Fitted Normal Distribution

Parameter		Estimate	Std Error	Lower 95%	Upper 95%
Location	μ	3.1676413	0.0381005	3.092646	3.2426366
Dispersion	σ	0.6432111	0.0270123	0.5943844	0.7008455

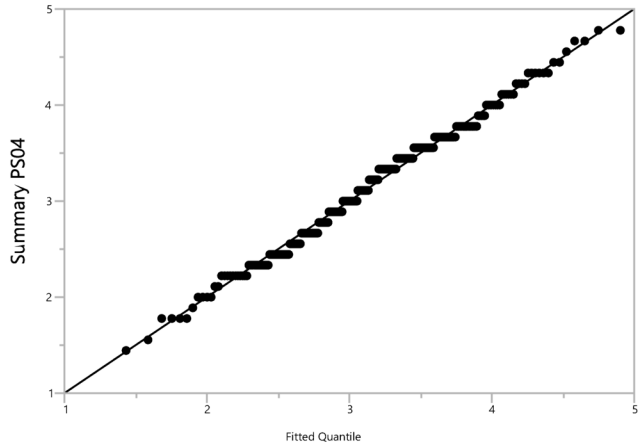
Measures	
-2*LogLikelihood	556.26409
AICc	560.30664
BIC	567.56907

Goodness-of-Fit Test

	W	Prob<W
Shapiro-Wilk	0.9911682	0.0848

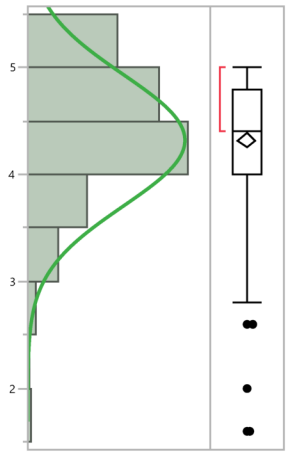
	A2	Simulated p-Value
Anderson-Darling	1.0077803	0.0068*

QQ Plot



3.3 Distribution Summary: Ability to answer simple questions (HT4;1)

Distributions



Compare Distributions

Show	Distribution		AICc	BIC	-2*LogLikelihood
[x]	Normal		535.90701	543.16943	531.86445

Quantiles

100.0%	maximum	5
99.5%		5
97.5%		5
90.0%		5
75.0%	quartile	4.8
50.0%	median	4.4
25.0%	quartile	4
10.0%		3.6
2.5%		2.8
0.5%		1.6
0.0%	minimum	1.6

Summary Statistics

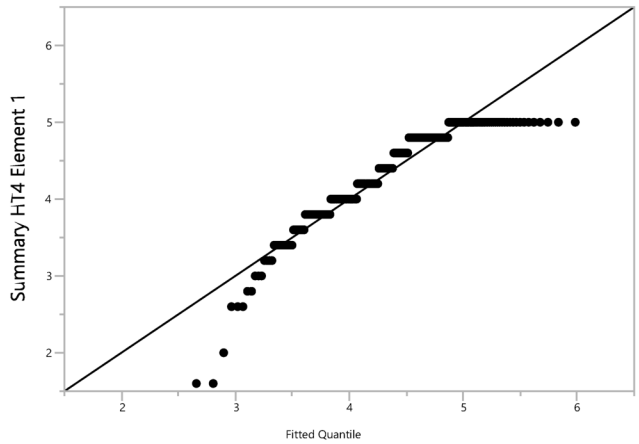
Mean	4.32
Std Dev	0.6162586
Std Err Mean	0.036504
Upper 95% Mean	4.3918527
Lower 95% Mean	4.2481473
N	285

Fitted Normal Distribution

Parameter		Estimate	Std Error	Lower 95%	Upper 95%
Location	μ	4.32	0.036504	4.2481473	4.3918527
Dispersion	σ	0.6162586	0.0258804	0.5694778	0.6714779

Measures	
-2*LogLikelihood	531.86445
AICc	535.90701
BIC	543.16943

QQ Plot



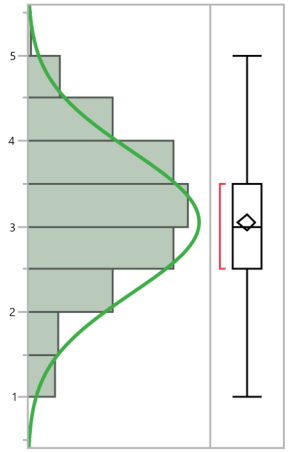
Goodness-of-Fit Test

	W	Prob<W
Shapiro-Wilk	0.8854991	<.0001*

	A2	Simulated p-Value
Anderson-Darling	7.2811165	<.0001*

3.4 Distribution Summary: Ability to make suitable product suggestions (HT4;2)

Distributions



Compare Distributions

Show	Distribution		AICc	BIC	-2*LogLikelihood
[x]	Normal		705.68745	712.94988	701.6449

