

2022

Master Thesis

HOW ARTIFICIAL INTELLIGENCE SOFTWARE BUY UP HIGH -
VALUE SNEAKERS

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Effect of malicious bots on sneakerheads behaviour

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Master Thesis period	November 2021 till August 2022 August
Date	2022

Acknowledgements

I want to express my gratitude to my supervisor H. Widyanto for supervising me while writing this thesis and for his expertise and advice during our meetings. Thanks should also go to B. Hillebrand, who provided knowledge with his assessment of this thesis.

I am also grateful to the research respondents for their openness during the interviews and for providing detailed answers to my questions.

I want to acknowledge my classmates, especially Teun, Sven and Bart, for their advice and moral support during the period.

Lastly, I would like to mention my family and friends for their support and their belief during the process of the master thesis.

Ricardo Breebaart

Apeldoorn, August 15, 2022

Abstract

The fourth industrial revolution uses intelligent algorithms to simulate human behaviour. These algorithms are used for malicious purposes in the sneaker market. Online robots that use these intelligent algorithms are called scalping bots. Scalping bots buy limited-edition sneakers so sneakerheads cannot buy their coveted sneakers anymore because they are sold out within seconds. This ensures that sneakerheads have to shift to the secondary market to purchase the sneakers they want, where resellers who often use bots to buy and later sell sneakers are asking enormous prices. This research investigates how sneakerheads deal with the presence of bots at different stages of the consumer buying behaviour process.

The method used is semi-structured interviews conducted with 9 participants in the sneaker market who have experience purchasing sneakers and know what scalping bots are.

Analysis showed different patterns in the consumer buying behaviour process to deal with the bots. Sneakerheads do extensive information search for high anticipated sneakers since they are aware of a release. Different tactics are used during acquisition to make a chance against the bots. After a failed attempt, sneakerheads react differently to a stock-out, depending on whether they plan to wear the sneaker or resell it.

This research concludes that there is no chance of getting a pair without extra effort to find information about where and when sneakers are released. Some methods that are used by sneakerheads increase their chances. However, sneakerheads are convinced that bots are one step ahead.

Keywords: Sneakerheads, consumer purchase behaviour, scalping bots, stock-outs

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Introduction

Back then, consumers used to purchase their goods offline in stores only. However, this has changed over time, and consumers started to buy their products online. The first legitimate online transaction was done in 1994; this was ground-breaking (Lewis, 1994). Nowadays, eCommerce is indispensable. In 2015, 7.4 % of the purchases were done online. In 2020, the percentage increased to almost 17.8%. Moreover, the forecast for 2025 is 24.5%, meaning that almost a quarter of all consumer purchases is via eCommerce (Statista, 2022). According to Evans (2021), E-commerce has been the fastest-growing channel over the last decade, with the crisis accelerating such shifts. Not only has the rise of eCommerce, but so has the complexity of online transactions (Pratt, 2021). The introduction of multiple retailers, payment systems, search engines, smartphones, online wallets and social media has ensured that eCommerce grew (Content, 2021). Not only have purchases of products and services gone from offline to online, but robots, as we know them, are now active online (Brock, 2021). These robots are called the abbreviation bot, also known as internet bots which are computed programs that operate online as an agent for a user or other program to stimulate a human activity (Lutkevich & Gillis, 2022).

There are two types of bots: benign and malicious bots. Benign bots are customer service bots that create alerts or provide content aggregation, censoring and moderating bots on chats and forums, web crawlers and bots used by researchers (Tsvetkova et al., 2017). Malicious bots are price scrapers, content scrapers, account creators, credit card fraud, denial of inventory, denial of service and scalping bots (Imperva, 2022). In this research, the focus is on scalping or so-called shopping bots. These shopping bots are active on the web, shop for the products a consumer is looking for and can complete transactions on behalf of a human. The bots imitate human behaviour; the main difference between a bot and a human is the speed of action, where bots can find and buy products within seconds (Lutkevich & Gillis, 2022). The problems these bots cause is the buy-up of certain products in multiple markets, such as airlines, tickets, retailers for sneakers, consoles, computer hardware and other limited-edition items (Imperva, 2022). Any organisation or individual can use bots to replace repetitive tasks that a human otherwise had to perform; therefore, anyone can be a bot-user (Lutkevich & Gillis, 2022).

Besides the fact that this research focuses on scalping bots, it focuses on a specific market, namely the sneaker market. The sneaker market has revenue valued at approximately 65 billion euros and is forecast to reach 95 billion euros in 2025 (Statista, 2022). In that sneaker market, a group of consumers collect, trade and admire sneakers; they are called sneakerheads (Matthews et al., 2021). Some sneakerheads use bots to buy these high-value sneakers.

Consumers or sneakerheads who buy sneakers and sell them for a profit are called resellers (Choi, 2017). Resellers that use bots are a problem for the oldskool sneaker collectors. For instance, in 2019, a limited edition of New Balance sneakers was released and sold out within minutes. The problem occurred; 60 per cent of the sales went to bots, where multiple sneakers were claimed by a customer who operates the bots, resulting in many other shoppers failing to secure one pair (Wakabayashi, 2021). The global sneaker resale market, where bots users are selling sneakers, is approximately 5.6 billion euros and has an expected growth of 20% yearly (Wade, 2019; Kernan et al., 2020).

The fact that bots impact not only consumers. Companies that sell a limited supply of products, such as sneakers, are also impacted. Scalping bots gather limited-availability products, damage customer reputation and slow down websites. They are causing a potential denial of service of the website, a decrease in the number of visitors to a website that wants to complete the desired goal and an increase in the use of customer service by consumers (Impreva, 2022; Suchacka, 2014). According to Michigan (2021), sneaker companies care about customer experiences and want to prevent bot-operators from buying sneakers because they are short-term, non-valuable consumers.

Sneakerheads who are long-term, valuable consumers believe they are disadvantaged and get negative emotions such as frustration. These adverse effects may transfer to the brands and retailers selling sneakers sneakerheads cannot get (Choi, 2017). In addition, Choi addresses that sneaker retailers and brands should investigate the different release methods to give equal opportunities to their loyal customers. A pair that is impossible to get might lead to withdrawal from the brand and sneaker culture, negatively affecting reputation and success. The problem of scalping bots made the headlines when the son of the vice president and general manager of Nike North America (Ann Hebert) bought up sneakers using bots and made 20,000 dollars in profit from one sneaker release. After the scandal, Hebert resigned, and Nike stated they were busy developing anti-bot technology (Hunt, 2021; Dobrosielski, 2021). According to Bloomstein (2021), these developments are necessary because cynicism grows if Nike does nothing against these bots, and the sneaker companies risk losing their legions of fans and shoppers.

Till now, the problems are not solved yet, resulting in customer shifts from primary to the secondary market, where exorbitant amounts of money are being paid, resulting in heartbreaking experiences for sneaker fans and collectors (Jaskier, 2016). More specifically, it dampens the mood and deteriorates the consumer experience (Harrington & Harrington, 2012.). According to the research by Choi (2017), the consumer experience of customers is crucial to

know, and it is directly related to the company's reputation and success. Therefore, companies must understand consumer experiences during the consumer purchase behaviour process. Companies need to understand how their customers deal with bots and how it affects their behaviour so that retailers and sneaker brands can intervene in this process to solve the problem and not risk losing their loyal customers. Fairness and equality must be established during the buying process to make the sneakerheads' experience more enjoyable (Jaskier, 2016). This research focuses on the destructive nature of scalping bots and how they could negatively impact a brand's reputation and success and decrease the number of visitors to the website. Moreover, this research investigates how sneakerheads deal with bots at different stages of consumer purchase behaviour theory. Understanding consumer behaviour helps marketers influence consumer behaviour in the desired manner (Jisana, 2014).

Problem definition

The problem is that sneakerheads can no longer buy their beloved sneakers for the retail price because bots are active on the internet that buys up these sneakers much faster than a human being can and subsequently sell them for a more significant amount (Wakabayashi, 2021). In addition, bots penalise consumers that have to pay the top price for the sneakers they want for their collection. What is known about the bots is that the problem is there; it damages both retailers and sneakerheads without bots (Cohen, 2019). Because scalping bots are relatively new to the market, chatbots have more clarity than shopping bots. Unfortunately, there is not much knowledge about the experiences of sneakerheads when shopping online confronting the bots and how this influences their shopping behaviour (Cassidy, 2018).

This research will benefit the retailers and sneaker brands to understand the problem of bots at different stages of the consumer purchase behaviour process so that they can tackle the problem by stage and not lose their loyal customers. All stages of consumer purchase behaviour are investigated because these various stages cannot be seen separately from each other. Therefore, a holistic approach is used to see the impact of bots during the process (Zhang & Benyoucef, 2016). Moreover, bots occur during the acquisition stage. However, the other stages need to be considered because these stages influence or are influenced by the acquisition stage (Boyd & McConocha, 1996). For companies, it is essential to understand behaviours; every consumer has a different attitude and process when purchasing a product. If a company fails to fill the gap in understanding consumer behaviours, there is a risk for the product itself, reflecting the company as a whole (Shishani, 2020). In addition, the bots reveal other patterns

than humans, which may skew the outcomes of customer behavioural studies and lead to inaccurate business decisions; therefore, it will be beneficial for retailers to distinguish bots from humans (Suchacka, 2014). Sneakerheads will benefit from this research because their problems are evident in different stages of the consumer behaviour process, and they can learn how to deal with the bots from other sneakerheads. For this research, the stories and experiences of the sneakerheads will be figured out so that the retailers and sneaker brands can better identify their problems and come up with solutions or compensations for them.

Objectives and research question

This research focuses on the experiences that consumers have when buying their wanted sneakers, how shopping bots may influence these experiences, and how this influences the consumers' purchase (behaviour/intention).

Practical objective

This research aims to understand how sneakerheads in the sneaker market deal with the presence of bots. When retailers better understand the problem, they can look more specifically for a solution to solve the problem. Therefore, this study investigates which stages of consumer behaviour the bots have the most impact. The research aims to extend the developed results to similar industries, markets, and consumer contexts where bots are used to buy products or services. The ultimate goal is to solve the problem through this research and follow-up studies, resulting in sneakerheads being able to buy their coveted sneakers for retail price.

Research objective

This research aims to collect all necessary information regarding the influence of bots on sneakerheads' behaviour to understand the problem better and how sneakerheads deal with the presence of bots in different stages of consumer behaviour. In addition, the aim is to understand better consumer behaviour and why they behave that way if they are affected by the bots. Lastly, the aim is to contribute to the already existing literature and to give suggestions for further research.

Research question

How do sneakerheads in the sneaker market deal with the presence of bots at different stages of the consumer purchase behaviour process?

Outline of the thesis

In order to accomplish the research question, the document's outline is as follows. The following chapter will discuss the theoretical background, key concepts, and underlying theories. The key concepts and theories about consumers' experiences and intentions in the sneaker market are discussed concerning shopping bots. In the next chapter, the methodology for this research is sophisticated. Furthermore, there is an explanation of how the research question is answered using qualitative data in the form of interviews.

Moreover, the sample and its criteria, data sources, data collection methods, and data analysis are described and explained. The chapter after methodology analyses the data that includes the most relevant results collected during the research related to the research question. Statements from respondents in the form of quotations from the interviews will be represented with additional explanations to support the findings of this research. The last chapter is the discussion. In the discussion, the conclusion answers the main research question. It also contains an interpretation of the results, managerial and theoretical implications, limitations of the research, suggestion for future research and a methodological reflection.

Theoretical background

Mechanics of bots

The article by Vanccea (2020) defines the categories of bots that can be used in different activities/services. An analysis of the current general situation is given while investigating future trends regarding the increased use of artificial intelligence (AI) in industries and services. Industry 4.0 is the fourth industrial revolution based on an advanced digitalisation within the combination of internet technologies and future-oriented technologies in the "smart" objects (Lasi et al., 2014). Industry 4.0 is accelerated by the 2020 pandemic (Koetsier, 2021) and leads digital users to constantly interact with online entities that use intelligent algorithms to simulate human behaviour; an explanation about algorithms is given in Appendix A. The increase in e-commerce attracts integrated system algorithms, exposing users to artificial intelligence (intelligent agent). These systems are used for both benign and malicious purposes. The separation between these two is blurred, with profit being the main drive (Vanccea, 2020).

Intelligent agents are computational systems that solve tasks that humans often perform. Machine learning is a breakthrough AI that can process extensive data inputs and predict outcomes. It is based on simulating neural networks, which allow the system to learn by itself and perform tasks faster than humans. Bots are AI systems that automatically perform tasks with a certain degree of autonomy. The purpose is to use it in online environments to simulate human behaviour (IBM, 2020). Robots are defined by their appearance; software bots are categorised by purpose. Shopping bots can buy limited stocks of highly sought-after products, rapidly moving extensive stocks to the secondary market (Duffy et al., 2020). The sneaker bot, for example, is an automated software that scans online websites and purchases the latest and most wanted pairs of sneakers that are then sold on the secondary market. This method is still legal even though the same method for concert tickets is illegal (Vanccea, 2020; Duffy et al., 2020). Today, these sneaker bots are used to buy game consoles and any product where demand exceeds the supply of restricted items. This results in negative shopping experiences for customers (Vanecca, 2020).

Because the sneaker bots are similar to the bots used in the ticket market, the research of Duffy et al. (2020) showcases the move van customer demand from the primary market (retail market) to the secondary market (resale market.) What happens is that the secondary market becomes attractive. The primary market may be hotter as consumers, concerned about the scarcity of resources (e.g. all tickets sold out), purchase tickets as soon as they go on sale. Many actors engage in agency efforts and voice concerns in such concerned markets, thus

possibly frustrating a stable agencement (Geiger & Finch, 2015). For example, the market becomes unstable and contested due to the potential regulatory controversies involved in stabilising the secondary ticket market. The state of the ticket market emerged as ambiguous, where demand is manipulated by the bots' capacity and ability to operate at scale. As consumers become aware of digital technologies being used in the concert ticket market, analysis of online conversations saw affected and concerned consumers sharing information with others across digital platforms. They actively drew attention to what they perceived to be "unfair" ticket resale practices, particularly around the idea of scarcity of tickets (in comparison to the perceived value of the tickets), what constitutes a "fair" price and the role of arbitrage pricing rules (Hardie & MacKenzie, 2012) operated by secondary ticket market actors.

The rise of bots has disrupted many industries like concerts and clothing. In the video game industry, the same happened. Many fans wanted to buy the new high-end tech, but many other fans approached the digital raffle tickets. However, these fans are going up against thousands of bots in reality. There are many bots, but anti-bot technology is there; however, the bots will always win. According to Klepek (2020), companies like Nike have spent years learning to deal with bots. However, they have not spent time learning what to do against these bots in the tech industry. The question that arises is, why would they do something about these bots? These companies get their money and sell their stock (Klepek, 2020).

