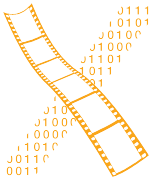

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Digital Natives' Dilemma: How Gen Z Perceives Deceptive Designs

Bachelor's Thesis
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Abstract

The Internet has become an integral part of everyday life, especially for Generation Z, who have grown up with digital user interfaces. Deceptive Designs that can influence the user can be a potential danger, especially if they grow up in an unregulated environment.

This thesis addresses this research gap. It is dedicated to investigating the awareness, perceptions, and reactions of Generation Z to Deceptive Designs. Through a survey and ranking, various aspects of these designs are examined.

The results show that many of the respondents had insufficient knowledge of Deceptive Designs. However, they were able to recall manipulative elements on the Internet. In addition, they were able to recognize some deceptive elements on the Mockups, with some designs being recognized more often than others. Interestingly, none of the participants were able to identify all of the manipulative elements.
In addition, many participants showed a willingness to change their behavior when they recognized manipulative elements, whether by avoiding certain websites or using other strategies. The ranking showed that designs that showed a direct influence on participants tended to be perceived as more manipulative.

Overall, these findings provide important insights into Gen Z's awareness of and reactions to Deceptive Designs. They serve as a basis for future research and the development of possible countermeasures to better protect Internet users.

Überblick

Das Internet ist zu einem festen Bestandteil des täglichen Lebens geworden, insbesondere für die Generation Z, die mit digitalen Benutzeroberflächen aufgewachsen ist. Täuschende Designs, die den Nutzer beeinflussen können, können eine potenzielle Gefahr darstellen, insbesondere wenn sie in einem unregulierten Umfeld aufwachsen.

Diese Arbeit widmet sich genau dieser Forschungslücke. Sie widmet sich der Untersuchung des Bewusstseins, der Wahrnehmung und der Reaktionen der Generation Z auf Deceptive Designs. Mithilfe einer Umfrage und eines Rankings werden verschiedene Aspekte dieser Designs beleuchtet.

Die Ergebnisse zeigen, dass viele der Befragten nur unzureichende Kenntnisse über Deceptive Designs hatten. Dennoch waren sie in der Lage, sich an manipulative Elemente im Internet zu erinnern. Darüber hinaus waren sie in der Lage, einige täuschende Elemente auf den Mockups zu erkennen, wobei einige Designs häufiger erkannt wurden als andere. Interessanterweise gelang es keinem Teilnehmer, alle manipulativen Elemente zu identifizieren.
Darüber hinaus zeigten sich viele Teilnehmer bereit, ihr Verhalten zu ändern, wenn sie manipulierte Elemente erkannten, sei es durch das Vermeiden bestimmter Websites oder durch andere Strategien. Das Ranking zeigte, dass Designs, die eine direkte Beeinflussung der Teilnehmer zeigten, tendenziell als manipulativer wahrgenommen wurden.

Insgesamt bieten diese Ergebnisse wichtige Einblicke in das Bewusstsein und die Reaktionen der Generation Z auf Deceptive Designs. Sie dienen als Grundlage für zukünftige Forschung und die Entwicklung möglicher Gegenmaßnahmen, um Internetnutzer besser zu schützen.

Acknowledgements

First of all, I would like to thank Prof. Dr. Jan Borchers and Prof. Dr. Ulrik Schroeder for examining my bachelor thesis.

Many thanks to René Schäfer for the motivating and professional supervision of my thesis. Your suggestions, and answers were always constructive and instructive, so that I could learn a lot from them.

Also a big thank you to my family, friends and the Dark Pattern Task Force. Your advice and approaches have been very enlightening to me.

Finally, I would like to thank my survey participants. Without you, my work would not have been possible, and I learned a great deal from your responses.

Conventions

Throughout this thesis we use the following conventions.

Text conventions

Definitions of technical terms or short excursus are set off in coloured boxes.

EXCURSUS:
Excursus are detailed discussions of a particular point in a book, usually in an appendix, or digressions in a written text.

Definition:
Excursus

The whole thesis is written in American English.

Chapter 1

Introduction

Using the Internet has become a matter of course and a necessity for many people today [Babutsidze et al., 2023]. The number of users is constantly increasing[1]. This ubiquity of the digital space has fundamentally changed the way people communicate, learn, work and socialize[2]. In the midst of this digital age, however, so-called Deceptive Designs are increasingly becoming the focus of attention, especially among HCI researches [Lukoff et al., 2021]. These are design techniques in digital user interfaces that often unconsciously lead users to make decisions that are not in their best interest[3].

Using the Internet is now a necessity, and Deceptive Designs in digital interfaces can mislead users, especially Generation Z, into actions that are not in their best interest. This underscores the importance of consumer awareness and protection.

In one study, such elements were found on 11% of the pages examined [Mathur et al., 2019]. In online shopping, they mislead consumers into making purchases they might not have made in other circumstances [Mathur et al., 2019]. In social media, Deceptive Designs lead users to spend more time on a platform or reveal more personal information than they originally intended [Mildner and Savino, 2021].