Quantiles

100.0%	maximum	5
99.5%		4.8925
97.5%		4.5
90.0%		4
75.0%	quartile	3.5
50.0%	median	3
25.0%	quartile	2.5
10.0%		2
2.5%		1.25
0.5%		1
0.0%	minimum	1

Summary Statistics

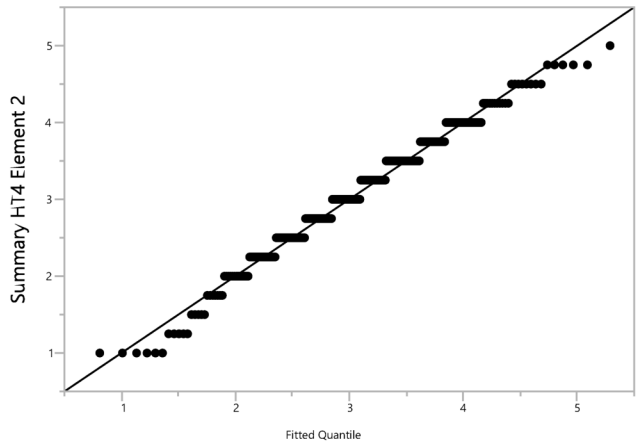
Mean	3.0491228
Std Dev	0.8300842
Std Err Mean	0.0491699
Upper 95% Mean	3.1459066
Lower 95% Mean	2.952339
N	285

Fitted Normal Distribution

Parameter		Estimate	Std Error	Lower 95%	Upper 95%
Location	μ	3.0491228	0.0491699	2.952339	3.1459066
Dispersion	σ	0.8300842	0.0348603	0.7670717	0.9044632

Measures	
-2*LogLikelihood	701.6449
AICc	705.68745
BIC	712.94988

QQ Plot



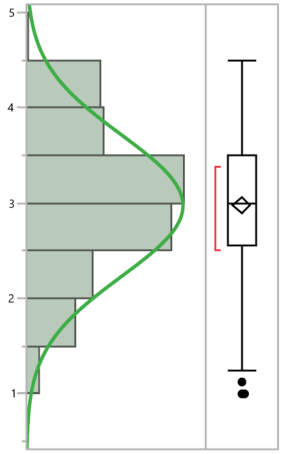
Goodness-of-Fit Test

	W	Prob<W
Shapiro-Wilk	0.9835749	0.0024*

	A2	Simulated p-Value
Anderson-Darling	1.3941184	0.0004*

3.5 Distribution Summary: Preferences when shopping fashion items online I (OS01)

Distributions



Compare Distributions

Show	Distribution		AICc	BIC	-2*LogLikelihood
[x]	Normal		641.91754	649.17997	637.87499

Summary Statistics

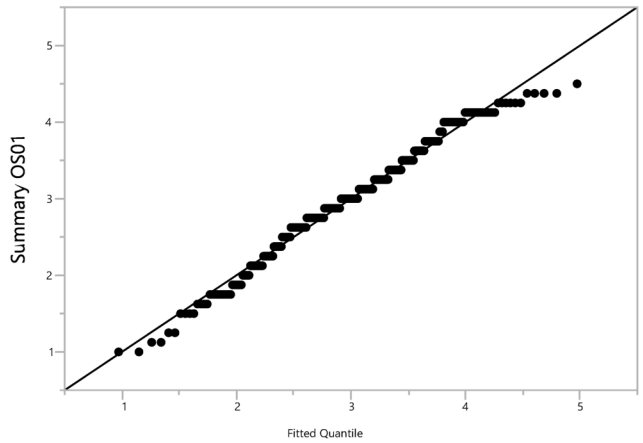
Mean	2.9723684
Std Dev	0.7422232
Std Err Mean	0.0439655
Upper 95% Mean	3.058908
Lower 95% Mean	2.8858288
N	285

Fitted Normal Distribution

Parameter		Estimate	Std Error	Lower 95%	Upper 95%
Location	μ	2.9723684	0.0439655	2.8858288	3.058908
Dispersion	σ	0.7422232	0.0311704	0.6858803	0.8087295