The working method of bots

Bots are automated software once it is set. The person behind the bot, the bot operator, does not need to be anywhere near the computer; only if the website uses CAPTCHA does the bot operator have to solve it (Brock, 2021); the explanation of CAPTCHA is given in Appendix A. Sneaker bots inject pre-recorded mouse and click behaviour from humans. In the end, the bots operate as non-human traffic on the internet; the definition of non-human traffic is given in Appendix A. The advanced bots use proxies and VPNs to mask their IP addresses. Resellers use proxies and VPNs to have multiple addresses where they can buy sneakers because most retailers of exclusive sneakers allow every buyer to have only one address; the definition of hype can be found in Appendix A. These bots do not have coordinated addresses but have individual residential addresses. Scraping bots are the bots that get information about sneakers and their stock (Zhao, 2017); it is like a human refreshing the web page of a retailer every second. Bots are scraping to detect restocks and new collections. A footprinting bot is almost the same as a scraping bot. However, the footprinting bot is looking for unreleased URLs. Because resellers use multiple accounts for multiple "online addresses," account creation bots

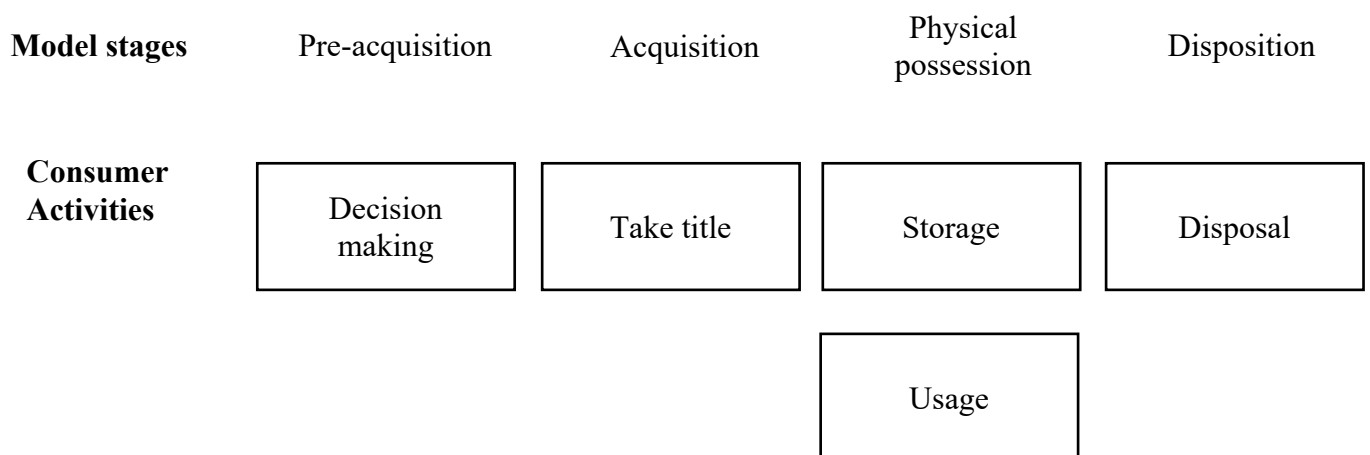
create new accounts for the resellers (Queue-it, 2022). Scalping bots search for the sneakers and immediately purchase them within 1 second (Brock, 2021). It even goes so far that bots keep specific sneakers occupied. As soon as a consumer buys that product via a secondary market website, the bot does purchase the items on the retail website. These bots that occupy products are called denial of inventory (Queue-it, 2022).

The methods people behind the bots are performing are reading articles about products that will be released soon. By reading and researching the internet, people know what will be favoured by the public by understanding how limited the stock may be and by funding enough money to buy many products to change the prices. After they have got all the information, they modify their bots by programming them to purchase the products when they become available. The bots have two sides, people who are okay with scalping and those who are not. The ones who believe it is ethical argue that it is one of the many options in the free market. In addition, they believe that if they do not make money off, another person will do it. On the other hand, many consumers think it is unethical and should be illegal (Brock, 2021).

The consumer decision-making process of sneakerheads

Consumers who purchase products usually buy them to own, use or reuse. According to Boyd & McConocha (1996), most buyer behaviour theory only focuses on the pre-acquisition and acquisition stages of goods ownership, thereby ignoring post-purchasing behaviours. The post-purchase behaviour is essential because it can influence other decisions in previous stages. Next to the theory of Boyd & McConocha is the more recent theory of Keller & Kotler (2022). In this research, the theory of Boyd & McConocha is reviewed and, if necessary, supplemented with the more recent theory of Keller & Kotler. The Inventory ownership cycle (IOC) by Boyd & McConocha (1996) is shown in figure 1.

Figure 1
Inventory Ownership Cycle (Boyd & McConocha, 1996)



In the pre-acquisition decision-making, a sneakerhead gathers information. It decides about acquiring the pair of sneakers and selects the supplier (if multiple). According to Keller & Kotler (2020), the decision-making process consists of the following sequence: problem recognition, information search, evaluation of alternatives, and purchase decision. The next stage is the purchase stage: ordering, purchasing, or agreeing to accept the goods. The goods move from the supplier to the consumer. Once the product arrives, the physical possession stage takes place (Boyd & McConocha, 1996). In the research of Keller & Kotler (2022), this phase is called post-purchase behaviour. The consumer may use the product immediately by wearing the sneakers or storing the sneakers because sneakers become more worthwhile over time (Ciment, 2019). Suppose an item is no longer needed or is ready to be resold. In that case, the sneakers are sold again and moved to another person or organisation (Boyd & McConocha, 1996). Each stage of the inventory ownership cycle will be explained with examples and how they may influence other behaviours in other stages.

Pre-acquisition

The pre-acquisition stage is the cognitive and affective information processing stage (Boyd & McConocha, 1996). This stage consists of 5 different phases, according to Kottler (2020). The first stage is the need for recognition; people who buy sneakers find comfort and convenience essential to buy new sneakers. In addition, sneakerheads want to match their sneakers with their outfits; the more sneakers they have, the more comfortable they feel (Chen et al., 2022). According to Choi (2017), some sneakerheads buy sneakers because they can profit from them or buy them because they collect sneakers. According to Belk (1995), collecting is the process of actively, selectively, and passionately acquiring and possessing things removed from ordinary use and perceived as part of a set of non-identical objects or experiences is an acquisitive, possessive, and materialistic pursuit. Collecting involves hunting, searching and shopping for unique objects. It is a form of materialistic luxury consumption. During the second stage, the information search, sneakerheads search for retailers where they can buy their coveted pair of sneakers. Sneakerheads are high-involved during this phase and will do extensive and rigorous research. According to Chen et al. (2022), sneakerheads think there is enough information available on apps that help to compare prices; however, because of the number of retailers, sneakerheads find it hard to make use of all the information, which makes it hard to decide to buy a pair. According to Choi (2017), sneakerheads did a general information search on an ongoing basis. They did a targeted information search when they considered purchasing a specific pair of sneakers, for instance, release dates, locations, and the resell value. The next phase is the evaluation of alternatives. According to Chen et al. (2022), sneakerheads are mainly interested in premium sneakers and are not looking for regular sneakers. During this phase, economic and personal factors are critical when evaluating other sneakers.

Consumer anticipations

Sneakerheads are high-involved in sneakers; according to Vichiengior et al. (2019), they anticipate future purchases. According to Belk (1995), collectors anticipate coveted items that are obtainable soon because it adds excitement to the collector's life through the thrill of the hunt. Collecting provides a sense of mastery, expertise and accomplishment in which they fall short during work. Consumer anticipation occurs during delayed consumption, where the initial thoughts about a product and the subsequent experience are delayed. Marketers use anticipation as part of their strategy for new and improved products. Advertisements, advance orders, reminders of release dates and pre-consumption are manners companies use to engage consumers before the consumption and purchase commitment.

Multiple consumer purchase behaviour theories have different processes proceeding through several stages. Consumer anticipation may start at any stage of the decision-making process. Looking at the Inventory Ownership Cycle of Boyd & McConocha (1996), consumer anticipation occurs during the pre-acquisition. Consumers consider buying the product, search for information, and evaluate alternatives while processing information. According to the literature of Vichiengior & Ackermann (n.d.), consumers anticipate if they are highly involved in the products. Therefore, Sneakerheads will anticipate more than regular consumers who want to buy sneakers.

Consumers' anticipation is influenced by motivation, ability and opportunities (Vichiengior et al., 2019). Motivation refers to a consumer's willingness and desire to appropriate mental resources to anticipate a future consumption experience. Consumers spend time and effort on mental activities only if they are intrinsically motivated. Uncertainty is a motivational driver for consumer anticipation. Delayed consumption situations differ in levels of uncertainty. Related to the sneakers purchase process, the level of uncertainty may differ for buying at a new retailer instead of buying at a well-known retailer. Uncertainty causes anxiety consumers will try to reduce by making future consumption situations more predictable and handling the experiences of pleasure associated with consumer anticipation. Next, consumers use problem-solving mental processes to go from goal-incongruent to goal-congruent. There is a difference between the functionality and the emotionality of the consumption; do they want to wear the sneakers or stock them and maybe resell them in the future? The last indicator for motivations is the influence of valence of past similar experiences. If sneakerheads have pleasant experiences buying sneakers, they are more likely to imagine a future consumption experience. If sneakerheads have unpleasant experiences buying sneakers, they are less imaginative of future consumption and will not enjoy it.

Next to motivation is the ability that influences consumers' anticipation. Ability is about the knowledge that consumers have regarding a future consumption experience. Consumers with high knowledge are more likely to elaborate on their anticipation because it provides the foundation for performing the mental processes involved in consumer anticipation (Vichiengior et al., 2019). Consumers with less knowledge will focus more on positive outcomes, whereas consumers with high knowledge have more experiences with both positive and negative outcomes (MacInnis & Price, 1987).

The last influencer of consumers' anticipation is opportunity. The first factor of opportunity is time. Time provides the opportunity to anticipate. With less time to anticipate, the less detailed and elaborated the experience will be. Next to that, the information marketers

provide affects consumers' anticipation. The more information is given, the more consumers engage in mental processes involved in consumer anticipation (Vichiengior et al., 2019).

There are consequences for anticipatory emotions and anticipated emotions. Anticipatory is the feeling held now; anticipated is the expectations of feelings in the future. Anticipatory emotions, hope and fear, are experiences from the expectation of a future event. For sneakerheads, hope reflects the pleasure with excitement and confidence to succeed in obtaining new sneakers. Fear is the opposite with emotions like worry, anxiety and stress that a future consumption may not succeed because of the high demand for the sneakers or that the consumption experience is perceived to be unpredictable. The more consumers anticipate future consumption experiences, the stronger the anticipatory emotions (Vichiengior et al., 2019). In addition to the high involvement of consumers that anticipate more are more likely to engage in anticipatory behaviours such as information gathering and sharing thoughts and emotions.

The next phase is the purchase decision, which is the last phase of the pre-acquisition, according to the theory of Boyd & McConocha (1996). According to Chen et al. (2022), purchase decisions are mainly determined by the environment of sneakerheads, such as friends. Next, sneakerheads purchase sneakers if they expect the value to rise. Consumers who store the sneakers must predict the resell value; when a pair is expected to have a high resell value, it will affect the purchase decision. To help consumers, Chu and Liao (2010) developed a concept called the External Resale Reference Price that estimates resale price based on market information. In that case, they have a stronger intention to buy limited high-value sneakers than average consumers (Chu & Liao, 2007). Another factor influencing consumers' buying behaviour is the increased platforms, such as Fight Club, Stadium goods, RIF, Sole Company, StockX, GOAT, eBay and Klektas (Jones, 2022) to resale products (Chu & Liao, 2010; Chu, 2013).

Important factors that influence the decision-making of sneakerheads

Consumer behaviour is a discipline that combines factors from psychology, sociology, anthropology and economics (Davis et al., 2014). According to the research of Kotler (2022), consumer buying behaviour is influenced by cultural, social, personal and psychological factors.

Cultural factors

Culture, subculture and social class notably influence consumer buying behaviour (Kotler, 2022). The sneaker culture has arisen due to hip-hop; Run-DMC released the song My Adidas,

leading to a sponsorship. The second wave was in 1984 because of the launch of popular Nike Air Jordans, fueled by celebrity endorsements. The third wave is the growth of sneaker marketing and resells culture (Braithwaite, 2021). The sneaker culture is based on and influences different aspects of modern society, including athletics, music, fashion and celebrities. Basketball and hip-hop are the most significant contributors to the origins of the sneaker culture (Salvano, 2020). The sub-culture sneaker enthusiasts created is a noteworthy explosion in the fashion industry. The roots started in New York, and nowadays, it is still the prominent place of the sneaker culture. It is the city where major sneaker releases occur (Cunningham, 2008). The members of this sneaker culture have the same value, interests and behaviour regarding sneakers. They all want the most exclusive, high-value sneakers (Choi et al., 2015). Interestingly, the average sneakerhead makes 46.000 dollars a year and spends more than 300 dollars monthly on sneakers (Luber, 2015).

Social factors

Essential factors in consumer behaviour are social factors, like reference groups and friends and family (Kotler, 2022). Clothing can be viewed as a form of nonverbal communication, giving customers the ability to engage with products and companies that reflect their self-concept and serve to symbolise their unique identities because fashion products are differentiated because fashion sells an identity, which is unique for members of reference groups (Tseng et al., 2020). In addition, consumer culture theory claims that consumers purchase products to create an identity representing a reference group (Grisaffe & Nguyen, 2011). Next to reference groups, social media is essential for sneakerheads to share and gather information, especially when brands post images of celebrities wearing new sneakers (Matthews et al., 2021). In addition, many sneakerheads do research on social media to check the hype about sneakers. The social media platforms give information about release dates, locations and resell value (Choi et al., 2017). Especially celebrities are significant influencers for sneakerheads, and they often increase the value of sneakers (Choi et al., 2015). In the research of Matthews et al. (2021), one of his participants that owns a sneaker shop says that in the shop, consumers chat for hours talking about sports, sneaker history and releases of sneakers. It is like the barbershop culture where people talk during a haircut. According to Matthews et al. (2021), this aligns with the Social Identity Theory. The last social factor is friends and family, who are crucial for a consumer's purchase decision. According to Chen et al. (2022), the approval of friends or other sneaker enthusiasts became a significant reason to purchase sneakers.

Personal factors

Besides culture and social factors, the third factor influencing consumer behaviour is personal factors, including age, stage, occupation, economic circumstances, lifestyle, personality, and self-concept (Kotler, 2022). Age significantly impacts behaviour, especially taste in food, clothing, cars and furniture (Eze & Bello, 2016). According to Gail (2020), sneakerheads are primarily millennials and generation Z. Some people from generation X also see sneakers as status symbols. According to Dimock (2021), generation Z has high demands without willing to take much effort. They have high skills in online shopping and are very dependent on information and communication technologies. Next, generation Z is interested in new technologies and security and wants services that are easy to use. Because the sneakers, in the first instance, had a purpose for athletes, the sneakers became like a lifestyle as well (Matthews et al., 2021). In addition, sneakers indicate a person's identity in national, regional, and professional scope and classify class status and gender (Riello & McNeil, 2006). In addition, sneakerheads think about whether sneakers represent their social status and collectable value (Chen et al., 2022). According to Belk (1995), collecting can be a problem because it can take up much space. Besides that, obsession can overrule every aspect of the individual's life, the objects they collect become more important than people, and it then becomes unclear whether the collector controls the objects or the objects control the person (Ellen, 1988). Collecting can also influence an individual's satisfaction, depending on the importance a consumer attaches to their possessions.