With these increasing threats in the digital space, it is crucial to consider the end-user perspective. Although many studies examine consumer interactions in general

[1] https://www.statista.com/forecasts/1146844/internet-users-in-the-world *Accessed: February, 2024*

[2] https://www.bbvaopenmind.com/en/articles/internet-changed-everyday-life/ *Accessed: February, 2024*

[3] https://www.deceptive.design *Accessed: February, 2024*

[M. Bhoot et al., 2021, Bongard-Blanchy et al., 2021, Gray et al., 2021] and some focus on specific generations [Pörtner and Weber, 2023], Generation Z, defined as the demographic cohort born from the mid-to-late 1990s through the early 2010s,Twenge [2017], Wijaya et al. [2020], Scholz [2014] leads in digital evolution, having grown up with the internet. More than 90% of Generation Z in Germany use social networks on a daily basis[4]. In addition, 40% of respondents in a survey prefer platforms such as Instagram or TikTok to traditional search engines like Google[5]. This shift in preferences points to a changing landscape of online consumption that could have far-reaching implications for this generations shopping behavior. With their growing preference for social media over traditional search engines, their online shopping habits are shifting towards more visual and social media-driven choices[6]. All of this makes them a vulnerable group in the context of Deceptive Designs.
The World Wide Web Foundation emphasizes the need to raise awareness of the risks and consequences of Deceptive Designs in order to ensure privacy, consumer protection and fair competition in the digital space[7]. Only recently, the European Union, among others, has taken action to combat these practices and strengthen consumer rights.

As Generation Z was confronted with barely regulated Deceptive Designs in its most formative years, there is now a need to take a close look at these practices.

[4] https://de.statista.com/statistik/daten/studie/1137640/umfrage/umfrage-zur-haeufigkeit-der-nutzung-von-social-media-nach-generationen/ *Accessed: February, 2024*

[5] https://techcrunch.com/2022/07/12/google-exec-suggests-instagram-and-tiktok-are-eating-into-googles-core-products-search-and-maps/?tpcc=tcplustwitter *Accessed: February, 2024*

[6] https://www.forbes.com/sites/forbesagencycouncil/2021/05/17/gen-z-and-the-rise-of-social-commerce/ *Accessed: February, 2024*

[7] https://techlab.webfoundation.org/deceptive-design/overview *Accessed: February, 2024*

1.1 Deceptive Design

DECEPTIVE DESIGN:
According to Brignull: "Deceptive patterns (also known as "dark patterns") are tricks used in websites and apps that make you do things that you didn't mean to, like buying or signing up for something"[8].

Definition: *Deceptive Design*

Origin of *Deceptive Designs* and exploration of their mechanics

The term Deceptive Designs (then known as Dark Pattern) was first coined in 2010 by Harry Brignull, an expert in the field of user experience (UX). Brignull, one of the pioneers in the study of Deceptive Design techniques in the digital space, has recorded his findings and experiences in his book "Deceptive patterns – exposing the tricks that tech companies use to control you".
There, he provides a comprehensive description of how such deceptive methods work and the motivations behind their use [Brignull, 2023].

Fogg's early work laid the foundation for understanding technology's influence on behavior

Although Brignull is considered a key figure in the Deceptive Design debate, B.J. Fogg's 2002 book Persuasive Technology laid the groundwork for research into the influence of technology on user behavior[Fogg, 2002]. A well-known example of a Deceptive Design is "forced continuity" shown in Figure 1.1, in which the user is forced to perform actions in order to achieve their goals [M. Bhoot et al., 2021]. These and other manipulative Patterns are ubiquitous in today's digital world and are used in a variety of ways[Mathur et al., 2019].

EU and EDPB reports detail impact of Deceptive Designs and call for regulations to protect consumers

As part of the research on Deceptive Designs, the EU report from Commission et al. [2022] provides an in-depth insight into the effects of manipulative personalization and misleading interfaces on user behaviour. In addition, the guidelines of the European Data Protection Board (EDPB)[9] provide concrete evidence of how misleading patterns on social media platforms can influence user decisions. Dr. Ann Kristin Glenster, an expert in digital ethics and law,

[9] https://www.edpb.europa.eu/system/files/2023-02/edpb_03-2022_guidelines_on_deceptive_design_patterns_in_social_media_platform_interfaces_v2_en_0.pdf
Accessed: February, 2024

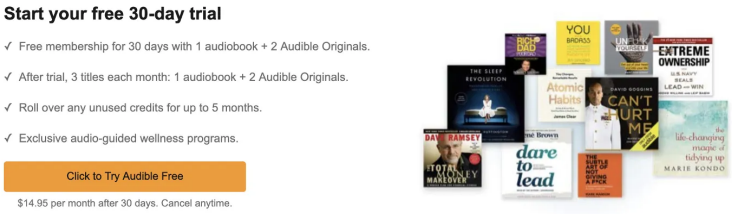


Figure 1.1: An example for the Forced Continuity pattern, taken from www.audible.com: users are required to create an account and provide payment information to access the Free Trial. Subsequently, the company will silently start charging.

reports[10] emphasizes the urgency of flexible regulation to protect consumers from these practices, while the Norwegian Consumer Council's report provides specific examples of designs that mislead consumers. Both papers emphasize the need for regulatory and educational measures to protect consumers in the digital space [Council, 2018].

1.2 Generation Z

Having grown up in a digital world, Gen Z may be more susceptible to Deceptive Designs

A particularly relevant and important target group in the context of Deceptive Designs is Generation Z (also known as Gen Z or iGen), which was born between 1996 and 2012. Having grown up in a world where the Internet is omnipresent, it is hard for this generation to imagine life without digital connectivity [Twenge, 2017]. Generation Z has grown up with digital technologies and social media as an integral part of their daily lives. Several papers have examined Generation Z's behavior in the digital world and found that part of the generation struggles with information overload on social networks, as well as the generation's digital lifestyle [Wijaya et al., 2020, Liu et al., 2021]. The research findings provide insightful information about

[10] https://www.mctd.ac.uk/wp-content/uploads/2023/07/Deceptive-Design-Workshop-Report-with-links.pdf *Accessed: February, 2024*

the behavior and practices of Generation Z in the digital context. The authors emphasize the urgency of an in-depth analysis of their particular susceptibility to Deceptive Designs.