Measures	
-2*LogLikelihood	637.87499
AICc	641.91754
BIC	649.17997

QQ Plot



Goodness-of-Fit Test

	W	Prob<W
Shapiro-Wilk	0.9832144	0.0020

	A2	Simulated p-Value
Anderson-Darling	1.1576607	0.0048

3.6 Inter-item Correlation: Preferences when shopping fashion items online I (OS01)

Cronbach's α

	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
Entire set	0.7623	

Excluded Col	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
OS01_01	0.7537	
OS01_08	0.6941	
OS01_03	0.7140	
OS01_06	0.7939	
OS01_04	0.7091	
OS01_07	0.7655	
OS01_02	0.7383	
OS01_05	0.7099	

3.7 Inter-item Correlation: Preferences when shopping fashion items online II (OS02)

Cronbach's α

	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
Entire set	0.7847	

Excluded Col	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
OS02_13	0.7966	
OS02_08	0.7653	
OS02_09	0.7343	
OS02_10	0.7825	
OS02_15	0.7536	
OS02_11	0.7696	
OS02_12	0.7221	
OS02_14	0.7546	

3.8 Inter-item Correlation: Perception of Chatbot (AC04)

Cronbach's α

	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
Entire set	0.7885	

Excluded Col	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
AC04_01	0.7604	
AC04_05	0.7415	
AC04_07	0.7693	
AC04_06	0.7760	
AC04_03	0.7845	
AC04_08	0.7898	
AC04_02	0.7550	
AC04_04	0.7433	
AC04_09	0.7873	

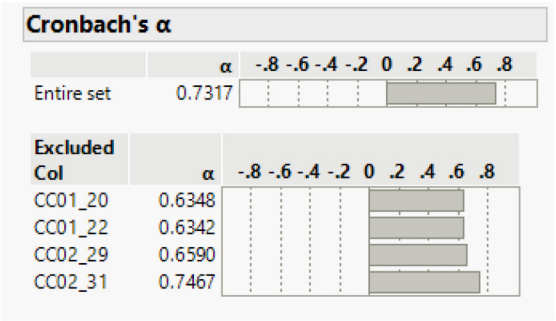
3.9 Inter-item Correlation: Ability to answer simple questions (HT4;1)

Cronbach's α

	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
Entire set	0.7815	

Excluded Col	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
CC01_15	0.7187	
CC01_16	0.7182	
CC01_18	0.7126	
CC01_19	0.7569	
CC02_30	0.7956	