Sneakerheads that want to buy limited sneakers need financial resources. A study by Rhee & Lee (2021) measured the occupations of sneakerheads showing that most of the sneakerheads are office workers (41%), followed by students (25%), professionals (18%), unemployed (11%) and service industries (3%) and others (2%). A person's economic situation affects the choice of products within the clothing industry; therefore, these factors are critical in consumer behaviour because they influence responses to marketing messages and purchase decisions. That is why people with low income are economical in purchasing decisions and seek the maximum value for money (Eze & Bello, 2016). In contrast to the research of Eze & Bello (2016), sneakerheads still tend to buy expensive sneakers despite considering the budget. According to Belk (1995), some collectors avoid problems in the household by keeping their collections secret out of shame. Money that otherwise might be spent on collaborative consumption by other members is spent on objects by the collector. Household expenditures can be anticipated and budgeted. However, budgeting for collections makes this problem because there might arise uncertainty for unique objects that cannot be acquired immediately.

Some collectors have a cash reserve, just in case. In addition, many sneakerheads earn money by reselling sneakers so they can buy more pairs in the future (Choi, 2017; Chen et al., 2022). Some collectors believe that what they purchase is an investment that other consumption activity does not provide (Belk, 1995).

Psychological factors

The last and fourth factor is the psychological factor. Psychological factors are motivation, perception, learning, beliefs and attitudes (Kotler, 2022). According to Maslow (1943), human motivation is based on seeking fulfilment and personal growth. The motivation theory consists of five levels of needs: psychological needs, safety and security, love and belonging, self-esteem, and self-actualisation. The drivers and desired connection to the latest fashion trends are psychological needs for sneakerheads. According to Matthews et al. (2021), some pairs of Nike Air Jordans are seen as the Bentley or Aston Martin of the sneaker game. According to Muensterberger (1994), collectors seek psychological security because of insecurity from their childhood. Next are the safety needs; sneakerheads resell sneakers to gain resources to buy more pairs in the future (Choi, 2017). Sneakerheads reach the need for love and belonging by forming deep friendships with the help of communities and online groups (Lehtovirta, 2020; Maslow, 1943). Some resellers have lower resale prices than other resellers because they aim to socialise with other sneakerheads to build new friendships (Choi et al., 2015). According to Formanek (1991), people collect with the motivation of self-expression, sociability and search for personal continuity. The last level for sneakerheads is esteem needs. According to Apostolou (2011), sneakerheads' have an extensive collection to prove resource acquisition capacity to other people. In addition to that, according to Chen et al. (2022), some sneakerheads overspend to win friends or enthusiasts around them their approval.

Acquisition

In the acquisition stage, sneakerheads try to purchase the sneakers (Boyd & McConocha). According to Choi (2017), resellers use controversial methods such as back-dooring and bots to obtain limited edition sneakers during this stage. This makes it hard for sneakerheads without these methods to secure a pair. The acquisition stage includes the activities of purchasing, ordering and agreeing to accept a pair of sneakers. The theory of Boyd & McConocha (1996) treats the constructs of taking title and physical possession separately. Research by Choi (2017) investigated how resellers in the sneaker market acquire sneakers and how they feel about it. Some resellers bought sneakers they did not intend to resell, and some resellers expected to

resell the pair they bought. Unexpected acquisition of sneakers for reselling includes sneakers that did not meet expectations or when sneakers are gifted to them.

On the other hand is the acquisition of sneakers that were expected to be sold afterwards, for instance, when resellers expect a profit on the sneakers. This mostly happens when resellers use controversial methods to buy multiple pairs in different sizes. When sneakers cannot be obtained via the regular market, sneakerheads purchase sneakers at the secondary market (Matthews et al., 2021).

Important factors that influence the acquisition stage of sneakerheads

According to the research of Pandey & Parmar (2019), six factors affect consumers' online shopping buying behaviour. Online shopping has some disadvantages; it is a waste of time when a consumer does not end up with a product after searching for time; it cannot be done without the internet and devices. When a product is incorrect, it takes time to reverse pickup, replacement and refund. In addition to that, it cannot be touched and felt.

Customer satisfaction

The first factor is customer satisfaction. Product preferences influence customer satisfaction in online shopping, problems faced by the customers, products with discounts, risk perception and after-sales services (Lakshmanan, 2016; Hasanov & Khalid, 2015). According to Kim & Lim (2001), factors such as entertainment, convenience, reliability, information quality and speed are essential.

Website quality

Next to customer satisfaction, the quality of the website has a direct impact on customer satisfaction (Bai et al., 2008; Evanschitzky, 2004), especially the number of visitors, informativeness, usefulness, irritations, and attitudes towards a website are essential factors according to Hausman & Siekpe (2009).

Availability of products

The third factor is the availability of products. According to Szymanski & Hise (2000), the number of products a website offers is crucial. According to Lakshmanan (2016), the number of products with a discount is substantial. Moreover, the price, information search and ego involvement in the degree of dissatisfaction is significantly affected by the product category of

a website (Cho et al., 2003). Finally, product distribution and logistics efficiency are essential for customers (Hasanov & Khalid, 2015).

Economic

The fourth factor is economic. According to Cho et al. (2003), the perceived price is vital for consumers when shopping online. Shoppers prefer online prices to be lower than the actual price (Gupta, 2015). Next, consumers prefer a detailed description and information on every product (Haller et al., 2019). Lastly, for a consumer in e-commerce, it is essential that they can return products when they do not fulfil expectations. The return policy positively affects purchase intention (Pei et al., 2014).

Perceived usefulness

The fifth factor is perceived usefulness. According to Juniwati (2014), perceived usefulness significantly influences attitude toward online shopping; however, it has not significantly influenced online shopping intention. The perceived usefulness in the study of Pandey & Parmar (2019) is associated with special offers/discounts for purchases, a large selection of products and the product tracking process provided during shopping.

Perceived risk

The last factor is perceived risk. Perceived risk consists of financial, product, time, delivery, social, and information security risks. Perceived risk is considered a fundamental concern of the decision-making process when consumers shop online. The study of Masoud (2013) revealed that financial, product, delivery and information security risks negatively affect online shopping behaviour. The other two dimensions, perceived time risk and social risk did not affect online shopping.

Post-purchase behaviour

The consumer behaviour theories of Boyd & McConocha (1996) and Keller & Kotler (2022) assume that consumers always succeed in buying products. However, bots ensure that this does not always work, so in addition to the theory of consumer behaviour after a successful attempt that leads to physical possession and disposition, the theory of consumer behaviour after an unsuccessful attempt must also be examined; (antecedents of) consumer responses to stock-outs.

Physical possession

The stage of physical possession occurs when the sneakers are in the hands of the consumer. When this happens, there are two possible activities. The consumer can wear the sneakers immediately, which makes them worthless over time. Furthermore, some people store their sneakers and see them as an investment to sell at a later stage. (Kulinicheva, 2021) Next, these two constructs, wearing and storing, can happen simultaneously and repeatedly. However, the value of sneakers will decrease when worn (Choi, 2017). Sneakerheads take care of their items to extend the sneakers' life for future usage and prevent it from decreasing in value. Collectors of sneakers will use, wash, restore and reuse sneakers to keep them in good condition (Belk, 1995). Collectors often do not have the purpose of reselling them.

Disposition

Disposition is when the sneakerhead is getting rid of items by moving them to the ownership of another person or organisation (Boyd & McConocha, 1996). There are multiple options to dispose of a product. Sneakerheads can sell or swap, pass along, donate or throw away their products (Choi, 2017). Another option for sneakerheads is to return the product to the retailer, mainly done by resellers when sneakers are over-purchased or have low value (Janakiraman et al., 2016). Nike, for instance, has the same return policies for hyped sneakers as average sneakers (Nike, n.d.). Adidas has special terms for the hype products; customers can return within 14 days in the Netherlands. Standard products have a return period of 60 days (Adidas, n.d.). The return policies of such retailers influence the actual purchase.

Consumer responses to stock-outs

The IOC framework applies because sneakerheads try to obtain sneakers for retail prices. However, this framework does not consider the possibility of stock-out of products. Because of the bots, stock-outs often happen. Therefore, the literature on responses to stock-outs is also reviewed what consumers do when a product is sold out. According to the literature, there are multiple possible reactions to stock-outs. A dissatisfied consumer can take a behavioural response to a stock-out. On the opposite is no-action, where the consumers react, but the reaction is not observable, making it a non-behavioural response (Ro & Mattila, 2015).

First discussed is the action or behavioural response that a consumer takes. It has been shown that product availability is an essential factor in satisfying online customers (Inventoro, n.d.) Online shoppers are unforgiving with stock-out situations. Consumers are ready to leave the site if they cannot make a purchase and payment in one transaction (Morphy, 2002). In the

apparel industry, there are more frequent stock-outs due to the characteristics of fashion, namely short product lifecycles, unpredictable demand, and inaccurate inventory management (Hammond & Kohler, 2000).

Furthermore, apparel items are frequently out of stock due to varying styles, colours and sizes (Hammond & Kohler, 2000). When consumers are confronted with stock-outs, they react and respond to them (Fitzsimons, 2000). The most common responses of consumers confronted with stock-outs are: 1 Find a substitute for the item; 2 Delay the purchase until the next trip to the store; 3 go to another store to buy the item, and 4 cancel/abandon the purchase. In the case of sneakerheads, this will mean that: 1 Sneakerhead will find an alternative sneaker; 2 delays the purchase until a restock of the sneakers (new supply of the same pair); 3 find another retailer/supplier selling the sneakers; 4 cancel the purchase. According to Schary & Martin (1979), store switching seems to be the most dominant reaction to stock-out, whereas, in other studies, substitutions seem to be the most dominant behaviour. These studies are more exploratory rather than conclusive (Kim, 2004). Another study by Walter & Grabner (1975) added another option responding to stock-outs: buy the same brand in a different size. This will mean buying a pair of sneakers in another size for the sneakerheads. Because over various studies, the results are different because of the differences in products out of stock, there will be differences in sneakerheads' responses.

Another option that is not mentioned in the studies of responses to stock-outs is consumers' shift to the secondary market (Duffy et al., 2019). In the case of sneakerheads, this means the resale market. The secondary market provides all the sneakers that exist, so there is a guarantee that a sneakerhead can purchase his/her coveted pair of sneakers. However, it is often for a higher price than the retail price. The higher price is caused by the business model of secondary market businesses that want to profit and include costs to the buyer, including transaction fees, payment processing fees, and shipping. An additional service of most companies is a legit check; they check if the product orders are genuine (Maren, 2021).

The last option for the behavioural response given by the literature is consumer complaint behaviour, which is divided into public action and private action. Public actions include seeking redress or refund directly or indirectly from the seller, complaining to a consumer organisation, and legal actions. Private actions include boycotting the seller and warning friends and relatives; word-of-mouth is a typical example of private actions (Singh, 1988).

On the opposite of behavioural response, non-behavioural responses are often referred to as no-action behaviour. Non-behavioural response to stock-out is a passive reaction where

consumers do nothing and try to forget about the experience, and this behaviour is not observable. There are two different reasons for a consumer to take no action. Some customers will not complain about a stock-out and give the retailer another chance, which indicates the loyalty of consumers. The other construct is not complaining because the consumers do not care about the company and feel it is not worth complaining; this indicates neglect (Ro & Mattila, 2015).

Antecedents of consumer responses to stock-outs

According to Helm et al. (2012), four categories determine consumers' reactions to stock-outs. The four categories include product-related factors, store-related factors, consumer-related factors and situation-related factors. Each category has multiple antecedents that are shortly explained.

Product-related factors summarise all antecedents' indirect reference to a product category. Brand loyalty determines the customer reactions where it minimises the likelihood of brand switching (Zinn & Liu, 2001). Product involvement refers to the perceived relevance of a product type determined by the expected value, and essential products are less likely to buy a substitute (Zaichkowsky, 1986). Another variable is buying frequency; customers with a high consumption rate are more likely to buy another product or switch to another store (Walter & Grabner, 1975). Another essential variable is decision difficulty, with many products becoming available, leading to the perceived risk of making the correct decision (Chernev, 2003). The last product-related factor is acceptable alternatives; when there are good alternatives, the chance that a consumer will switch to another product is higher (Helm et al., 2012).

Store-related factors consist of two factors: store loyalty and alternative stores. Store loyalty will reduce the likelihood of switching from stores (Verbeke et al., 1998). If there are good alternative stores, the chance of customers that prefer store switching will increase (Helm et al., 2012).

Consumer-related variables are variables that influence the way consumers understand information and make decisions based on that. Price consciousness will influence consumers' reactions to looking for alternatives within the same price category. Quality consciousness will influence quality-oriented consumers, who will look for alternatives with the same quality (Sloot et al., 2005). Utilitarian value refers to the task orientation of shopping. This must be done most effectively, so consumers will choose another article or brand and often do not switch stores. Another attitude is hedonic shopping, which implies that shopping is fun and store switching is more likely to happen (Batra & Ahtola, 1991). Risk-taking is the variable that

influences the decision to choose other products; people that tend to take more risks try new and unknown products. People looking for variety are also more likely to choose other products (Baumgartner & Steenkamp, 1996). Shopping frequency influences the decision of a consumer to postpone a purchase. Frequently, people have a higher chance of postponing the purchase because they will shop again soon (Sloot et al., 2005). Demographic factors are age and gender; older people will favour article switch and think those female shoppers are more likely to switch articles because of their traditional role and knowledge about shopping (Helm et al., 2012).

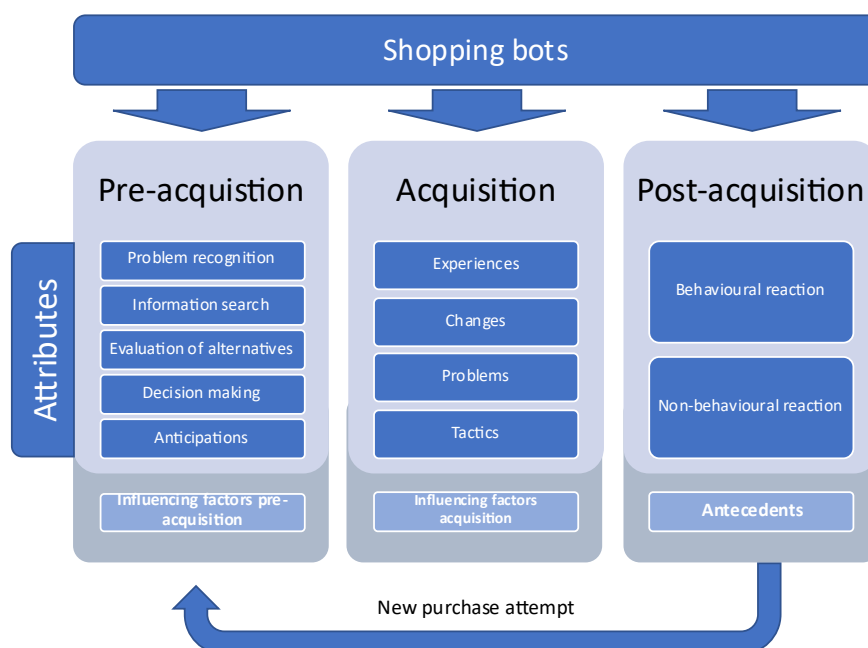
The last category is situation-related variables. Buying urgency will influence the consumer's reaction, and if the urgency of the product is high, they will substitute it (Zinn & Liu, 2001; Sloot et al., 2005). The required quantity will also influence the reaction. The chance of article switching is high if a high quantity is needed. Shopping time is also an indicator; how much time a consumer wants to spend searching for their products will influence the response to a stock-out (Helm et al., 2012). The last variable for situation-related factors is impulse buying. If a purchase was not planned, consumers are more likely to postpone the purchase (Sloot et al., 2005).