However, it should be noted that because of the above, Generation Z may have a greater awareness of the mechanisms and potential pitfalls of the internet than previous generations. To determine this, their interaction with Deceptive Designs needs to be investigated.

Gen Z's internet savvy may increase their awareness of Deceptive Designs, warranting further research into their interactions with such tactics

1.3 Outline

The aim of this work is to investigate Generation Z's knowledge of Deceptive Designs, their perception of manipulative user interfaces, their familiarity with Deceptive Designs and their ability to identify these patterns from Mockups.

This thesis focuses on Generation Z and Deceptive Designs

In Chapter 2, an overview of existing work in the field of Deceptive Designs and the characteristics of Generation Z, including their online behavior, is given. Based on this in Chapter 3, a survey was developed, the design and methodology of which are explained in detail. The results are presented in Chapter 4. Chapter 5 discusses the results in the context of the existing literature. Finally, the contributions of the thesis are summarized and recommendations for further research are given.

Traces the journey from literature review on Deceptive Designs and Gen Z to findings and future research directions

Chapter 2

Related Work

The following section provides a brief overview of the topics already researched in other publications.
In addition, previous research and its results as well as application areas that also deal with Deceptive Designs are presented.

2.1 Deceptive Designs

This work first provides a overview of existing taxonomies in everyday contexts. This is followed by a discussion of scientific publications that develop or apply comparable classification schemes.

2.1.1 Taxonomies

In the field of Deceptive Design, research has developed a comprehensive taxonomy that categorizes different levels of manipulative design practices. Commission et al. [2022] and Mathur et al. [2019] emphasize the importance of categorization for research and communication. Gray et al. [2023] also strives for a unified definition of the different patterns in his work ”Towards a Preliminary Ontology of Dark Patterns Knowledge”.

Origins and early taxonomy of Deceptive Designs by Brignull, plus Conti & Sobiesk's UX impact study

The first definitions and examples of Deceptive Designs (then called Dark Patterns) were published by Brignull in 2010. The first version included 12 different types of Deceptive Designs.
At the same time, Conti and Sobiesk [2010] developed an initial taxonomy and analyzed the impact of malicious interface design on user experience and interface design, leading to a deeper understanding of the problem.

Explores Deceptive Designs in digital games, user experience impacts, and privacy strategies across various studies, highlighting ethical concerns and the need for transparency

Zagal et al. [2013] expanded the field of research to include the context of digital games. Their work highlights how Deceptive Designs are integrated into game mechanics and addresses the ethical issues involved. By highlighting the specific issues and challenges in the gaming industry, this study provided a new perspective on the use and impact of Deceptive Designs.
Greenberg et al. [2014] focused on the user experience and perception of digital products. Their research showed how Deceptive Designs can not only influence users' decisions, but also shape their overall experience with a product or service. This work highlighted the importance of understanding the subtle ways in which design can influence the user experience.
This discussion was continued by Bösch et al. [2016], who examined Deceptive Designs in the context of privacy strategies. Their taxonomy highlighted different types of patterns that appear in privacy settings, and explained why they can be so effective in influencing user decisions. The work showed how these Patterns are used to trick users into revealing personal information, and highlighted the need to prioritize privacy and transparency in digital designs.

Extends Deceptive Design research to mobile apps and streaming video, with Mathur et al. [2019]'s analysis of 11,000 sites revealing widespread use and a detailed taxonomy of their influence on decisions.

In addition, the field of Deceptive Designs has continued to expand. Various areas, such as mobile apps or video streaming platforms, have been studied repeatedly Chaudhary et al. [2022]. One publication relevant to this thesis is that of Mathur et al. [2019], which deals with deceptive elements on shopping websites.
By analyzing approximately 11,000 shopping websites, they discovered more than 1000 instances of Deceptive Designs, representing 15 types and 7 broader categories.

They screened these Deceptive Designs and found 183 sites using such practices. In addition, they found 22 third-party vendors offering Deceptive Designs as a turnkey solution. Finally, they developed a taxonomy of Deceptive Designs characteristics that describes the underlying influence of Deceptive Designs and their potential harm on user decision making.

Since most works do not use standardized definitions, there are works that deal with this topic.
The work by Gray et al. [2024] deals precisely with this. It is dedicated to the problem of Deceptive Designs and the lack of uniform understanding. Ten existing taxonomies were merged into a three-level ontology. This comprises 64 defined species at low, medium and high levels to support future research and collaboration.
The Mathur et al. [2021] paper also attempts to explain when exactly Deceptive Designs are manipulative.
The authors begin by noting that previous research at the time was descriptive and lacked a consistent definition of Deceptive Designs.
They propose normative perspectives to better understand and analyze Deceptive Designs and their effects on individuals and society. The goal is to move future research beyond subjective criticism to empirical methods based on these perspectives.