3.10 Inter-item Correlation: Ability to make suitable product suggestions (HT4;2)



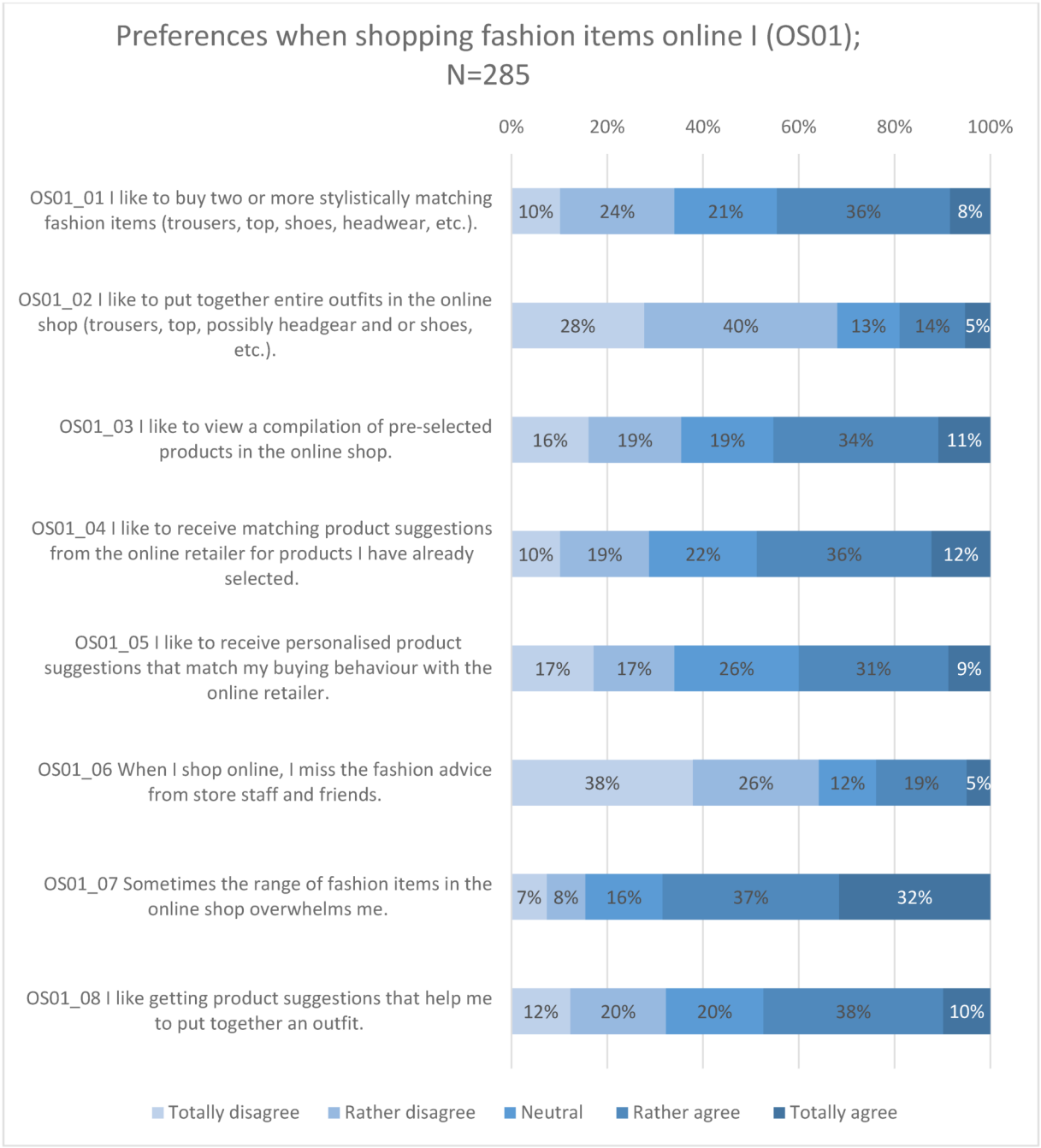
Cronbach's α

	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
Entire set	0.7317	

Excluded Col	α	-.8 -.6 -.4 -.2 0 .2 .4 .6 .8
CC01_20	0.6348	
CC01_22	0.6342	