Conceptual framework

In figure 2, the conceptual framework of this thesis is shown. Because the bots are central in this research, the bots are on top of the model. The decision-making process of Boyd & McConocha (1996) is used to identify the stages pre-acquisition and acquisition, and post-acquisition. Underlying and more recent theories complement this theory. The pre-acquisition stage describes how sneakerheads recognise a need or problem to purchase sneakers, what information is needed to fulfil that need, whether sneakerheads evaluate alternatives, and what makes it that they purchase or not. Because sneakerheads are high-involved, it is interesting to know how they anticipate future purchases. According to Keller & Kottler (2022) and underlying theories, four factors influence the pre-acquisition stage. The main four factors are cultural, social, personal and psychological factors. Next to the pre-acquisition stage is the acquisition stage, where sneakerheads will buy the limited-edition sneakers. At that stage, four phases will be elaborated: The experiences of sneakerheads, what has changed for sneakerheads in recent years, what problems they have faced and which tactics they use to purchase the sneakers to deal with the bots. The acquisition stage is influenced by factors determining customer satisfaction in online shopping. The last stage is the post-purchase (attempt), where sneakerheads react when they face a stock-out caused by bots. The post-acquisition stage is split into behavioural reactions and non-behavioural reactions. Lastly, the post-acquisition stage has antecedents that determine the reaction of sneakerheads.

Figure 2

The influence of bots during different stages of the consumer behaviour process



Methodology

Introduction

This chapter describes how the researcher conducted this research. It describes which methodological approach has been used, which data the researcher needs and what is needed to collect. Moreover, it describes how all the data was analysed, what coding was done, which criteria the participants had to meet, and which characteristics they had. Finally, the chapter ends with research ethics, which describes how the respondents are protected.

Methodological approach

In this research, the research problem is the presence of bots on the websites of sneaker retailers, causing immediately stock-outs causing sneakerheads that could not purchase the sneakers they wanted. This research will investigate if the bots affect the consumer purchase behaviour of sneakerheads in the online sneaker market because due to the rise of bots, the experiences may have changed. This research will answer the main research question: *What effect do purchase bots have on sneakerheads' buying behaviour in the sneaker market?*

Empirical data are needed to explore this under-researched topic to answer the main research question. The research needs qualitative data to investigate the experiences of sneakerheads when buying their sneakers on the online sneaker market. The reason why there is chosen for a qualitative data collection method is that qualitative research pays more attention to understanding the complex nature of humans (Maison, 2018). Qualitative research provides better insight into consumers' different interpretations and views when purchasing sneakers and what meaning they give to certain phenomena present during this process. It is used to find meanings, opinions, and underlying reasons; therefore, the questions can be explored more deeply than in a quantitative study. Hence, the answers to the one-to-one interviews will be more detailed than a survey. Qualitative research is the most suitable to find out the motivation, motives and thoughts behind specific answers to the questions being asked by the researcher (Myers, 2019). The starting point of this research is an inductive approach. With the inductive approach, the theory is generated from the ground up from the collected data; therefore, this study is exploratory research, also called the grounded theory approach. Grounded theory is a general research approach that uses a series of methodical techniques for collecting and analysing qualitative data to support the inductive creation of a theory about a phenomenon (Locke, 2002). The qualitative data used are primary data collected by the researcher.

Methods of data collection

Interviews are a crucial data-gathering technique for qualitative research. Interviews gather rich data from the participants. There are many kinds of interviews; however, there are three basic types, according to Myers (2019). For this research, semi-structured interviews have been conducted. With semi-structured interviews, the researcher used pre-formulated questions, but there was no strict adherence to them; new questions can emerge during the conversation to better understand the participants. Otherwise, the researchers missed out on some new essential insights. The semi-structured approach is the best out of the other two approaches, structured and unstructured interviews. The primary data gathered through semi-structured interviews will be in the form of one-to-one interviews. The researcher himself will conduct these interviews. The interview guide can be found in Appendix B. The interview guide is built upon theories reviewed in chapter 2, 'Theoretical background'. The theory of Boyd & McConocha (1996) and Keller & Kotler (2022) are the foundation of the interview guide. These theories are backed by articles that explain behaviour in certain stages.

The researcher approached potential participants about whether they wanted to participate in this research. The researcher posted a message on social media to find respondents and asked his immediate environment if they knew sneakerheads who possibly wanted to participate. These people were approached through various mediums, and contact will be via telephone, e-mail or WhatsApp. The interviews were conducted on weeks 19, 20 and 21 of 2022. The respondents were asked if they preferred to do the interview online or offline; if they did not care, the researcher proposed to do it online. In total, nine interviews were conducted, one was conducted physically, and eight were conducted online via Zoom, Google meet, Facetime or phone-call, depending on the interviewee's preference. The interviews lasted from 30 to 70 minutes and were recorded by iPhone using the Dictaphone application and by laptop using QuickTime Player. After the interview, the audio recordings were transcribed and coded, the transcriptions can be found in Appendix C.

Sample characteristics

This qualitative research focuses on sneakerheads. Therefore, the researcher had to look for people who have had experiences as a sneakerhead when buying sneakers. Not every consumer or entrepreneur that potentially could participate in this research met the criteria. Therefore, a sample has been made among these people. The researcher used non-probability sampling, a non-random selection based on criteria. The researcher used different non-probability sampling

techniques, the purposive sampling method, the voluntary response sampling and snowball sampling. The purposive sampling method is used because the researcher has knowledge about the topic and, therefore, can select people that fulfil the criteria. This method is often used when detailed knowledge about a specific phenomenon is needed or when the population is small. The voluntary response sampling method is used because the researcher posted a message on social media, and multiple people volunteered to respond. However, the researcher did not find that every volunteer met the conditions, so he ended up with two participants using this method. The last method used is snowball sampling, which was beneficial because most sneakerheads know other sneaker enthusiasts (McCombes, 2022). As described, participants must meet the criteria. Therefore, inclusion and exclusion criteria were set up, which described which criteria a respondent must meet (Flick, 2007). The participants were selected according to the criteria of a high commitment to sneaker collecting, having sufficient knowledge about the value of sneakers, having some experience with buying and perhaps selling them, must know what bots are and what they do and must be able to do an interview online or offline.

The characteristics of the sample size can be found in Table 1. Two respondents have been collecting sneakers for over 15 years, four have been sneaker enthusiasts for over ten years, and three have collected sneakers for less than 10 years. The region where the sneakerheads are from was underdetermined. However, all sneakerheads came from the Netherlands because the researcher had some connections with sneakerheads in the Netherlands. In addition, the researcher used the snowball method to find new participants through the people he had already interviewed.

Table 1

Characteristics of the research sample

Respondents	Date	Gender	Age category	Location	Employment
AN	9-5-22	Female	20-29	Apeldoorn	Employed
MO	10-5-22	Female	20-29	Arnhem	Employed
BO	11-5-22	Male	30-39	Hilversum	Employed
IR	12-5-22	Female	20-29	Apeldoorn	Employed
NE	13-5-22	Male	30-39	Nijmegen	Employed
RE	16-5-22	Male	20-29	Apeldoorn	Employed
RO	17-5-22	Male	20-29	Apeldoorn	Student
TO	18-5-22	Male	20-29	Apeldoorn	Employed
NI	23-5-22	Male	20-29	Apeldoorn	Employed

Methods of analysis

The data is analysed using the method of thematic analysis, a technique for finding, analysing and interpreting patterns of meaning within qualitative data. The thematic analysis offers accessible and organised procedures for generating codes and themes (Clarke & Braun, 2016). Coding helps structure the data and mentally reduce the data size (Myers, 2019). Qualitative research has two approaches; in this research, the inductive approach is used because empirical material is analysed, and the researcher is not guided in advance by theoretical expectations (Bleijenbergh, 2015). Characteristic concepts for this approach are open, axial and selective coding. Open, axial and selective coding of the collected data leads to the creation of theory, resulting in the researcher constructing deeper theoretical meaning. This coding provides the researcher nuanced access to participants' thoughts, perspectives and reactions by analysing what they do, how they do it, and why they do it (Charmaz, 2008). The researcher did not use software that helps with coding; he coded manually using Microsoft Word tables.

Coding

The first step the researcher took was open coding, by aiming at expressing data and phenomena in concepts. The researcher read all the interview transcripts searching for thematic connectivity, which lead to thematic patterns. Next, the researcher marked single words or short sequences with a colour in the transcriptions (Williams & Moser, 2019). The most characteristic text for the research is given a label. Labelling helps the researcher unravel the text into fragments (Boeije, 2005).

After the researcher did open coding, he moved on to the second level of coding: axial coding. The transition from open coding to axial coding helps the researcher sift, refine and categorise the collected data to create distinct thematic categories (Williams & Moser, 2019). The researcher sought connections between open codes to identify relationships to create core codes. According to Dingemans (2021), open codes can be assigned to multiple overarching axial codes. These overarching codes can be adjusted during the analysis process.

The last level of coding is selective coding. Patterns can be found by comparing the axial codes within one theme. This helps the researcher find relationships between codes, and it helps answer the research question (Boeije, 2005). Selective helped the researcher select and integrated categories of the axial codes into cohesive and meaning-filled expressions. This approach helped the researcher to work toward thematic specificity resulting in theory creation (Williams & Moser, 2019).

How the coding procedure is incorporated into the analysis can be found in Appendix D. In the appendix, text fragments are shown. Every text fragment has one or more open codes. These open codes have been brought together into one specific theme. Finally, the thematic codes were selected based on the stages in the consumer behaviour process.

Research ethics

Ethical considerations in research are principles that guide the research. Because in this research, the behaviour of sneakerheads will be investigated, ethical considerations are involved. These protect the rights of the participants, enhance validity and maintain integrity. Researchers must adhere to a particular code of conduct when collecting data from participants. The ethical issues are described below:

In voluntary participation, the participants are free to participate and leave the research at any time. The researcher will inform the participants about the purpose, benefits and risks before they agree to join the research. Participants can participate anonymously so that no personal information will be included in the study. The researcher must ask if the participant wants to participate anonymously. The information given by the participants will be handled confidentially and not shared with others. There will be no potential physical, social or psychological harm to the participants and the researcher. The result of the research will be communicated to the participants if they want so the result, and personal or sensitive information of other participants will be made invincible (Bhandari, 2021).

Research results

This chapter describes and explains all the results gathered during the research. The interviews were held with respondents who are sneaker enthusiasts or collectors, also referred to as sneakerheads. They all have experience in buying limited-edition sneakers on the internet. The respondents are asked about their experiences when buying limited-edition sneakers and how they deal with the presence of bots during purchases. The sneakerheads' consumer behaviour is subdivided into pre-acquisition, acquisition and post-acquisition (attempt). The term attempt is used because not every purchase attempt succeeds because of the presence of bots which cause sold-outs.

Pre-acquisition

Throughout the pre-acquisition stage, it is described and explained how consumers behave during the problem recognition, information search, evaluation of alternatives, decision making and how they anticipate future purchases. In addition, factors that influence the sneakerheads in these stages are also explained.

Problem recognition

During the problem recognition, sneakerheads recognise a problem, a need or a want. However, most participants possess over ten pairs of sneakers, meaning they do not need a new pair of sneakers but always want a new pair of sneakers. Internal stimuli and psychological factors generate this need, and a common phenomenon is a greed or hunger for new sneakers. Respondent NI (male) said the following about the need for new sneakers:

"If you ask me when I need a new pair of sneakers, I need a new pair every day. Every day there is a release these days. However, it depends on when releases happen and what your taste is. I try to limit this somewhat by only buying sneakers I like."

So sneakerheads do not need new sneakers. Nevertheless, sneakerheads always want new sneakers because it adds joy to their lives and they are comfortable. For some of them, buying sneakers is an addiction. Every new limited pair of sneakers is an asset to their collections; this corresponds to the collecting theory of Belk (1995). When a new pair comes out in a model they like or if the colours appeal to them, they are triggered to buy that new pair. Colours are essential in the fashion industry, so sneakerheads want sneakers containing that colour

whenever a colour becomes fashionable. In addition, sneakerheads buy particular colours to match their outfits so they can alternate well by having several pairs. For instance, Respondent RE (male) said:

"When I bought a new sweater, I think of the sweater with a specific pair of sneakers underneath so that I can match my outfit nicely."

Another reason for sneakerheads to buy sneakers is to store them and sell them at a later time. By reselling sneakers, they make a profit making them able to buy more pairs in the future. For instance, respondent NE (male) always wants sneakers if they are affordable and increase in value after the purchase.

During the problem recognition, sneakerheads are influenced by social media, specifically Instagram, Facebook groups and Reddit forums. Celebrities influence some sneakerheads via social media channels. Celebrities mentioned by the sneakerheads are rappers Kanye West (Ye), Travis Scott and Drake. They influence sneakerheads because they designed and still design limited edition sneakers in collaboration with brands like Nike and Adidas. Another major sneakerhead influencer is athlete Michael Jordan because a popular Nike model is named after him. These celebrities changed the design of already existing models or created their sneaker models. Besides that, many celebrities have early access to limited edition sneakers. As a result, sneakerheads may see limited edition sneakers for the first time on social media on the post of a celebrity.

Next, sneakerheads are often influenced by other people in their environment, such as friends and family, if they are also sneakerheads. Among these sneakerheads, a culture has arisen, according to Braithwaite (2021). In the sneaker culture, people possess expensive, limited edition sneakers and try to find each other to discuss sneakers because they share the same passion. According to Respondent RO (male), people in the sneaker culture will probably say something about your sneakers when they see them. That was also one of the reasons for him to go to sneaker releases in-store because he met people with the same interests as him.

Information search

Sneakerheads search for information if they have the urge to buy new limited-edition sneakers. Sneakerheads search at least every week for new information about new sneakers and releases. However, the sneakerheads are busy with sneakers every day in most cases. The time spent daily differs per sneakerhead. Some sneakerheads spend a couple of hours a day searching for information, and some search within a short time. The information sneakerheads search for is which brand releases which sneaker models, the material of the sneakers, what colour they have, when the release takes place, what the retail prices are, at which retailers they are available and how they become available: via their website first come first served or via raffles, Respondent TO (male) has said the following about that:

“I search for information about which sneakers come out, in which colour. Then I look where I can buy the sneaker on the website or a raffle, and immediately check whether there are multiple sellers.”

Some participants were curious about how many copies will be released and had to do additional research. By checking this, they can calculate their chances of getting a pair. This is important for resellers to determine the value after release. Respondent NE (male) did say the following about that:

“I check social media to see the expected quantity, so how many copies are sold, and I use, for example, StockX.com or Restock.com, Stadiumgoods.com, or other resell platforms to see if there is a historical price course of the sneaker or an equivalent sneaker.”

Some participants did extra research by searching for pictures or YouTube videos to see the material better and how they look because most of the pictures are leaked by third parties, which are not the most precise pictures. Respondent RE (male) said the following:

“You usually only see a picture, then I will check on YouTube how they fit and look like.”