Gray et al. [2024] integrates ten taxonomies into a unified ontology for Deceptive Designs, Mathur et al. [2021] clarify when designs become manipulative, aiming for empirical research advancement

2.1.2 Social Media

In the context of social media, Deceptive Designs have gained considerable importance in recent years [Mildner and Savino, 2021, Gray et al., 2023]. Research has identified them as design techniques that aim to influence user behavior unnoticed. Other goals are to motivate users to use the platforms and to achieve other goals of the operators [Botes et al., 2022].

Highlights the growing impact of Deceptive Designs in social media

In 2022, the European Parliament adopted a law setting new rules for large online platforms in the EU [Commission et al., 2022].
These new rules are designed to combat such misleading

EU law targets deceptive elements on large platforms, bans manipulative techniques against user choice

elements. To this end, manipulative techniques that negatively affect users' free choice will be prohibited [Gunawan et al., 2022].

Highlights *Privacy Zuckering* in social media, where users are manipulated into oversharing personal information, with Facebook as an example

One example of such manipulation that has been uncovered in social media is so-called "privacy zuckering". This is where users are tricked into revealing more personal information than they actually want to. This allows the operator to access the contact list and obtain information from people who avoid these platforms [Bösch et al., 2016]. Figure 2.1 shows how Facebook has used this pattern to get more information from its users. In addition

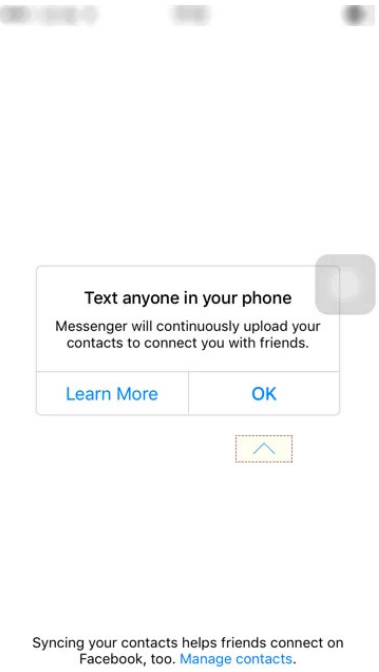


Figure 2.1: An example for the Privacy Zuckering pattern, taken from www.faceobok.com found on `https://medium.com/@mohityadav0493/privacy-zuckering-deceiving-your-privacy-by-design-d41b6263b564`: users are manipulated into publicly disclosing more personal information than they initially intended.

to these individual studies, there are also studies that deal exclusively with social media and Deceptive Designs.

An important contribution to the study of Deceptive

Designs in social networking services (SNS) was made by Mildner et al. [2023b]. The authors analyzed 16 hours of video material from platforms such as Facebook, Instagram, TikTok and Twitter to find out how patterns emerge on these platforms.
The study shows that users are often unaware of the control they have over their personal data and the time they spend on SNSs. The analysis identifies two main strategies (Engaging & Governing) and five other Deceptive Designs not previously described.
It also provides important insights into the prevalence of Deceptive Designs and highlights the need for further research in this area to better understand the impact of these manipulative design strategies and develop possible countermeasures.

Explores the impact of Deceptive Designs in SNS, revealing user unawareness regarding data control and time spent

In addition, Mildner and Savino [2021] already investigated user interface features on Facebook. The authors conducted an empirical design analysis to identify interface defects that affect users' online privacy. In a subsequent survey (n = 116), they found that usage behavior is changing due to increased privacy concerns and reported individual cases of addiction and mental health problems. These observations are the result of a rapidly evolving social networking service creating a gap in understanding between users' interactions with the platform and the future consequences.
Another paper Mildner et al. [2023a] deals with social media and whether regular users are able to distinguish between interfaces with and without Deceptive Designs. Therefore, they started to investigate SNS platforms and created a survey. The results of the survey show that both experts and regular users are able to distinguish between interfaces with and without manipulative design elements.
The study from Kammerl et al. [2023] on Deceptive Designs and digital nudging in social media is divided into three parts: An examination of the state of research, an analysis of use by young people, and interviews with young people. It shows that young people are partly aware of the influence of Deceptive Designs, but often see themselves as responsible for their consumption. Clear rules of use and parental support can have a preventive effect. The study emphasizes that the problematic use of social media can be attributed to a variety of factors.

2.1.3 The End User Perspective

The following section provides an overview of works that deal with Deceptive Designs from the perspective of the end user.
The work of Bongard-Blanchy et al. [2021] plays a central role. The study examines the extent to which users of online services recognize Deceptive Designs and whether these patterns can influence users' decision-making behavior. To answer these questions, the study is divided into three parts.

Studies of End-User perceptions of Deceptive Designs, highlighting users' awareness but also the gap in effective protection, particularly among younger and more educated individuals.

The first part of the study examines users' awareness of the influence web design has on their behavior. The second part analyzes the frequency of use of various online services in order to investigate user behavior in manipulable contexts. In the last part, subjects were presented with screenshots, most of which were modified with Deceptive Designs, in order to identify and explain manipulative elements and their presumed purpose. The results show that users are aware of the manipulative influence of the designs on their online behavior. However, this does not automatically translate into effective protection.
In particular, younger people and those with a higher level of education show an increased ability to recognize Deceptive Designs. Educational initiatives and technical measures are recommended to prevent such manipulative tactics. This underscores the need for a differentiated view of the influences of these misleading patterns in order to develop effective protective mechanisms.
In addition, research by Gray et al. [2021] evaluates the perception and emotional response of end users to manipulation in digital environments. In a sample of 169 people surveyed in English and Chinese, and in subsequent interviews with nine participants, it was shown that users perceive digital manipulation as an intrusion into their autonomy that regularly evokes negative emotions. Based on these findings, it is recommended that both public policy and digital platform design should prioritize user autonomy and transparency in order to foster an environment that respects and supports user empowerment and well-being.