CC02_29	0.6590	
CC02_31	0.7467	

4. Empirical Findings

4.1. Results of Survey Section OS01: Preferences when shopping fashion items online I - Overview I



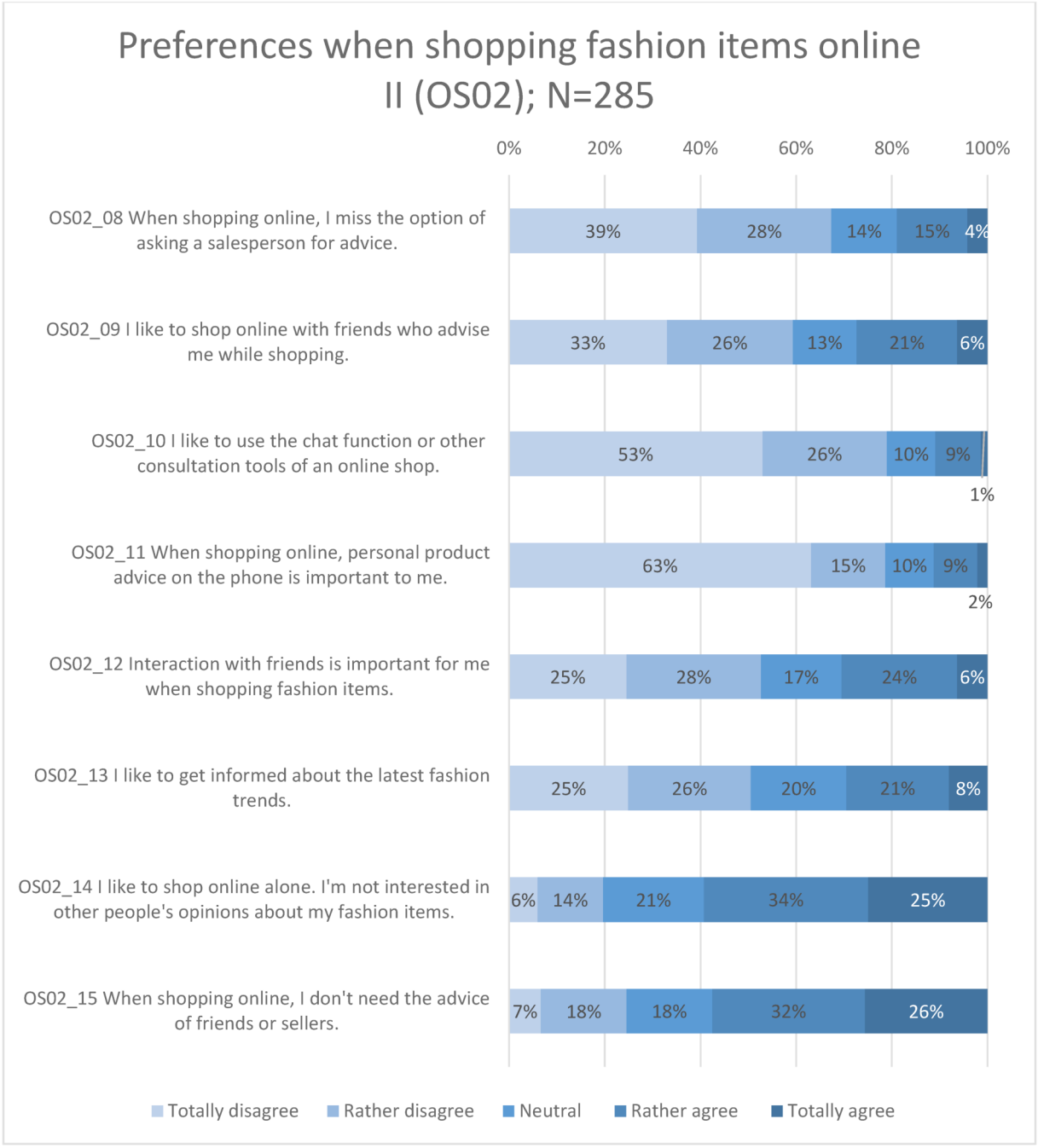
4.2. Results of Survey Section OS01 Preferences when shopping fashion items online I - Overview II