Whenever sneakerheads search for information about sneakers to wear themselves, they look at multiple sources of information. The most common source is the Sneakerjagers app, a Dutch application used as a sneaker calendar. Next to that application, Nike’s SNKRS app is often used to check which Nike sneakers are upcoming. Moreover, many sneakerheads use social

media, specifically Instagram, where they follow multiple accounts. According to Respondent RO (male):

“That is important because they have the latest news; these accounts also use bots to detect sneaker releases and gather information about the colourways, the price and model; these accounts are always first. Next, check the Nike website and general clothing sites such as Hypebeast, End Clothing, and SNS.”

The information search phase is the first phase where the bots affect the consumer behaviour of sneakerheads. Overall, the participants think that companies or retailers give enough information before they try to purchase a new pair of sneakers. The respondents indicate that they obtain all the necessary information because they spend much time on it in their daily lives and therefore do not necessarily have to look for additional information. However, the sneakerheads state that if they do not look into sneakers in their daily lives, they miss the information and cannot get the sneakers because they are sold out immediately because of the bots. The participants think that the most critical information is to find out which retailers release the sneaker, the date and time of the sneaker release, and how the sneakers are released via first-come-first-served or via raffles or both. Social media channels or applications that share rumours about sneakers provide this information. Retailers or sneaker brands do not give this information. Rumours contain which retailers are dropping the sneakers, for what price and at what time. Respondent TO (male) has mentioned the following about the information needed:

“You need more information for those limited-edition sneakers because you need to know where they come online and at what time. If you do not know that information, you will miss out. Some apps help you prevent missing out, but also, for these apps, you need to be kept informed again. And you must even know that these sneaker apps exist.”

According to the respondents, a newcomer in the sneaker game, in comparison to themselves, needs to search for extra information to buy limited-edition sneakers than for a pair of regular sneakers. The main reason is that limited-edition sneakers are available for a limited time and are not available everywhere for retail prices. Sneakerheads have the advantage that they already have experience with buying limited-edition sneakers. Without this experience, they indicate that it is tough to get limited sneakers.

To conclude, a sneakerhead needs critical information on when, where and how sneakers are released before buying them. Otherwise, sneakerheads would not even notice that they were released. When a person has little knowledge about limited edition sneakers, it is guaranteed that they will not get them for retail price.

Evaluation of alternatives

Sneakerheads are not looking for alternatives when they have their eye on a pair they want to buy. Only Respondent RO (male) did look for alternative sneakers, and Respondent NE (male) is open to identical sneakers, but they must be the same colour and the same model with minor changes; otherwise, he is not interested. Respondent RO (male) said this about searching for alternatives:

“I will also look into alternatives, for sure. Because as I mentioned earlier, I would buy alternative sneakers where the sneaker’s design is more or less imitated, but released in a higher quantity, then I think it is just fine to take such a sneaker.”

However, in contrast to what Respondent RO (male) said, most sneakerheads are not interested in alternatives at that moment because alternatives are very often regular sneakers. They only like limited edition sneakers because they are exclusive, and not everyone wears them. Respondent TO (male) as said the following about the exclusivity of limited-edition sneakers:

“I buy limited-edition sneakers because I do not want to wear what everyone else is wearing, so I am looking for exclusive pairs of sneakers.”

The rest of the respondents agree with the importance of the exclusivity of sneakers. The exclusivity of some sneakers has changed over time. Adidas’s exclusive model, Yeezy Boost, was an exclusive sneaker back in the day. However, Adidas kept releasing this sneaker in more and more colours and higher quantities. In addition, there are many restocks of the models, which caused the sneakers to become less exclusive. A decrease in exclusivity caused several respondents to stop buying these sneakers, and Respondent IR (female) said the following about that:

“Back then, they just kept releasing Yeezy’s, it was almost every other week, and it was completely exhausted. After the release, they were not worth more than 10 or 20 euros either”.

Shopping bots do not affect sneakerheads when evaluating alternatives because sneakerheads often skip this phase since they do not necessarily need a pair. They will try to purchase another limited-edition sneaker at another time, which is not an alternative at that moment.

Decision making

Sneakerheads generally purchase sneakers every three months, depending on which models are released and how often they can obtain a pair. For some sneakerheads, buying sneakers is an addiction, but some factors limit the buying behaviour of sneakerheads. The family of sneakerheads may suffer from the space the sneaker boxes take up, which is in line with the collecting behaviour theory of Belk (1995). In addition, families are bothered that so much money is spent on it or that they have to receive the packages at the front door. Respondent NE (male) said he would have even more sneakers if he had more space. Other sneakerheads’ family members asked why they purchased that many sneakers, and for some respondents, that influenced them to buy less. Whether the sneakerheads try to purchase a new pair of sneakers, some factors are essential that the sneaker must meet. Respondent AN (female) is especially interested in the sneaker model and materials. She added:

“For example, if the top is made of that mesh-like fabric, it gets dirty quickly, and you cannot get it clean either.” Next, she said something interesting about comfort: *“There are Nike Air Max women’s models and men’s models. Nevertheless, I am not too fond of the women’s model because there is often a small deviation; you have to take half a size larger.”*

Other respondents added some more important factors: The exclusivity of the sneakers, the colour palette, and the size of the sneaker. However, size is only essential for the ones that buy it to wear it themselves. For the ones that plan to resell them, size does not matter, but the resale value does. For some sneakerheads, the designer or the history behind the sneaker is also essential. For instance, Respondent IR (female) said:

“I think the story behind it is essential; it depends on what kind of collection the sneaker is. I do think the story or the artist behind it. Alternatively, its history always plays a role and whether the sneaker looks beautiful.”

Sneakerheads are quality conscious. Most sneakerheads are aware of the quality of sneakers. Some expect good quality others are consciously looking for good quality. According to Respondent IR (female), there is a difference in quality between almost similar models:

“Yes, for example, Nike SB Dunk and Nike dunk exist. The Nike Dunk version has deteriorated in terms of glue, and I think they are 110 euros. A Nike SB dunk generally has good quality, which is 120 euros.”

When sneakerheads plan to resell the sneaker, quality does not matter because they do not wear it themselves. Next to quality-conscious sneakerheads are price-conscious as well. Some sneakerheads have a maximum price of 300 euros per pair of sneakers. Some sneakerheads do not want to pay to resell the price because they think the retail price is already expensive. Due to the bots, it is not always possible to get a pair for retail price, so sneakerheads have to find another way to get the sneakers, which is explained during the post-acquisition stage. The shopping bots significantly impact sneakerheads’ decision-making because they strongly prefer to buy sneakers through retailers because they are the cheapest; however, their chances are low. Respondent MO (female) speaks about her annoyance:

“At a certain point, I started to get annoyed by the bots because I knew beforehand that I would not succeed.” Respondent NI (male) said: “I have cursed it once or did not register Because I do not stand a chance anyway. Bots influence me because I think it makes no sense to register. After all, I will not win them anyway. So yes, they do affect me. If you really want to have a sneaker, then you end up putting more effort into being lucky.”

Next to these two respondents, more sneakerheads withdrew from sneaker releases, especially for extremely limited pairs of sneakers. They had no trust in a chance of getting such a pair because of bots. The more exclusive a sneaker is, the more sneakerheads are likely to withdraw. In addition, they all indicate that they would have bought more sneakers if bots were not present because they only have to pay the retail price and can get two instead of one pair for the resale price.

Consumer anticipations.

According to the literature, sneakerheads anticipate when they are highly involved in sneakers because all respondents are busy with sneakers at least once a week. Consumer anticipation is influenced by motivation, ability and opportunities (Vichiengior et al., 2019). Most sneakerheads are motivated to purchase sneakers, even though they know bots are present during the purchase process. However, the motivation is not the same as it used to be. Some say they do not always try to register everywhere, mainly because it takes time. Respondent TO, (male):

“As I said before, sneakers are sold nine times out of ten. That is why I do not sign up for everything anymore because it takes too much effort for what I get in return”. Later during the interview, he said: “Well, I am still motivated and willing to buy sneakers. It is not just that every pair I see that I will try.”

So sneakerheads are still motivated, but not for every pair released because of bots' presence. It depends on the brand, the model, and how much they want to wear it themselves.

Sneakerhead gained knowledge over the years. Sneakerheads with knowledge know that it is hard to win a pair of sneakers every time they try. The respondent with the slightest knowledge about buying sneakers did not know how everything works. She did not participate in raffles because she did not know how they worked:

“I tried once but did not get it very well, and often I see the possibility of raffles too late.”

However, she gained some knowledge in the three years and had some positive and negative experiences. Sneakerheads with high knowledge also have positive and negative experiences. The sneakerheads are convinced that their knowledge has increased since they started working on it and claim that you need this knowledge to stand a chance against bots; Respondent BO (male) said:

“Yes, you do better now that you understand which pairs came out. Moreover, that you want to maximise that chance.” Respondent RO (male) mentioned the following about gaining knowledge: “Yes, in the sense that I have started to look more closely at what certain artists are doing and what trends are at play. Because nowadays it is already very much based on the designer behind it. Then you will see which posts get the most likes and trending. So how many

people will eventually want to buy one, what is the stock of it, etc. you also get a lot more knowledge of what happens behind the scenes.” IR (female) discovered a new retailer for limited edition sneakers and said: *“Yes, at some point, I found out that Footlocker also sold these sneakers.”*

Even though sneakerheads already have much knowledge, they can always discover something new because the mechanics of a website are also changing. Next to that, sneakerheads indicate that they get to know which websites/applications are sensitive to the presence of bots. Therefore, they can anticipate a future purchase better by looking for alternative websites and applications.

Because collecting sneakers can be quite an expensive hobby, sneakerheads must have some capital to purchase the sneakers. One responded and said he spends maybe 2000 to 3000 euros per month on sneakers. To be able to spend that much money on sneakers, he is selling other sneakers so that there is more space and budget again to buy new pairs. Besides him, three more respondents sold some sneakers to earn money and to buy new pairs. Respondent BO (male) said:

“I do not wear 10% of my collection; if I sell a pair of that 10%, I can buy two new pairs to wear myself.”

In contrast to the study by Belk (1995), sneakerheads do not reserve a certain amount of money per month to purchase sneakers, but they consider that there is a possibility of buying a new pair of sneakers. By doing that, money is always available to spend on new sneakers. Opportunities also influence consumer anticipation. Restocks ensures that sneakerheads have multiple chances to buy a pair of the same sneakers. So, in case of a restock, there is a new opportunity if a sneakerhead did miss out on the first time or if they want a second pair to wear or plan to resell. Besides that, there are multiple releases of sneakers every week, so there are many opportunities to buy a pair of sneakers. Respondent NI (male) said:

“Look, nowadays, you can buy a new limited-edition sneaker almost daily.” Respondent NE (male) confirmed this, adding: *“Every day, I experience that sneakers are sold out.”*

Another factor for opportunities is time. How much time do sneakerheads have to anticipate a future purchase and prepare for bots? The less time, the less detailed and elaborated the

experience will be. Most sneakerheads start searching for information when they know about a release or at least two weeks before the release. Sneakerheads often know when a release is upcoming because of leaks on social media.

Nevertheless, limited-edition sneakers can also be dropped without an announcement. In that case, sneakerheads cannot do much about it, and they could not anticipate the sneakers. In such a case, sneakerheads often miss out on the release, and most supplies will go to the automated bots.

Acquisition

Throughout the acquisition stage, it becomes clear how consumers behave when they try to purchase the sneakers. The acquisition stage is analysed in the categories: experiences, problems, changes and tactics.

Experiences

When sneakerheads are participating in raffles or trying to purchase sneakers, the emotion of hope is present. For some sneakerheads, it is also a moment of stress because it is all about timing and preparation to stand a chance against bots in the low supply of sneakers.

The respondents think there is more demand than supply for limited edition sneakers. This is because the market is becoming more attractive because of social media, and many people see that easy money can be made by selling sneakers. Compared to regular sneakers, the low supply of limited-edition sneakers makes them more exclusive, whereby regular sneakers will not sell out that fast. The respondents understand why there is more demand than supply and are satisfied with that because otherwise, their sneakers will not be exclusive anymore. Respondent RE (male) said:

"I think it is good somewhere because it gives it something cool, that not everyone can have every sneaker, that not every sneaker is in every sneaker store, the downside is that it all gets costly very quickly."

Even though the supply of limited-edition sneakers is already very scarce, according to the sneakerheads, this supply is becoming even more scarce because bots buy up many sneakers within a second, causing less supply available for consumers without bots who need more time. So, bots have more success buying sneakers than regular consumers and sneakerheads. Not at

every attempt during the acquisition phase, a pair of sneakers can be secured, which leads to negative experiences. When this happens more often, the experience gets worse and worse. Emotions that occur during a failed attempt because of bots at sneaker shopping are being fed up, disappointment, impatience, irritation, insecurity, aggression and frustration. Because it happens more often, sneakerheads can generally put things into perspective because they are used to it. Next to the negative experiences because of bots, other adverse experiences during the acquisition phase are scams and fake accounts on the secondary market that want to buy or sell sneakers. This is because exclusive things are often counterfeited. Next, sneakerheads risk not receiving their package due to not sending the package by resellers or because delivery services lose or steal it because of the value. Bots do not directly cause these problems. However, if a sneakerhead must purchase his or her sneakers via the secondary market because it was sold out at retailers, the influence of bots is present.

Next to negative experiences, positive experiences occur as well. Positive experiences occur when sneakerheads purchase a pair of desired sneakers or resell sneakers to earn some extra money. For all sneakerheads, being involved with sneakers and buying sneakers adds joy to their lives. Emotions that occur during a successful attempt are happiness and satisfaction. Sneakerheads see sneaker shopping as a competition they want to win from other consumers and the bots. That is why they are extra happy when they have acquired a pair. Having exclusive and expensive sneakers does not necessarily add prestige to their lives. However, they think it is essential to own unique pairs, and they like to start a conversation with other sneaker enthusiasts who said something about their sneakers or vice versa.

Moreover, sneakerheads see buying sneakers as an investment because the sneakers do not depreciate quickly. On the contrary, they often become more valuable. Respondent NI (male) said:

"I did not dispose of some pairs of sneakers because they retain their value."

Respondents generally have a more positive experience when participating in raffles than in first-come-first-served because they do not have to be that fast for raffles, which gives sneakerheads a fairer chance against the bots. However, bots do also participate in raffles, but it is made more complicated there. In first-come-first-served, bots are always present when it comes to valuable sneakers. Some sneakerheads do not try to buy on websites that use the first-come-first-served principle but only register for raffles.

Problems

During the acquisition stage, sneakerheads face many problems, all caused by the presence of bots. The major problem is that sneakers are sold out within a few seconds. This problem always happens at the first-come-first-served principle. Some retailers mix first-come-first-served with raffles, where you must enter a draw quickly and then put it into a queue. In that case, bots cause long queues because of the many entries done; chances for sneakerheads without bots are increasing but are still small. The availability of products affects consumers' online shopping buying behaviour. Because of the bots, a small quantity is available, which has a negative effect (Szymanski & Hise, 2000).