The paper by Pörtner and Weber [2023] examines the effect of Deceptive Designs using qualitative content analysis. The focus is on their influence on customer experience and trust, especially in relation to Generation Y, which was the previous generation and born between1981-1996.

Analyzes Gen Y's interaction with Deceptive Designs, focusing on customer experience, trust, and online security

The study is divided into several sections dealing with different aspects of Deceptive Designs. These includes detection, user awareness, online security, the specific impact of misleading Patterns, and the use of cookie banners. It also examines trust, analyzing both positive and negative influencing factors and their impact through the use of Deceptive Designs.
The study shows that knowledge of Deceptive Designs is surprisingly low. Although all participants were able to identify at least one example of a Deceptive Designs, general awareness of the existence and nature of Deceptive Designs in online environments was low. An existing relationship of trust with online providers is not significantly affected by Deceptive Designs, in some cases they are even considered normal. However, the results were not clear enough to make a definitive statement about whether *Gen Y* is aware that websites use Deceptive Designs.

2.2 Generation Z

This section provides an overview of the existing literature on Generation Z. First, the general characteristics of Generation Z as described in various works are presented. This is followed by a discussion of life in the digital environment.

2.2.1 Characteristics of Generation Z

Generation Z refers to people born between 1995 and 2010. In Germany, this generation makes up about 12 % of the population (as of 2022)[1]. Generation Z is the first generation to grow up entirely online Cilliers [2017]. It is

[1] https://www.statista.com/statistics/1309594/residents-by-generation-germany/ *Accessed: February, 2024*

normal for them to be online almost all the time or even several times a day[2].

Gen Z, born between 1995 and 2010, represents 12% of the German population and is the first generation to grow up entirely online.

The book from Preiß et al. [2017] explains that HR management is facing new challenges. Based on a literature analysis, it is clear that Generation Z consumes a lot of content on the go and on the web. Work-life balance is also important to this generation.
Klaffke [2021]'s work from 2021 also illustrates the strong online consumption of Generation Z. He mentions that this generation grew up with smartphones. Around 89% are online every day, which is in line with other studies.

Schnetzer identifies Gen Z's fusion of digital and real life, highlighting challenges such as information overload and social comparison.

Self-proclaimed youth researcher Simon Schnetzer also focuses primarily on this generation. He suggests that this generation was born in the year 2000. He also mentions that the generation is constantly online, which means that real life and the digital world are merging. This merging is a challenge for the generation. The abundance of information, the variety of choices offered by the Internet, and often the pressure of time complicate decision making difficult. In addition, there is high pressure to perform and constant comparison on social media, which means that decisions are often questioned. These factors and influences may make this generation more susceptible to manipulative elements. Despite living online, family support is important to this generation. In difficult times, family provides the emotional support that cannot be found online [3].

Dolot's research on Gen Z shows that they are active creators online, underscoring their affinity for new technologies.

Dolot et al. [2018]'s study of Gen Z shows that despite their young age, many are already working, which could affect their independence and maturity. Feedback is crucial to them, with 72% of respondents placing particular importance on it, which could be due to their habit of expressing themselves online. They not only consume the Internet, they also create things for the Internet. Therefore, new technologies are important to many of them.

[2] https://www.pewresearch.org/social-trends/2020/05/14/on-the-cusp-of-adulthood-and-facing-an-uncertain-future-what-we-know-about-gen-z-so-far-2/ *Accessed: February, 2024*

[3] https://simon-schnetzer.com/generation-z/ *Accessed: February, 2024*

2.2.2 Online Usage and Awareness

The previous section found that this generation interacted with digital user interfaces at a young age and still does so several times a day.

PewResearch found that cell phones and the Internet were normal from the beginning. In the teenage years, the Internet is mainly used via mobile devices. Social media, constant accessibility and instant communication are taken for granted by this generation. They also conclude that it will be important to monitor the development of this new generation over time [4].
The paper from Hu et al. [2022] also draws attention to Generation Z's online consumption. More than 200 Chinese people took part in the online survey. It shows that usage patterns vary according to motivation, that young people from higher-income families tend to use social media instrumentally and that motivation and income influence social media practices such as social capital and self-expression. These findings offer insights into digital social inequality and its impact on Generation Z.

PewResearch and Hu et al. [2022] Highlight Gen Z's Mobile First Internet Use and the Role of Social Media in Their Lives

In the work from Turner [2015], it is found that 90% of the generation is emotionally connected to the Internet. For many, a punishment that affects internet use is more lasting than a punishment that cuts pocket money. The paper also draws attention to the fact that many studies on the generation are quantitative. With regard to Generation Z, the focus should be on qualitative studies.

Turner [2015] advocates for qualitative studies on Gen Z's internet usage to gain deeper insights

The work by Laitkep and Stofkova [2021] examines the purchasing behavior of Generation Z in e-commerce. Using a factor analysis, they found that the purchasing behavior of Generation Z is primarily influenced by website design, delivery methods, online payment options, retailer ratings and purchases from well-known providers.
In addition to these points, the generation spends a lot of time on social networks. Instagram is still the most

[4] https://www.pewresearch.org/social-trends/2020/05/14/on-the-cusp-of-adulthood-and-facing-an-uncertain-future-what-we-know-about-gen-z-so-far-2/ *Accessed: February, 2024*

popular platform, but TikTok is also becoming increasingly important [5]. Other forms of entertainment are increasingly taking a back seat.