N=285

	Disagree	Agree	Avg. Likert Score
OS01_01	34.04%	44.56%	3.1
OS01_02	68.07%	18.95%	2.3
OS01_03	35.44%	45.26%	3.0
OS01_04	28.77%	48.77%	3.2
OS01_05	34.04%	40.00%	3.0
OS01_06	64.21%	23.86%	2.3
OS01_07	15.44%	68.42%	3.8
OS01_08	32.28%	47.37%	3.1

(Green= Disagree<Agree; Red= Disagree>Agree)

4.3. Results of Survey Section OS02: Preferences when shopping fashion items online II – Overview I



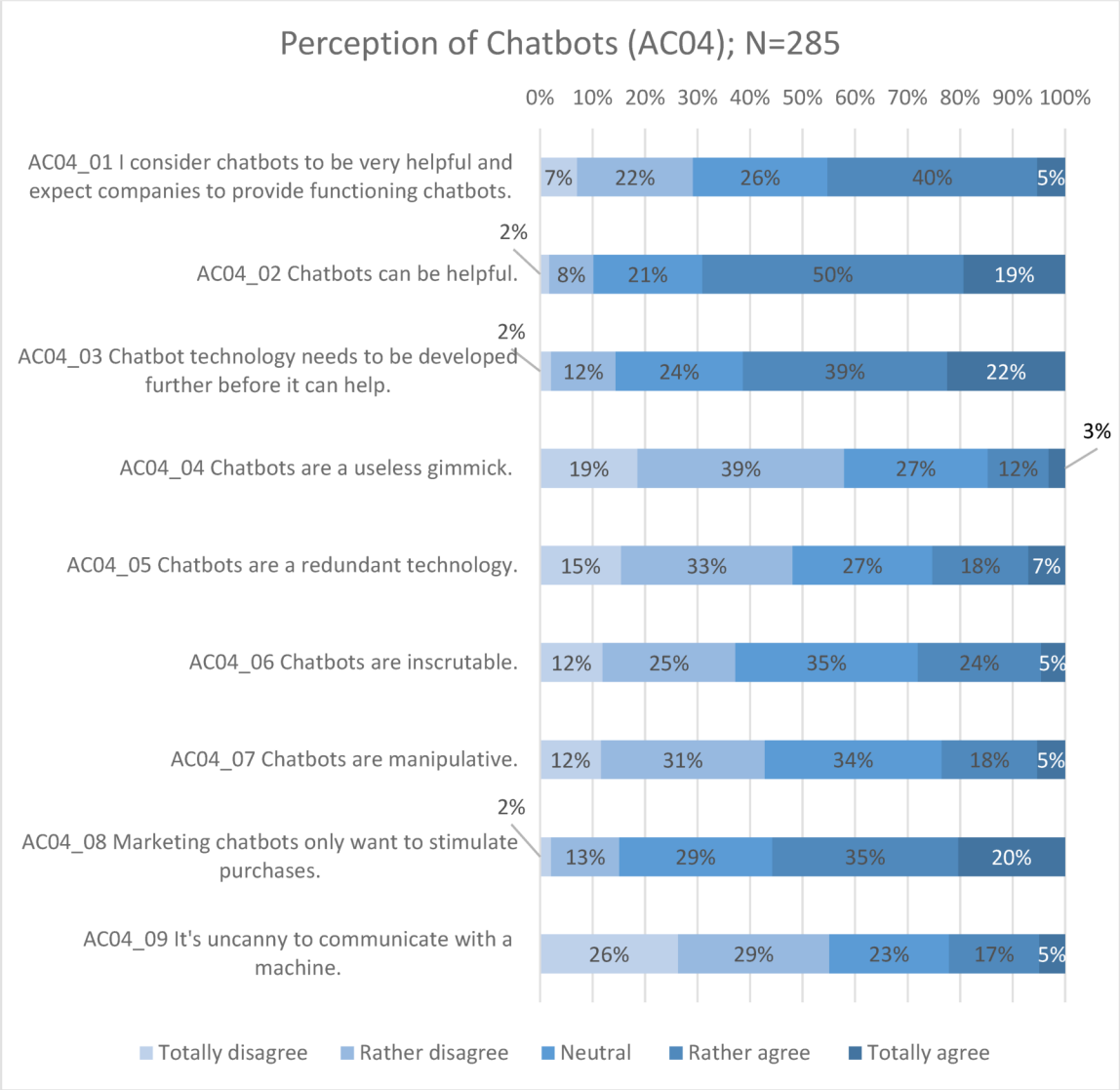
4.4. Results of Survey Section OS02: Preferences when shopping fashion items online II – Overview II