Furthermore, bots cause much traffic on a website or application, which they often cannot handle. This ensures that sneakerheads cannot select their size or pay because of card declines for no reason. When sneakerheads have the sneakers in their shopping cart and get the option to pay, they are thrown out during the payment process very often and end up at the back of the queue again, meaning the opportunity is gone. Moreover, because of all the traffic, pages are not found, and sneakerheads receive error messages that the sneakers no longer exist or the payment has been cancelled. The website quality directly impacts customer satisfaction (Bai et al., 2008; Evanschitzky, 2004). Because of the bots, the number of visitors suddenly enlarged, making the website less easy to use, and irritations arose with the sneakerheads. Respondent BO (male) said:

“It is kind of an attack on the website, so it happens in some cases when you are making the payment, and then you want to pay, so you end up in a queue, and the website concludes sold out. These issues are 100% caused by bots.” Respondent NE (male) said something similar: *“For first come, first served, you see after a second, for example, if it is 9 o'clock, then the sneakers are already sold out, or the website is down, so you do not have a chance. This is 100% because of the bots because nobody is so fast that you can do 20,000 entries immediately after one second.”*

The sneakerheads indicate that these problems occur almost at every sneaker release, and the problems are magnified the more limited the shoes are. Furthermore, some sneakerheads try to purchase multiple sneakers each week, so they face these problems very often.

Next to the problems caused by bots, other problems occur as well. Some retailers do not deliver their products to every country because they are not based in that country. However, when they deliver outside the country they are based in, packages arrive broken because

package delivery services do not handle it properly or customs check packages at the border. In addition, for sneakers worth over 200 euros, sneakerheads can expect import costs. Customs do not look for how much the shoes were purchased for but how much they are currently worth in that country, this is often more than the purchase price because limited sneakers become worth more. The delivery and customs fees increase the perceived risk of online shopping, negatively affecting online shopping behaviour. All these problems sneakerheads face during the acquisition stage negatively influence their customer satisfaction in online shopping. A deteriorated customer satisfaction negatively affects consumers' online shopping buying behaviour (Lakshmanan, 2016; Hasanov & Khalid, 2015).

Changes

Some things have changed over a couple of years. To start, the subject of sneakers has become much more famous in the Netherlands: more exclusive sneaker stores were opened, and sneakers generally were more accepted because, in the past, one of the sneakerheads felt biased because he wore sneakers at school. At that time, people traded sneakers on the street for cash only. Sneakers have changed over the years, with new models and popular models having more bright colours and new patterns. Next to that, there was a transition from offline to online. Back in the day, sneakerheads were standing queuing to get their sneakers at retailers' physical stores, and sometimes they had to come by three times on three days before the release to stay on the admission list. Nowadays, a lot of that limited-edition retailers are disappeared. Respondent RO (male) said:

“Then I was doing an internship in Amsterdam, so I had to fill in the first raffle list a month in advance, and there was a total of three. So, whenever I was there, I had to stop by to fill in that list. That is how it was then, and that is no longer the case, but that is how it was then.”

Respondent RO (male) said later during the interview that he enjoyed standing in a physical row because that was where he met people with the same interests and intention to wear them and not those who did buy sneakers to resell them afterwards. Physical purchases of limited sneakers are becoming less common due to digitalisation and the Covid-19 situation. Because limited edition sneakers are sold online since then, there have been many changes online too. First, many exclusive sneaker stores disappeared, and the street trade diminished. Second, bots became active online, and the secondary online market emerged. Nowadays, the number of bots used is still growing; this made it much more difficult for sneakerheads to get sneakers. The bot

operators use discord servers to communicate and share information, but also sneakerheads without bots got access to more information through applications. Third, this unfair battle between bots and consumers was tried to stop by retailer building in safeties, such as clicking the button: 'I am not a robot', CAPTCHA solving where consumers have to click the right images or something such as dragging images to the right spot. For instance, respondent AN (female) mentioned: "A website like Patta is good against the bots because you are placed in the queue, and then you must circle things, or you must enter a password."

Fourth, the number of payment options continues to grow: AfterPay, PayPal, and Apple Pay in combination with face ID. Fifth, extensions on the internet arose, ensuring sneakerheads no longer had to enter payment details manually; however, bots were still faster. Sixth, more things are changed to fend off the bots; instead of first-come-first-served, retailers have developed a draw called raffles where sneakerheads have to connect their phone number or Instagram account so they cannot register multiple times. Furthermore, location services must be enabled so you cannot order from another country.

Tactics

Sneakerheads use different tactics to overcome the bots. First, they set an alarm clock to be remembered about a release. Second, respondent IR (female) once found out that Footlocker released limited-edition sneakers; since then, she has been trying to secure limited-edition sneakers there, and she uses the tactic to open 15 tabs on the internet browser she used. What emerged from the results of the information search and anticipations of future purchases is that sneakerheads search for multiple retailers where they can buy the sneakers, both for raffles and the first-come-first-served principle; they indicate that they do this to increase their chances and that there is no point to register at only one retailer.

During the interviews, most sneakerheads use the tactic of enrolling in raffles. According to them, this is the fairest way of releasing because it is more difficult for bots to participate in this. Another tactic is that many sneakerheads use other people in their environment to register in raffles; therefore, sneakerheads enrol as much as possible at raffles at different retailers. Some sneakerheads have multiple accounts per retailer; because of that, sneakerheads can enrol several times at the same retailer, which is not allowed but hard to control for retailers. A few sneakerheads say that they have to at least register for more than ten raffles to have a chance of winning sneakers.

Next to raffles, a way to buy sneakers is to go to the website, where they have the first-come-first-served principle. On first-come-first-served websites, sneakerheads use multiple devices to enter the website. For instance, Respondent NE (male):

“Sometimes I am that crazy about an exclusive pair of sneakers that I use four smartphones, two iPads and two laptops.”

The first-come-first-served principle is the most complicated way to obtain sneakers because this is the method bots are made for; it is all about speed and timing. Also, respondent TO (Male) uses multiple devices to get a pair of sneakers during the first-come-first-served principle. On the devices that are used, some sneakerheads have a chrome extension called Google Chrome Autofill which fills in all personal information, including credit card numbers, so that sneakerheads do not have to fill that in manually. Another tactic sneakerheads use to connect with staff members of retailers and ask if they can reserve a pair of sneakers by going there or calling. This method is also not allowed but is widely used in practice and needs less preparation. The last tactic, and perhaps the tactic that will work best, is to buy a sneaker bot themselves; some sneakerheads have been thinking about buying a sneaker bot. However, they indicate that they have insufficient knowledge of the mechanics of bots and in addition, purchasing a bot is expensive. Sneakerheads only get their money out of it if they start reselling, which most are against.

Post-acquisition (attempt)

All sneakerheads have faced the problem of being unable to purchase the sneakers they want because of bots. According to the literature, several reactions are possible when a stock-out happens. All reactions and the factors that determine those are described and explained.

Behavioural reaction

The first reaction that can arise when bots buy most of the sneakers is to buy another pair of sneakers at the same retailer's website simultaneously. However, this hardly happens because other sneakers for sale on that website are not exclusive, which is not what the sneakerheads are looking for. For this reaction, the exclusivity of the sneakers is essential. This reaction is similar to evaluating alternatives during the pre-acquisition stage, where sneakerheads only want exclusive pairs and will not search for other sneakers before the release. Only situation

and product-related factors are decisive in this case because sneakerheads do not accept alternatives, and there is no buying urgency. Sometimes it happens that several exclusive sneakers are released simultaneously, then it is possible that sneakerheads are also interested in that. When this happens, the factor of time pressure to buy another limited-edition pair at the same retailer is determinative. However, the question arises whether that pair of sneakers is also sold out because of bots. What also needs to be taken into account is that sneakerheads do not have that much shopping time because releases are during the work and school week.

The second reaction to a stock-out is when sneakerheads decide to buy the sneakers at another retailer on the same day. This reaction occurs more often than the first reaction. Almost all respondents said they would keep an eye on other retailers if they were planning to release the same sneakers. So sneakerheads are not loyal to the stores when they buy the limited-edition sneakers. They will also search for new stores, so sneakerheads will take a risk and buy at another retailer they are unfamiliar with. Some sneakerheads are loyal to a sneaker brand, many are committed to Nike, and some are to Adidas and New Balance. Only Respondent AN (female) will not buy at another store because she thinks it will cost her too much time, while she is also sure that sneakers are sold out at her favourite retailer within seconds.

The third reaction to a stock-out is when sneakerheads wait for a restock at the same retailer where the stock-out happened. All sneakerheads will try to purchase the sneakers whenever there is a restock at the same retailer, so they postpone their purchase. The essential condition for the postponement of the sneakers is exclusiveness. However, because they are limited-edition sneakers, the chance of a restock is not that great.

The fourth reaction to a stock-out is to purchase the same sneaker in another size at the same retailer of the stock-out in the sneakerhead's size. The reactions of sneakerheads are divided on this one. Some sneakerheads do not buy sneakers in a different size than their size because they do not fit their feet; Respondent RE (male) bought two sizes, namely 41 and 42, because he fits both sizes. Some other sneakerheads did buy another size. Respondent IR (female), for instance, bought once size 45,5 because she has a friend who is a sneakerhead and who has that size, then she purchases that sneaker for him. Other sneakerheads that resell sneakers do not mind buying a sneaker in a different size because they will sell it later. Furthermore, some sneakerheads buy a different size and hope they can swap their pair of sneakers with someone with the correct size.

The fifth reaction is to buy the pair of sneakers they want via the secondary market. Many respondents look at the secondary market after a failed attempt. Two respondents who do check the secondary market are the ones that sell their sneakers via the secondary market.

The condition for sneakerheads that buy via the secondary market is that the sneakers are not too expensive. The tactic they use is to wait at least a week or maybe even more after the release because then the prices will drop, so in the meantime, they check the prices on the secondary market. In addition, some sneakerheads are unhappy with StockX because of the latest news about the company selling fake sneakers and because the fees on that website are incredibly high. Another tactic that respondent IR (female) use:

“First, I am a little disappointed, and then I quickly go to Marktplaats. Very often, people win sneakers for the first or second time and do not know the resell price yet; you have to find those people and buy them quickly.”

Respondent IR is buying from people without developed knowledge about resell value. The last tactic used to buy in the secondary market is sneakerheads that try to purchase every limited-edition sneaker and enrol for raffles, sell these sneakers and buy the pair they missed out on that they wanted.

The last reaction to a stock-out is to cancel the purchase; this is only the case if there is no restock, if the pair of sneakers is too expensive on the secondary market, and if the sneakerhead does not want an alternative pair or a pair in another size. The cancellation of purchases happens very often because of the bots.

Non-behavioural reaction

Besides sneakerheads still want to buy their sneakers another time, sneakerheads complain as soon as an attempt fails because of bots. A lot of the respondents did complain to their family members or friends. It is mainly that at that moment, they are fed up and want to complain about it, but they can put things into perspective and continue with their lives and not worry about failure. Some have once complained to the retailer with the complaint that they should do something against bots; however, their complaint is not acted upon. All sneakerheads agree that there is no point in complaining to a company on your own, regardless of whether or not they even complained in the past. However, some sneakerheads think that if they want to complain, sneakerheads have to do this as a collective reaction to the retailers and not alone themselves. For instance, Respondent AN (female) said:

“I think if several people would complain, it might work.” Moreover, other respondents think that the culture must change; respondent RE (male) said: *“You should eventually have the culture that people do not resell anymore and that resale is no longer profitable.”*

So, in addition to complaining as a collective, all sneakerheads should no longer buy up sneakers to resell them and only buy the pairs they want to wear themselves. However, this is the desired result but is challenging to achieve because many resellers earn their income with it. Overall, sneakerheads hate the bots but somehow show understanding for the operators behind the bots. They indicate that it is smart what they do to earn money in such an easy way, especially since it is not illegal. According to the respondents, it is also human nature to see opportunities in something and look for a creative way to earn money.

Discussion

In chapter 5, the discussion of this research addresses the conclusion and discussion. First, the main research question will be answered in the conclusion. Next, the discussion provides the interpretation of results by the researcher, managerial and theoretical implications, the limitations of this research and suggestions for further research.

Conclusion

This research aimed to find an answer to the research question: *'How do sneakerheads in the sneaker market deal with the presence of bots at different stages of the consumer buying behaviour process?'* To answer this research question, a qualitative study was conducted into sneakerheads' consumer buying behaviour process to identify their behaviour in the presence of bots. Table 2 gives a short overview of how sneakerheads deal with bots during different stages and phases of consumer behaviour.

Table 2

Summary of major conclusions

Stage	Phase	Influence of bots	Evidence
Pre-acquisition	Problem recognition	Not significant	Bots do not influence the need for a pair of sneakers; the psychology of collecting does
	Information search	Significant	Critical information is needed to make a chance against the bots
	Evaluation of alternatives	Not significant	Sneakerheads often skip this phase
	Decision making	Significant	Because of bots, sneakerheads decide to withdraw from some releases
	Anticipations	Significant	Because of bots, sneakerheads are less motivated, need more knowledge, develop tactics and cannot use every opportunity
Acquisition	Purchase attempt	Significant	Bots cause problems, affect experiences, let sneakerheads use different tactics and require changes by retailers
Post-acquisition (attempt)	Behavioural reaction	Significant	Because of bots, sneakerheads react differently than theories indicate or refuse to react in a specific manner
	Non-behavioural reaction	Significant	Sneakerheads complain about bots to friends and family and sometimes to retailers

During the pre-acquisition stage, bots already affect specific phases of the consumer behaviour process of sneakerheads who have to deal with them. During the first phase, problem recognition, the presence of bots is not remarkable since sneakerheads always want a new pair of sneakers regardless of bots being present. The need for new sneakers is mainly influenced by sneakerheads' intrinsic motivation, sneaker enthusiasts' friends, and social media. Bots do not significantly reduce or increase this need, so sneakerheads do not deal with them in this phase.

Along with the information search phase, sneakerheads must deal with and prepare for bots by searching different critical information sources before purchasing new sneakers. Every new pair of sneakers requires other information; this depends on how much information is given and by which parties. The most critical information needed is where the sneakers are released, how retailers release the sneaker and at what date and time because timing and checkout speed are crucial. Third parties often provide this information via social media that retailers do not provide; therefore, more information is needed. Newcomers that have not bought a pair of limited-edition sneakers will never get a pair if they think it works the same as regular sneakers because they need the critical information.

When sneakerheads see a pair of sneakers they want, they often do not evaluate alternatives and skip this phase. Even when they know that the chance of getting a pair is low because of bots, sneakerheads are only interested in exclusive sneakers. This interest is not significantly affected by bots. Sneakerheads only evaluate alternatives if the sneakers are almost identical to the ones they want. However, they prefer the exclusive ones, which is why sneakerheads do not deal with bots in this phase.

Throughout the decision-making phase, different factors are essential before sneakerheads decide to purchase a pair. The sneaker's material, exclusivity, colourways, size, price and quality are essential. The more exclusive a pair, the more the sneakerheads deal with bots. Therefore, highly exclusive pairs sometimes stop sneakerheads from trying to purchase a pair of sneakers. Another reason sneakerheads withdraw from a sneaker release is that it takes a lot of time and effort every time to purchase a pair without a positive result because of the bots, this takes down motivation. Usually, sneakerheads decide to purchase sneakers to wear themselves; others are motivated because of the resell value.