Laitkep and Stofkova [2021]find web design and influencers via social media crucial to Gen Z's brand choices, especially on Instagram and TikTok

In their search for guidance and role models, the generation is increasingly turning to influencers who are present on social media. These influencers affect the purchasing decisions of individuals[Scholz, 2014], which in turn could prompt the operators of social media platforms to specifically promote such dynamics in order to increase interaction on their own platforms. It was found that the generation is more likely to perceive products via social media than directly via search. It also plays a role for the generation whether the brand has a social media presence [6].

These points make it clear that social media is becoming, if not already has become, highly important for Generation Z in particular.

[5] https://mylibrarianship.files.wordpress.com/2022/03/generation-z-gwis-generation-report-on-the-latest-trends-among-gen-z.pdf *Accessed: February, 2024*

[6] https://www.surveymonkey.com/curiosity/gen-z-social-media-and-shopping-habits/ *Accessed: February, 2024*

Chapter 3

Study Design

In this section, the methodological procedure for creating the survey is explained in detail.

3.1 Aim of the Study

Aims to explore German Gen Z's perspectives on Deceptive Designs through a survey

In order to create a deeper understanding between Generation Z and Decepitve Designs in the digital environment, a qualitative study was chosen by means of a survey. Accordingly, the aim of this study is to create a picture of the opinions of Generation Z adults living in Germany.

Focus on online shopping and social media due to Gen Z's high use of these digital platforms

The two areas of online shopping and social media were selected for this purpose. These two areas were selected because the generation uses digital platforms as its primary shopping destination. Places such as social media serve as a source of inspiration[1]. Social media has become not only a communication tool, but much more a platform for self-expression [E., 2021]. Accordingly, social media can influence people, especially a generation that has witnessed the rapid development of the internet in its formative years.

[1] https://mylibrarianship.files.wordpress.com/2022/03/generation-z-gwis-generation-report-on-the-latest-trends-among-gen-z.pdf *Accessed: February, 2024*

3.2 Creation of questionaire

Outlines a survey of Gen Z's knowledge of Deceptive Designs, including demographics, technology use, and experience with digital manipulation

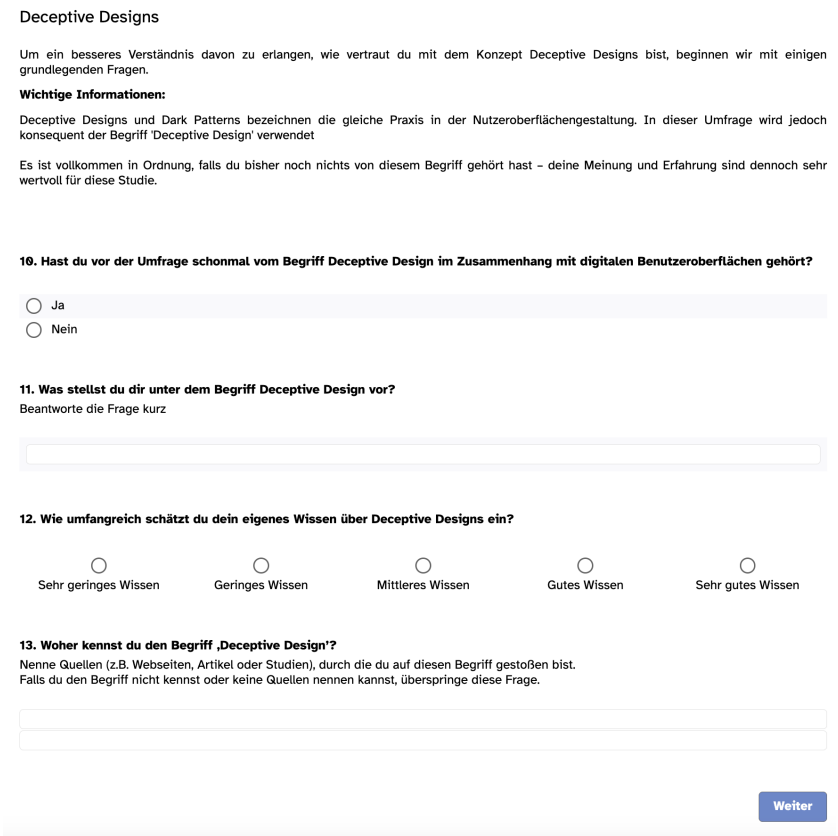
This section explains the structure of the questionnaire. It begins with an introduction to the topic and a continuous text explaining the requirements for participants. Participants are then informed of the opportunity to participate in a contest.
The first part asks for demographic information. In addition to information such as age, gender, education, etc., participants were explicitly asked about their affinity for technology, their exposure to digital user interfaces, social media platforms, and their first technological device, as well as the age at which they received it.
In the next section (illustrated in Figure 3.1), participants were asked if they had ever heard the term Deceptive Design, if so, where they had heard it, what they thought it meant, and how well they knew it. It was explicitly pointed out that in addition to the term Deceptive Design, there is also the term Deceptive Design.
On the next page, they are asked to report on their experiences with manipulation and how confident they are in recognizing manipulative elements. Although manipulative patterns are unavoidable in the digital environment [Mathur et al., 2019], it is important to know how participants consume. Therefore, they were asked how often they shop online and how often they use social media.