N=285

Question	Disagree	Agree	Avg. Likert Score
OS02_08	67.37%	18.95%	2.2
OS02_09	59.30%	27.37%	2.4
OS02_10	78.95%	10.88%	1.8
OS02_11	78.60%	11.23%	1.7
OS02_12	52.63%	30.53%	2.6
OS02_13	50.53%	29.47%	2.6
OS02_14	19.65%	59.30%	3.6
OS02_15	24.56%	57.54%	3.5

(Green= Disagree<Agree; Red= Disagree>Agree)

4.5. Results of Survey Section AC04: Perception of Chatbots – Overview I

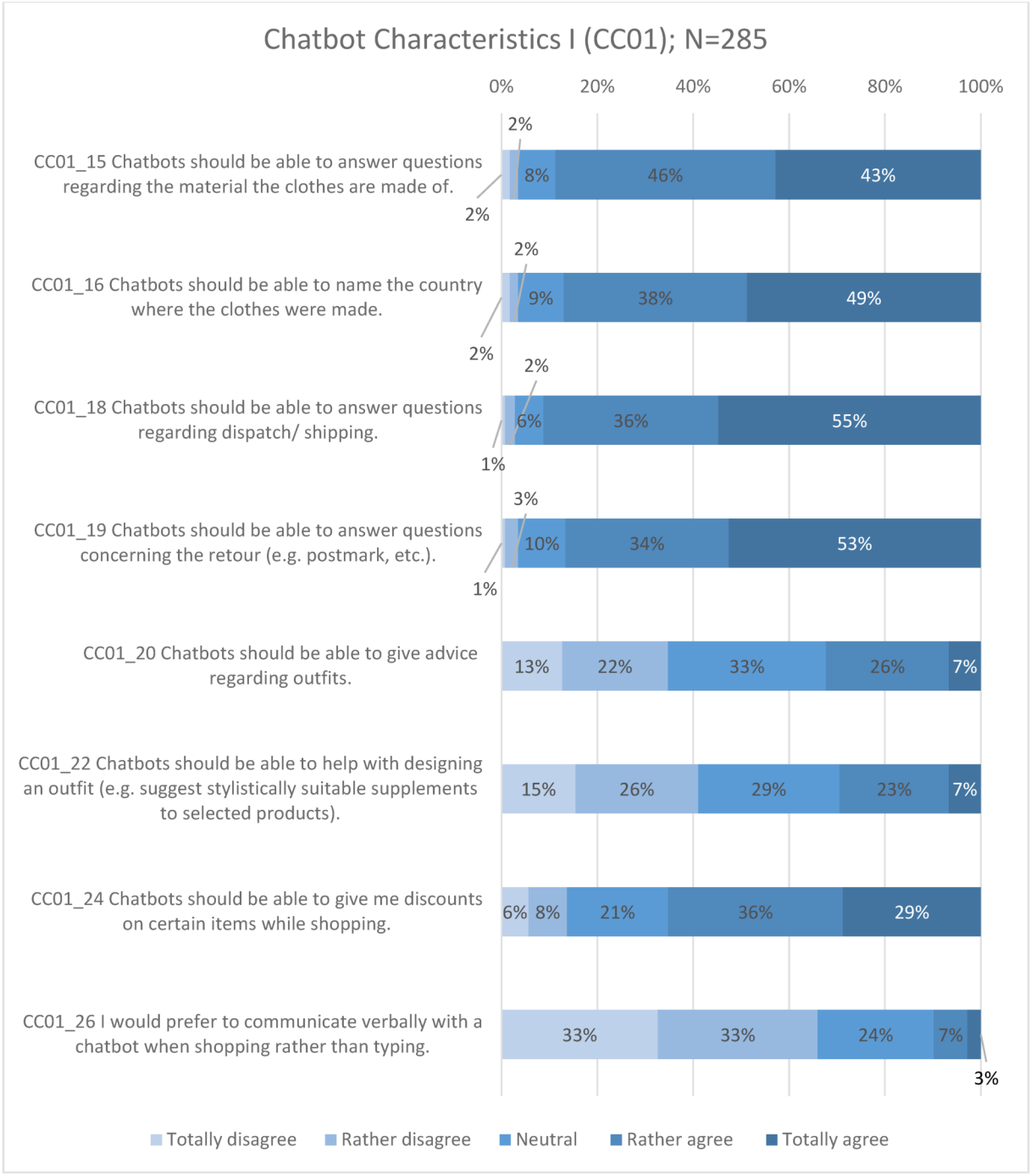


4.6. Results of Survey Section AC04: Perception of Chatbots – Overview II

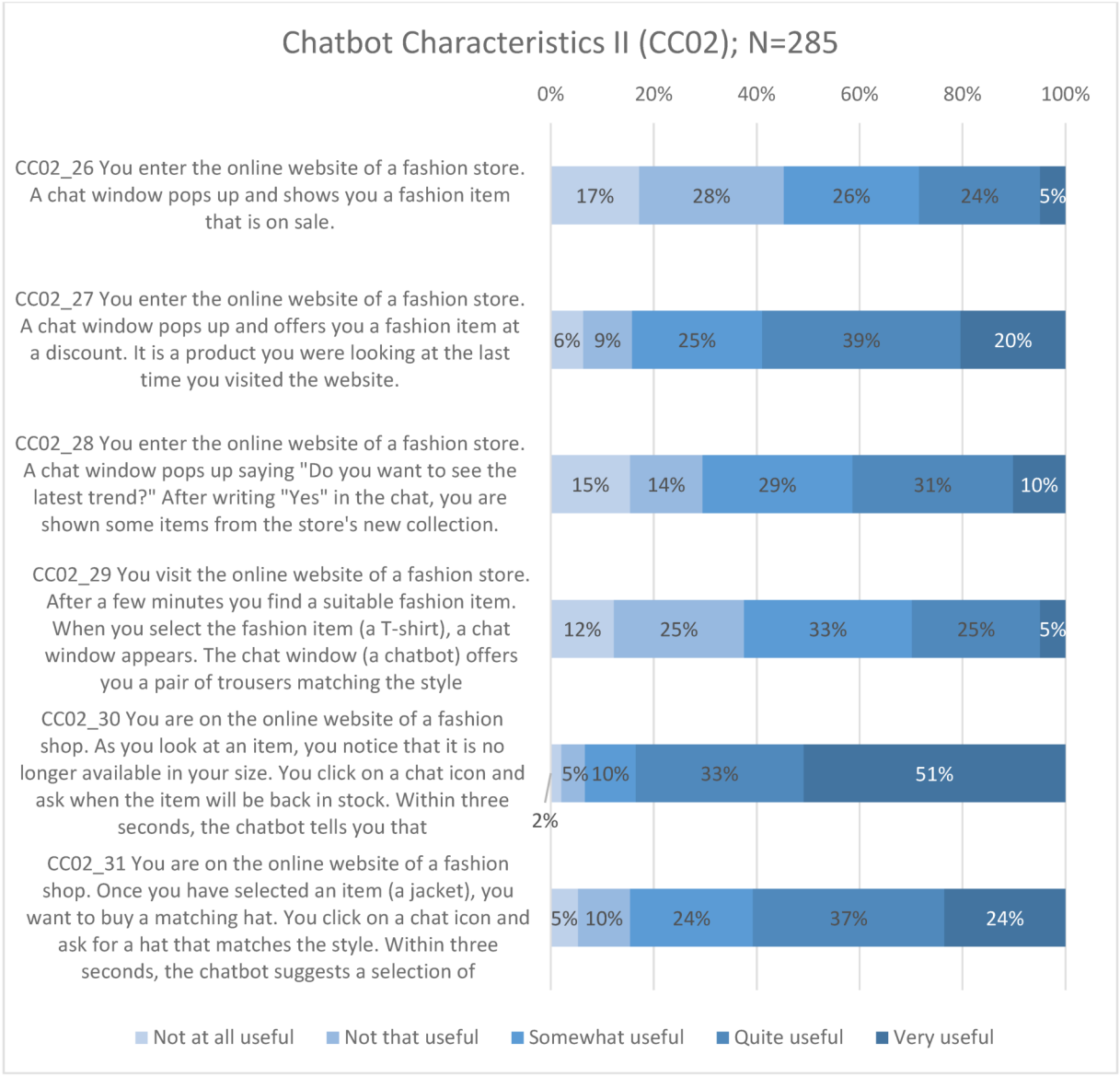
N=285

Question	Disagree	Agree	Avg.
AC04_01	29.12%	45.26%	3.1
AC04_02	10.18%	69.12%	3.8
AC04_03	14.39%	61.40%	3.7
AC04_04	57.89%	14.74%	2.4
AC04_05	48.07%	25.26%	2.7
AC04_06	37.19%	28.07%	2.8
AC04_07	42.81%	23.51%	2.7
AC04_08	15.09%	55.79%	3.6
AC04_09	55.09%	22.11%	2.5

4.7. Results of Survey Section CC01: Chatbot Characteristics I – Overview I



4.8. Results of Survey Section CC02: Chatbot Characteristics II - Overview



5. Hypothesis testing

5.1. Result Hypothesis 4 - Overview I

Subject	Item	Totally disagree	Rather disagree	Neutral	Rather agree	Totally agree	Average Liker Scale Value
Subjects expect Chatbots to be able to answer questions about the characteristics of a particular item of clothing	CC01_15	2%	2%	8%	46%	43%	4.26
	CC01_16	2%	2%	9%	38%	49%	4.31
	CC01_18	1%	2%	6%	36%	55%	4.42
	CC01_19	1%	3%	10%	34%	53%	4.35
	CC02_30	2%	5%	10%	33%	51%	4.26
	Average	**1%**	**3%**	**9%**	**37%**	**50%**	**4.32**
Subjects expect Chatbots have the ability to suggest stylistically suitable supplements when putting together an outfit.	CC01_20	13%	22%	33%	26%	7%	2.92
	CC01_22	15%	26%	29%	23%	7%	2.80
	CC02_29	12%	25%	33%	25%	5%	2.85