During the acquisition stage, sneakerheads have to deal with bots continuously. Negative experiences occur when sneakerheads try to purchase a pair of sneakers. These negative experiences get worse with the number of failed attempts. At the first-come-first-served principle, negative experiences are most common because bots buy the sneakers within a second, causing less supply for sneakerheads without bots who need more time to complete a transaction. This gives sneakerheads disappointment, frustration and stress. However, it feels like a victory when they can get a pair, and sneakerheads are happy. In general, sneakerheads have more positive experiences when participating in raffles where bots are less present, giving them a fairer competition. Problems caused by bots cause negative experiences; long waiting queues, inability to pay, inability to select a size, being thrown out of the payment process and ending back of the queue again, page not found, article no longer exists or cancellation of the payment.

To try and beat the bots during the first-come-first-served principle, respondents use multiple devices simultaneously to purchase sneakers. Some sneakerheads use the Google Chrome extension Autofill, so their personal information is already filled in when checking out. Others use multiple internet browsers or tabs for the first-come-first principle with waiting lists. When it comes down to raffles, all sneakerheads participate by themselves because they are convinced this is the fairest distribution of sneakers and the chances of getting a pair are more likely. Sometimes sneakerheads ask their environment to participate in raffles for them, resulting in multiple registrations. Interestingly, sneakerheads are against the controversial methods of bots. However, somehow, they use controversial methods as well by creating multiple accounts per retailer to have more chances, which is against the terms and conditions of retailers. Another controversial method used by sneakerheads is backdooring; sneakerheads connect staff members of retailers to ensure a pair of sneakers to reserve for them. Lastly, some sneakerheads have considered buying a bot themselves to deal with the other bots in the market while, in principle, they are against bots.

After the acquisition stage, the post-acquisition stage is where sneakerheads react to the failure of an attempt because of bots. Sneakerheads are disappointed in the first instance but have multiple reactions to a stock-out. First, they will only check alternative sneakers simultaneously at the same retailer if more limited-edition sneakers are to be released. Second, sneakerheads will search for other retailers if they release the same sneaker at another time. Third, sneakerheads will wait for a restock at the same retailer; however, that is hardly the case with limited-edition sneakers. The fourth reaction is to purchase the same sneaker at the same retailer in another

size, and this only happens if sneakerheads think they can resell the sneakers or trade them for their size; however, this is also hard because bots buy up all sizes and not a specific size, so chances are low. Fifth, sneakerheads will search for their wanted pair in the secondary market; they use the tactic to buy immediately at people who do not know the resell value yet or wait for a couple of weeks until the price drops; the price must not be too high. Some sneakerheads purchase other limited-edition sneakers for the retail price and sell that pair; therefore, they can buy their wanted pair on the secondary market. Lastly, suppose their wanted pair is too expensive on the secondary market. If none of the five reactions, sneakerheads will cancel the purchase and start the whole process again for a new pair of limited sneakers.

Non-behavioural reactions happen if sneakerheads complain to people in their environment, especially friends who are also sneaker enthusiasts. Some sneakerheads have complained to unknown people in sneaker groups or forums when they show how many pairs they got with bots. Some sneakerheads complain to the retailer or sneaker brands as well. However, they do not think it makes sense to complain to them. If retailers are not going to solve the problem, sneakerheads hope that people within the culture start complaining as a collective and stop reselling. Only then they think it makes sense, and things will change. The presence of bots disappoints many sneakerheads, but they do show understanding for the bot-operators and understand that it is easy money for them.

Interpretation of the results

Earlier research by Choi (2017) has proven that sneakerheads have mostly negative attitudes toward people that purchase sneakers with bots. They feel that using bots has made it impossible to acquire sneakers through retailers. This research examined whether there is a negative attitude against bots if it is impossible to get limited-edition sneakers through the retailers and how sneakerheads deal with that disappointment.

Sneakerheads do not need new sneakers, but they always want new sneakers. This is in line with the literature of Belk (1995) on the behaviour of collectors that always look for new objects. Sneakerheads want so many sneakers that they purchase specific pieces of clothing to match their sneakers. Even though bots are present, sneakerheads indicate they want new sneakers, making the influence of bots not significant. Compared to regular consumers who buy shoes to wear and only buy new shoes sometimes, sneakerheads buy to collect and wear underneath specific outfits.

Sneakerheads need to do an extensive information search to purchase limited sneakers. Sneakerheads agree with the research of Chen et al. (2022) that enough information is available; however, not all the information can be found at one specific source. Therefore, sneakerheads have to find multiple sources to know the crucial information. This is in line with the theory of Vichiengior et al. (2019), where consumers do extensive research if they are highly involved in products to anticipate future purchases. Sneakerheads believe that regular consumers do not have to do this for a pair of shoes. Sneakerheads also believe that their knowledge is essential; an explanation for this could be that sneakerheads had little experience in the beginning and could not get anything at all and started to do more research. This research did go beyond the research of Choi (2017) when it is about information search. Sneakerheads look for information about which sneakers are released in what way, at what time and at which retailers. Resellers with bots are looking for information about trends and values.

The evaluation of alternatives is not mentioned in the study by Choi (2017). This research can contribute that sneakerheads are not interested in alternative sneakers unless they are limited or look similar. This research shows that this phase is skipped, which is possible according to Keller & Kotler (2022).

Resellers from Choi's (2017) research only decided to purchase sneakers because of the resell value and the need for safety. Sneakerheads from this study decided to buy sneakers because of psychological needs, to follow the latest fashion trends. Sneakerheads explained they liked the model of the sneaker, the colourways, the history behind it, the materials it is made of, and the price must not be too much. In contrast, resellers do not care about price and

quality as long as it yields more. The presence of bots can influence decision-making beforehand, especially when a limited supply is predicted. In that case, they withdraw from the release because they feel it wastes time to participate when chances are meagre.

During the acquisition stage, some resellers in the research by Choi (2017) used controversial methods like sneaker bots and backdooring. In this research, no sneakerhead used bots, and only two used backdooring. Sneakerheads from this study face many problems when purchasing sneakers, resulting in negative customer experiences. As the theory of Suchacka (2014) suggests, shopping bots cause problems in web shops. This research examines that these problems result in negative customer experiences, which aligns with the studies used in the paper of Pandey & Parmar (2019). Sneakerheads are convinced that bots cause these problems and note that these problems increase with exclusive sneakers. New insights of this study show that sneakerheads created their tactics to buy sneakers. New methods used by sneakerheads are: Enrolling in raffles alone with one or multiple accounts and their friends and family. During first-come-first-served sneakerheads, use multiple devices and Autofill to buy the sneakers as quickly as possible. These results contradict the methods used in research by Choi (2017). Unexpected results are sneakerheads who considered buying a bot themselves to purchase sneakers in the future, while they say they hate the bots initially.

During the post-acquisition stage, sneakerheads show opposite behaviour than the theory suggests. Interesting insights from the literature of Kim (2004), at least 20% to 80% found a substitute for an out-of-stock item in the clothing industry. In this research, that percentage is less than 20% because the sneakerheads do not search for alternatives when their targeted sneakers are sold out. The main reason for this is that alternatives are not exclusive. An important factor is the product-related factor of product involvement, where sneakerheads perceive the relevance of a sneaker determined by the expected value and therefore are less likely to buy a substitute, which confirms the theory of Zaichkowsky (1986).

Second, many sneakerheads indicated they would switch to another store if they released the same sneaker at another time that day. They do not prefer a specific sneaker store, so they are not loyal to sneaker retailers; this will increase the likelihood of store switching, according to Verbeke et al. (1998). In addition, some alternative retailers release the same sneaker, and if these retailers are good, sneakerheads prefer to switch stores (Helm et al., 2012). However, sneakerheads are loyal to sneaker brands. Therefore, they minimise the likelihood of brand

switching, which is in line with the study of Zinn & Liu (2001). What should be taken into account is that sneakerheads can be loyal to multiple brands.

Next to store switching, in the research of Kim (2004), 5% to 25% delayed the purchase. In contrast, more than 80% of the respondents of this research delayed the purchase and waited for a restock, which indicates that sneakerheads have more patience than regular consumers buying clothes. Sneakerheads buy sneakers frequently. According to the theory of Sloot et al. (2005), consumers who shop frequently are more likely to postpone a purchase which is in line with the results of this study.

Another reaction is that sneakerheads select another size if their size is sold out. This only happens when sneakerheads fit two sizes or when they can trade the wrong size for their size. Only sneakerheads that resell sneakers always wanted a pair of limited sneakers regardless of size. The antecedent of selecting another size is not included in the research of Helm et al. (2012). This research shows that selecting another size can be decisive in reacting to a stock-out.

This study found another reaction to a stock-out that was not included in the research of Kim (2004), which is the shift to the secondary market. Some sneakerheads indicated that they pay most of the time to resell prices for sneakers because they cannot get a pair for retail price because of bots. However, sneakerheads are price conscious and will not pay over 300 euros for a pair of sneakers on the secondary market. Contrary to the research of Sloot et al. (2005), sneakerheads cancel the purchase if prices are too high instead of looking for alternatives. This reaction is not only possible for sneakerheads but also for regular consumers that are confronted with a stock-out. If none of the reactions above happens, sneakerheads decide to cancel the purchase.

Next to these reactions, sneakerheads often have a negative word of mouth about retailers and sneaker brands to their friends and family when they cannot get a pair of sneakers. Interestingly, sneakerheads often do not react to or boycott the retailers or sneaker brands, in contradiction with the study of Singh (1988). They indicate that it makes no sense to complain and will try another purchase at the same retailer in the future.

Managerial implications

This research suggests it has managerial implications that summarise what the results mean in terms of actions.

First, the withdrawal of sneakerheads from the sneaker culture may have negative consequences for sneaker brands and retailers. Sneakerheads have different methods than the controversial methods used by bot-operators. Research shows that with a bot, there is more chance of getting a pair of sneakers. The end-users of the sneakers, the sneakerheads and regular customers, are at a disadvantage as a result. This study presents why making the purchase process of limited-edition sneakers fairer is essential. Sneakerheads are returning customers who buy sneakers often and therefore important for the industry. Retailers and sneaker brands should care about the issue and create and apply regulations and techniques against the bots.

Second, sneakers are not only expensive in the secondary market; more problems occur in the secondary market. Sneakerheads have negative experiences with the presence of fake sneakers and the sellers of fake sneakers who try to scam them. Business managers should prevent their loyal customers cannot buy their coveted pair in the first instance and therefore have to buy it via the secondary market where there is a chance of being scammed. If this happens, they will be doubly disadvantaged. Another clothing brand, Stone Island, is fighting against these fake products to protect and defend their customers and their brand by guaranteeing customers authentic clothing. Stone Islands uses QR-codes and 12-digit Certilogo codes that can be used to judge the authenticity (Stone Island, n.d.). This study suggests managers implement something similar to guarantee authenticity and counteract fake clothing.

Third, retailers and sneaker brands that release limited edition sneakers should go beyond the screening process they do now. Using CAPTCHA and checking IP addresses, email addresses and credit card numbers is not enough. The theory has shown that bots can easily bypass this screening process. Managers should consider whether an identity check, for instance, something similar to Digital Identification, is required to purchase such shoes. This prevents retailers and sneaker brands from allowing bot operators to purchase multiple sneakers because they cannot have multiple identities.

Fourth, retailers and sneaker brands should consider moving away from the first-come-first-served method and only use raffles or in-store pick-up since sneakerheads find this a fairer way of distribution and prefer this method. With raffles, retailers and sneaker brands use a pre-sale registration. With the use of identification, it will be hard for bots to participate. This will result in more chances for sneakerheads to get new pairs of sneakers that they do not always have to purchase via the secondary market.

Theoretical implications

This research suggests newly found additions to existing theories. In Helm et al. (2012) 's research, four categories determine a consumer's reaction to stock-outs. Four categories include product-related factors, store-related factors, consumer-related factors and situation-related factors. This study suggests adding more factors to the framework.

First, the researcher suggests adding antecedent exclusivity of a product to the product-related factors. The results of this study showcase that consumers, especially collectors, can only be interested in exclusive products and will therefore react differently than the existing theory may suggest. If consumers, for instance, collectors, only want exclusive products, they do not want to look for other alternatives that are perhaps similar and even cheaper. This study demonstrates that consumers who are price conscious still do not want cheaper or similar products because they are involved in exclusive products, in contradiction to the theory of Sloot et al. (2005), where price-conscious consumers will search for alternatives.

Secondly, this study by Helm et al. (2012) argues that shopping time is an indicator that will influence the response to a stock-out. This research examined that when consumers already spend much time searching for a product, they are more likely to abandon the purchase instead of keeping searching for it. Motivation is, therefore, an essential factor that should be included as a situation-related factor as an antecedent for reaction to stock-outs. This result shows that motivation decreases if consumers fail to purchase the product.

Another theoretical implication this study suggests is to approach sneakerheads and resellers differently. Sneaker enthusiasts can have different roles: collectors, resellers and a combination. Sneakerheads who want to wear the sneakers are bummed more than resellers. This is because sneakerheads have less chance than resellers who use bots to obtain sneakers. Sneakerheads will react differently to a failed attempt; first, they are more disappointed than resellers and react more negative. Sneakerheads do not want another size; resellers do because they can also sell that pair. In addition, both groups use other methods to get a pair of sneakers where resellers are way more effective than the manual methods used by sneakerheads.

The fourth implication this study suggests is that the post-purchase evaluation describes only how consumers experience the purchase. Theories of consumer behaviour fail to address the fact that a purchase can fail and that consumers end up with nothing due to external circumstances. With the presence of bots in the sneaker market and the potential presence in other markets in the future, it is essential to consider that response to failed attempts should be factored into consumer behaviour theory as bot technology will continue to evolve and potentially target other markets as well.

The last implication is the suggestion to add another construct to the study of the reaction of a stock-out. In this study, the results differed from the study of Kim (2004); several factors caused this. However, the research of Kim (2004) described only five reactions that a consumer gives to a stock-out. In this study, another reaction emerged among consumers in the clothing industry. When they could not purchase clothing at retailers, they moved to the secondary market if the products had a fair price. Therefore, this study suggests adding the construct of the shift to the secondary market to the existing theory.

Limitations of the research

This research has limitations which allow the reader to understand the conditions of the results better. First, due to the qualitative nature of this study to research how consumers experience the presence of bots, how they deal with it and how they react to such sold-out sneakers, there is no measurement of how often different methods are used and to what extent the responses are. To fully understand the behaviour and relationships between factors of sneakerheads in the sneaker market, a future quantitative study could study the reactions to stock-out and measure how often a specific reaction occurs. Future quantitative research must distinguish between sneakerheads that collect, sneakerheads that resell and sneakerheads that both collect and resell.

Another limitation of this study is the relatively small sample size of the interviews. This is because the interviewees had to meet several criteria. As a result, the researcher had to reject consumers who wanted to participate but did not meet the criteria. However, the fact that the findings, which are based on nine individuals, may not accurately reflect the more extensive views on the topic is also why the researcher suggests doing quantitative research so that the results are more generalisable.

The third limitation is the lack of previous research on this topic. Especially studies about the newer developed shopbots and how this impacts consumer behaviour. Much previous research on shopping bots is about bots that compare the prices of products on various websites. These studies were outdated and not usable. Reliable studies were studies of shopping bots in different industries, for example, the ticket sale market by Duffy et al. (2019). This research showcases almost the same problem. However, a solution has already been found for this problem by the government, where this research calls for a solution by retailers and sneaker brands.