Introduce participants to Deceptive Designs and then assess their ability to recognize such elements by analyzing Mockups with manipulative elements

In the second part of the survey, Deceptive Designs are explained to the participant.This was done in both English and German.
The participants were then asked a second time for their self-assessment of how confident they felt in identifying Deceptive Designs. Then, 10 self-made Mockups (see Section 3.3 for more details) with 0-3 manipulative elements were randomly shown. Participants were asked to mark discovered Deceptive Designs graphically and and state the reason why the element they marked is a Deceptive Design. Finally, a third self-report measure was administered.

The final section of the survey focuses on participants' ratings of specific Deceptive Designs in five categories

In addition to recognizing deceptive motifs in reality and marking them on static pages, raising awareness of


Deceptive Designs

Um ein besseres Verständnis davon zu erlangen, wie vertraut du mit dem Konzept Deceptive Designs bist, beginnen wir mit einigen grundlegenden Fragen.

Wichtige Informationen:

Deceptive Designs und Dark Patterns bezeichnen die gleiche Praxis in der Nutzeroberflächengestaltung. In dieser Umfrage wird jedoch konsequent der Begriff 'Deceptive Design' verwendet

Es ist vollkommen in Ordnung, falls du bisher noch nichts von diesem Begriff gehört hast – deine Meinung und Erfahrung sind dennoch sehr wertvoll für diese Studie.

10. Hast du vor der Umfrage schonmal vom Begriff Deceptive Design im Zusammenhang mit digitalen Benutzeroberflächen gehört?

- Ja
- Nein

11. Was stellst du dir unter dem Begriff Deceptive Design vor?

Beantworte die Frage kurz

12. Wie umfangreich schätzt du dein eigenes Wissen über Deceptive Designs ein?

Sehr geringes Wissen | Geringes Wissen | Mittleres Wissen | Gutes Wissen | Sehr gutes Wissen

13. Woher kennst du den Begriff ‚Deceptive Design'?

Nenne Quellen (z.B. Webseiten, Artikel oder Studien), durch die du auf diesen Begriff gestoßen bist.
Falls du den Begriff nicht kennst oder keine Quellen nennen kannst, überspringe diese Frage.

Weiter

Figure 3.1: The illustration shows the first page of the questionnaire, which immediately follows the section with the demographic questions. In this part of the survey, the focus is on gathering information on the participants basic knowledge of Deceptive Designs.

such patterns is crucial.
Therefore, in the final part of the study, five Deceptive Designs were selected from the work of M. Bhoot et al. [2021] These were then rated by the participants according to the five categories seeing in Table 3.1. This is visualized in the Figure 3.2.

The complete questionnaire can be found in the appendix as Appendix A.

Five Categories	
Frequency:	I often encounter this Deceptive Design
Susceptibility:	This Deceptive Design often deceives users
Frustration level:	This Deceptive Design is very frustrating
Manipulability:	This Deceptive Design is very easy to manipulate
Appearance:	The design of this Deceptive Design is appealing

Table 3.1: The table shows the five categories from M. Bhoot et al. [2021]. These categories, along with a screenshot showing a specific Deceptive Design, were used in a section of the survey for participants to rate.

3.3 Creation of Mockups

Inspired by Bongard-Blanchy et al. [2021]'s approach, Mockups are created.

This section represents a central step of this thesis. Inspired by Bongard-Blanchy et al. [2021]s design approach, the goal was to translate the theoretical findings on manipulative design practices within social media and online shopping platforms into vivid and realistic Mockups.

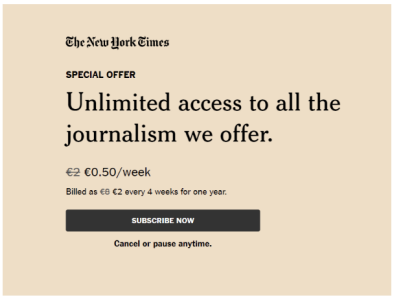
Develops Mockups to study the effects of Deceptive Designs, using selected patterns for clarity without real-world bias. Focuses on demonstrating manipulative strategies in online shopping and social media

In order to ensure an objective analysis and to avoid distortions caused by the use of real existing websites, Mockup websites with imaginary contents were developed. This approach allows precise control and manipulation of the specific characteristics of Deceptive Designs. By creating Mockup websites it was possible to ensure that the study accurately reflects the diversity and complexity of manipulative design practices without being influenced by the structures and content of real websites.
To this end, four Deceptive Designs were pre-selected in each domain, and each was then presented twice. The selection was made from the work of Mathur et al. [2019] for the online shopping domain and from the work of [Mildner et al., 2023b] for the social media domain:

The patterns shown in Table 3.2 were deliberately chosen. For shopping, we chose a mix of the most and least com-

45. Roach Motel ist ein betrügerisches Muster, bei dem es einfach ist, sich für einen Dienst oder ein Abonnement anzumelden, aber sehr schwierig, es zu kündigen. In der Regel wird die Kündigungsoption versteckt, die Nutzer müssen den Kundendienst anrufen, um zu kündigen, und der Kündigungsprozess ist übermäßig komplex und zeitaufwändig. Dies kann dazu führen, dass die Nutzer den Versuch, den Dienst zu kündigen, aufgeben und für einen längeren Zeitraum weiter für den Dienst bezahlen.