	CC02_31	5%	10%	24%	37%	24%	3.64
	Average	**11%**	**21%**	**30%**	**28%**	**10%**	**3.05**
Chatbots should be able to give discounts	CC01_24	6%	8%	21%	36%	29%	3.75
	CC02_26	17%	28%	26%	24%	5%	2.71
	CC02_27	6%	9%	25%	39%	20%	3.57
	Average	**10%**	**15%**	**24%**	**33%**	**18%**	**3.34**
Chatbots should have voice control	CC01_26	33%	33%	24%	7%	3%	2.14
Chatbots should be able to inform about the latest fashion trends	CC02_28	15%	14%	29%	31%	10%	3.07

5.2. Result Hypothesis 4 - Overview II

Rank	Characteristic	Value	Total Consent
1	Subjects expect Chatbots to be able to answer questions about the characteristics of a particular item of clothing	4.32	87%
2	Chatbots should be able to give discounts	3.34	51%
3	Chatbots should be able to inform about the latest fashion trends	3.07	41%
4	Subjects expect Chatbots have the ability to suggest stylistically suitable supplements when putting together an outfit.	3.05	38%
5	Chatbots should have voice control	2.14	10%

6. Mean Value Formula

The mean value used in this paper is the arithmetic mean. The arithmetic mean is formed as the quotient of the sum of all values and the number of values of a characteristic expression (Steiner & Bensch, 2011)

The formula of the arithmetic mean is:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^{n} x_i$$

$\bar{x}$ = Arithmetic Mean

n = Sample size

Σ = Sum

x_i = Characteristic Expression at Index (i)

Source:

Steiner, E., & Benesch, M. (2011). *Der Fragebogen: Von der Forschungsidee zur SPSS/PASW Auswertung*. utb GmbH.

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Autor:
Jan-Valentin R. Pauw

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