The fourth limitation is the lack of the role of emotion in this research. Emotions need to be taken seriously because it strengthens the research. The role of emotions has been gaining importance across all industries when examining consumers' behavioural. Emotions are central in reasoning, evaluations and decision-making, influencing consumer behaviour (McLaughlin, 2006; Williams, 2014). In this research, too little attention has been paid to the emotions of sneakerheads, which cannot be overlooked.

Suggestions for future research

First, quantitative research should test the relationships between factors such as time and effort, amount of information, knowledge, years of experience, purchase frequency, motivation, and the use of different methods to examine if this influences the number of purchases a sneakerhead can do. In this qualitative research, some relationships are found but not generalisable.

Another suggestion for future research is to investigate why some sneakers have hype and others do not. During the interviews, some respondents indicated that many restock happened for some limited-edition sneakers. According to them, this means that pairs of sneakers that are bought up by bots are being returned. Sneakerheads assume that the operators behind the bots could not sell the sneakers and returned them to the retailer or sneaker brand. The study must show whether this is the case.

Another suggestion is to do this research in another context. This research was done in Europe and only with Dutch people. Other research will have to show whether people from another country or continent deal with the presence of bots differently during the preparation, purchase and reaction to a sold-out pair of sneakers.

The last suggestion for future research is how retailers and sneaker brands can make the process for sneakerheads and regular consumers fairer. The retailers and sneaker brands should do this research because they are the ones that can solve the problem because the customers cannot. Researchers must consider whether online is still suitable for these releases or if they should go back to physical releases like they used to do. However, with physical releases, people that work will still not get a pair of sneakers; therefore, there must be a solution to solve the problem online.

Methodological reflection

In consumer research, the goals are to establish knowledge about underlying consumer behaviour attitudes, decisions and behaviours. This is done in this research by distinguishing the different stages in consumer purchasing behaviour and measuring how consumers deal with the presence of bots in each stage (Maison, 2018). The inventory ownership cycle by Boyd & McConocha (1996) is used to understand consumer behaviour in different stages, taking into account the possibility of disposal after the purchase, which can be the case for resellers of sneakers. The validity of this research is ensured because the qualitative method is the correct method to find out how consumers behave and how they deal with a problem that arises.

In qualitative research, reliability is sometimes replaced by the criterion of verifiability. The researcher tried making choices as transparent as possible by selecting the right respondents based on criteria drawn up before the data collection. Moreover, recording the data in transcripts ensures that data is transparent and can be listened to by anyone. In addition, this process of data collection is easy to follow (Bleijenbergh, 2015).

The results of this study cannot be generalised to all sneakerheads. This research had only 9 respondents, which is not a lot, whereas the population is much larger. In qualitative research, the synonym for generalizability is transferability. Transferability implies that the results of this research could be applicable in other contexts. However, the researcher cannot prove that these results are applicable in other situations (Lincoln & Guba, 1985).

The application of self-reflection helps to increase the quality of this research. The researcher tried to be as neutral as possible on the subject, although this did not always go well because the respondents sometimes asked about the researchers' experiences. However, these experiences of the researcher himself were not included in the analysis. In addition, the researcher's knowledge of the subject was disregarded when interpreting the collected data, even if he sometimes disagreed.

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Appendices

Appendix A: Definitions

CAPTCHA is the abbreviation of Completely Automated Public Turing test to tell Computers and Humans Apart. This test that you have to pass proves that you are a human instead of a robot (Google, n.d.).

Collecting: Collecting gathers an accumulation of objects as a hobby or for study (Dictionary.com, n.d.). It relates to the topic. The reason for collecting sneakers is the satisfaction of collecting a complete set. Some people collect multiple sneakers of one pair for different reasons, like to wear if one pair is worn out. Others buy these limited sneakers to flex. Some collect to resell, which is a significant drive these days (Coyle, 2021).

Hype is a situation in which something is discussed and advertised in newspapers, on television, social media, etc. lots to attract consumers' interest (Cambridge Dictionary, 2022).

Non-human traffic is the establishment of online website views and clicks by automated bots instead of humans. Bots can be malignant with intentions to abduct content and access specific data about a company or their users (Netacea, 2021).

An algorithm is any well-defined computational action that takes some value, or set of values, as input and produces some value, or set of values, as output. An algorithm is thus a progression of computational steps that transform the input into the output (Cormen et al., 2009). An algorithm is a set of procedures to solve a problem or complete a task. Every computerised machine uses algorithms to execute its functions in complex- or software-based routines. A non-computerised illustration of an algorithm is a recipe for a dish, consisting of specific instructions to prepare it. The algorithm is the way to save time which is required if a person has to do things manually. For this research, algorithm trading is a crucial concept known as automatic trading or black-box trading. Algorithm trading uses computer programs to buy and sell stocks at an impossible pace for human beings. Besides the pace, it is used for timing, pricing and the number of products. Algorithms save time and money in many companies, especially in automation cases (Downey, 2022).

Re-sell is when an entrepreneur or a consumer buys sneakers and sells them for a more significant amount. The sneaker market is full of entrepreneurs. According to Herrmann and Soiffer (1984), the primary motive of the entrepreneur is to make a profit. Critical is that these entrepreneurs do not desperately need the money at that moment. They must be aware of the value of the goods being purchased when seeking under-priced and saleable goods. When the goods are offered again for a profit is called reselling.

Scarcity is the phenomenon when a product or service its availability is limited or perceived by consumers as limited, resulting in a heightened attractiveness. Economically speaking, this makes sense because limited supply and more demand drive up goods prices. It makes sense on an intuitive level as well. When there is a product you want but is not available, you want it more. We see the same thing for gas right now. The demand for a natural resource exceeds the supply. It leads to a decline in the resources available. Scarcity involves non-renewable resources as well as renewable resources that are consumed faster than their ability to replenish (Birkett, 2021).

Appendix B: Interview guide

My name is Ricardo Breebaart. I am graduating from Radboud University in Nijmegen with a master's degree in Innovation and Entrepreneurship. For this, I research how sneaker enthusiasts deal with the presence of bots. Before I begin, I would like to emphasize a few things: Since your participation is voluntary, you are free to participate and leave to research any time. Since we will talk about sneaker collections with a value, your names will not be in full in the report but only abbreviated. In addition, there is the option to participate anonymously. If you want to participate anonymously, feel free to share that with me. Finally, the document will not be shared with others, and you will receive the results afterwards. Do you mind if the audio of this conversation is recorded?

General questions

1. Do you see yourself as a sneaker collector or as someone who loves sneakers? (Belk, 1995; Kottler, 2022)
 - a. Approximately how many sneakers do you own?
2. What is the reason you love sneakers or collect sneakers? (Belk, 1995)
3. How long have you been collecting sneakers? (Belk, 199)
4. Has your lifestyle changed since you got into sneakers? (Kotler, 2022; Matthews et al. 2021)
 - a. If yes, how?
5. Do sneakers add more joy or prestige to your life? (Storr, 1983; Belk, 1995; Apostolou, 2011)
6. Do you find it important to follow the latest fashion trends, or do you decide for yourself what you like? (Matthews et al., 2021)
7. Do you believe that culture has emerged among sneakerheads? (Kotler, 2022; Braitwaite, 202; Choi et al., 2015; Salvano, 2020)
8. Are there people in your immediate environment who are bothered by your buying behaviour or your sneaker collection? (Belk, 1995)

Problem recognition

9. How often in your daily life are you busy with sneakers? (Choi, 2017)

- a. What exactly do you do then?
10. What is mainly your motive for buying limited-edition sneakers? (Myers, 2019)
 11. When do you notice whether you want to buy a new pair or need a new pair? (Boyd & McConocha, 1996; Chen et al., 2022; Choi 2017; Maslow, 1943)
 12. Who or what influences you to buy sneakers? (Chen et al., 2022; Kotler, 2022; Choi et al., 2015; Lehtovirta, 2020, Belk, 1995; Matthews et al., 2021; Grisaffe & Nguyen, 2011; Choi, 2017; Braithwaite, 2021)
 - a. Friends
 - b. Family
 - c. Brands
 - d. Social media
 - e. Celebrities such as athletes or artists
 13. How often do you buy limited-edition sneakers? (Choi, 2017; Belk, 1995, Boyd & McConocha, 1996; Chu & Liao, 2007; Helm et al. 2012)
 - a. How do bots affect your purchases? Do you buy more or less, for example?
 - b. Do you already know what you will do with the sneakers before you buy them? (wear, store or resell)

Information search

14. When do you look for information about sneakers? (Boyd & McConocha, 1996; Choi, 2017)
 - a. Only when you need new pair of sneakers
 - b. When you do not necessarily need a new pair of sneakers
15. How do you stay informed about (un)announced new limited-edition sneaker releases?
 - a. Do you think that you have to be better informed about limited-edition sneakers because they sell out quickly?
16. What information do you look for before a release? (Vichiengior et al., 2019; Vichiengior & Ackermann, n.d.; Boyd & McConocha, 1996; Choi, 2017; Chen et al., 2022)
 - a. Where can you find this information?
 - b. How much time and effort do you put into finding information about limited-edition sneakers?
 - c. How far in advance do you start looking for information?

- i. What are you doing in the meantime? (From the start of information seeking until the release)
- 17. How confident are you that you can buy limited-edition sneakers? (Vichiengior et al., 2019; MacInnis & Price, 1987)
 - a. If they are not confident: Because of bots buying these sneakers, does this uncertainty increase?
 - b. If they are confident: Because of bots that are much faster than you, does this certainty decrease? If not, how are you so confident?
- 18. How often do you see that limited-edition sneakers are sold out? (Wakabayashi, 2021; Geiger & Finch, 2015)
- 19. How do you deal with the uncertainty of not being able to get your pair of sneakers? (Vichiengior et al., 2019)
- 20. Do you think you need more information to buy limited-edition sneakers because they sell out faster than regular sneakers? (Vichiengior et al., 2019)
 - a. Have you started to prepare better to buy sneakers because you know that it is difficult to get them, partly because of the bots? For example, what do you do?
 - b. Have you gained more knowledge since you know that it is challenging to buy sneakers?
- 21. If you already know in advance that it will be challenging to buy specific sneakers because they sell out quickly? What is your motivation and willingness to keep purchasing sneakers in the future despite the presence of bots? (Sloot et al., 2005, Vichiengior et al., 2019; Maslow, 1943; Belk, 1995)
 - a. Why is this stopping you?
 - b. What motivates you to buy it anyway?
- 22. What emotions do you come up with when you look at a future purchase of sneakers? Are you afraid that you cannot always get them, or do you have hope that you can get them? (Vichiengior et al., 2019)

Evaluation of alternatives

- 23. When looking for sneakers to buy, do you want that pair of sneakers specifically, or do you sometimes consider looking for alternatives? (Boyd & McConocha, 1996; Chen et al., 2022, Helm et al., 2021, Sloot et al., 2005)
 - a. Why do you (not) look for alternatives?

Decision making

24. What factors are essential for a pair of sneakers before buying them? (For example, the price, value after release, the amount of demand afterwards, the exclusivity, the history, the quality, the colours, the brand, the packaging or the collaboration with a celebrity) (Choi 2017; Kotler, 2022; Chen et al., 2022)
- a. Are you price-conscious when buying sneakers?
 - b. Are you quality-conscious when buying sneakers?
 - c. How do you determine value, demand, exclusivity or quality?
25. Is there a specific brand that you find most interesting to buy? (Batra & Ahtola, 1991; Zinn & Liu, 2001)
- a. Which sneaker models would you most like to buy?
 - b. Are there particular brands or models of sneakers that you do not try to purchase because they sell out that quick?
26. Does your situation determine whether you buy new sneakers? Because you need a new pair, do you want a new pair, or is it an impulse purchase? (Sloot et al., 2005)

Acquisition

27. What do you think about the supply and demand side of the limited sneakers? (Hammond & Kohler, 2000; Duffy et al., 2020; Vanecca, 2020)
- a. What do you think is the influence of bots on the supply of sneakers?
28. What do you think of bots buying stuff and then selling it for a higher price? (Choi, 2017; Chu & Liao, 2007)
- a. Does it affect your intention to buy sneakers?
 - b. Do bots make it difficult for you to get a new pair of limited-edition sneakers?
29. Where do you buy your sneakers? Is this always with the same retailer, or is it different? (Batra & Ahtola, 1991; Zinn & Liu, 2001; Jones, 2022, Chu & Liao, 2010; Chu, 2013)
- a. Do you think you should buy from more than one retailer to increase your chances?
30. What is your tactic for buying limited edition sneakers?

31. What is your experience of buying limited edition sneakers? (Michigan, 2012; Jaskier, 2016; Cassidy, 2018; Vanecca, 2020; MacInnis & Price, 1987)
- a. What has changed over the years?
 - b. How do bots or sold-out sneakers affect your experiences?
 - i. Negative experiences? How do you try to do this better next time?
 - ii. How does this affect your trust in this brand or website?
32. What problems do you encounter when buying sneakers? (Wakabayashi, 2021; Cohen, 2019)
- a. Do you think bots exacerbate these problems?
 - b. How often do these problems occur?
 - c. Is there a particular brand, website or model of the sneaker where these problems occur most often?
 - d. What does this do to your feelings?
33. Do you ever participate in raffles? (Klepek, 2020; Choi, 2017)
- a. What is your experience with this?
 - b. What do you think about this? Is this a fairer way?
34. What do you think has changed in the purchase process of sneakers in recent years?
35. What do you think has been done to stop bots in the past? (Klepek, 2020)
- a. What do you do yourself to counter the bots?
 - b. Do you think there will be a solution against the bots in the future?

Post-purchase attempt

36. Suppose you find yourself in a situation where the sneaker you want is sold out; what do you do at such a time? (Morphy, 2002; Hammond & Kohler, 2000; Fitzsimons, 2000; Schary & Martin, 1979; Walter & Grabner, 1975; Duffy et al., 2019; Helm et al., 2021; Zinn & Liu, 2001; Zaichkowsky, 1986; Chernev, 2003, Verbeke et al., 1998; Sloot et al., 2005, Batra & Ahtola, 1991; Baumgartner & Steenkamp, 1996)
- a. Do you ever look for other sneakers at that exact moment at the same retailer?
 - b. Do you try to buy the same sneakers at another retailer?
 - c. Do you try to buy the same sneaker later at the same retailer?
 - d. Do you ever try to buy the same sneaker in a different size at the exact moment at the same retailer?
 - e. Do you ever buy sneakers at a secondary market such as StockX, where you pay a higher price but do not have to worry about them being sold out?

- i. What do you think of the resell market where you pay higher prices?
37. Have you ever complained to a company, friends, or family because you could not get a particular sneaker? (Singh, 1988; Ro & Matilla, 2015)
 - a. If yes, by whom did you complain?
 - b. If you complained to a company, have you ever tried to buy sneakers from the same company afterwards, or are you planning to do so in the future?
 - c. If not, why have you never complained?
 - d. Do you think it is worth complaining?
38. Is there anything else you want to say about bots or how they influence your buying behaviour?

End of the interview

Appendix C: Separate document

Appendix D: Separate document