Die New York Times gestaltet die Anmeldung für ein Abonnement einfach, doch die Kündigung ist schwierig, oft erfordert sie einen Anruf beim Kundenservice und lange Wartezeiten, im Gegensatz zur schnellen Erstellung eines neuen Abonnements.



Quelle: [Roach motel (Brignull, 2010)]

	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Häufigkeit: Ich begegne diesem Deceptive Design.	○	○	○	○	○
Anfälligkeit: Dieses Deceptive Design täuscht Nutzer.	○	○	○	○	○
Frustrationsgrad: Dieses Deceptive Design ist frustrierend.	○	○	○	○	○
Manipulationsgrad: Dieses Deceptive Design ist manipulativ.	○	○	○	○	○
Erscheinungsbild: Das Design dieses Deceptive Designs ist ansprechend.	○	○	○	○	○

46. Fallen dir Situationen ein, wo du diesem Deceptive Design begegnet bist?

Figure 3.2: The figure shows the third section of the survey, illustrated using the example of the *Roach Motel* Deceptive Design, including the associated questions.

mon patterns. For social media, we chose the patterns that were best visualized on static screenshots.
The following two examples illustrate the visualization in each area. The other Mockups can be found in the appendix Appendix D.

Figure 3.3 shows an online shopping site that contains a newsletter at the bottom of the bar, which is referred to as ”confirmation shaming”. The aim is to create an emotional connection between the user and the website.

Online Shopping	Social Media
Scarcity This pattern leverages scarcity cues, suggesting a product is in short supply or in high demand to prompt quicker purchasing decisions.	**Interactive Hook** This pattern uses rewards to keep users engaged and extend their time on a platform.
Urgency This pattern pushes users to act quickly on sales, exploiting a fear of missing out with countdowns and "limited time" alerts.	**Social Brokering** This pattern encourages users to expand their network by suggesting new connections, leading to increased data sharing.
Social Proof The pattern leverages the bandwagon effect, using others' actions to sway users' decisions with user activity messages and questionable testimonials.	**Decision Uncertainty** This pattern creates confusion, obscuring user understanding of expectations or available options.
Confirmshaming This pattern employs shame-based language to nudge users away from making certain choices, exploiting emotions to drive decision-making.	**Redirective Condition** This pattern imposes barriers, steering users towards platform-favored actions through restrictive choices.

Table 3.2: The table shows the pattern used for the Mockups. Inspired by Mathur et al. [2019] and Mildner et al. [2023b].

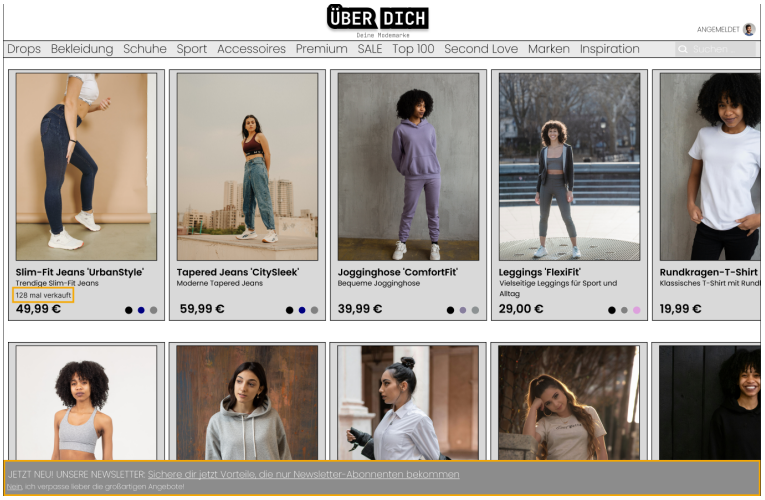


Figure 3.3: A Mockup from the online shopping domain that includes both confirmation shaming, which tries to manipulate the user with missingout the benefits (bottom), and social proof, which urges the user with the text *128 times sold* (top). Both are highlighted in color.

The second integrated design is social proof. The first pair of jeans in the top left corner again indicates that it is very popular. However, there is no proof of this.

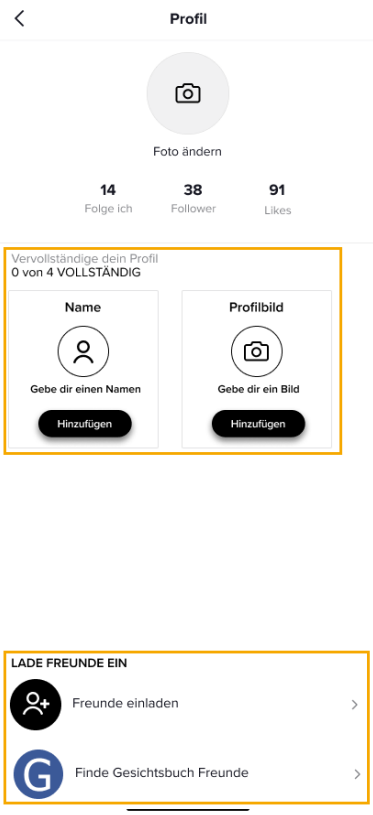


Figure 3.4: A social media mockup that includes both interactive hooks, which tries (top) and social brokering (bottom). Both have been highlighted in color.

Here in Figure 3.4, the example is from the area of social media. Two manipulative designs have been integrated here. In the center is an interactive hook that uses the reward system to entertain users and get them to spend more time on the platform.
The second design here is a social mediation that encourages the user to make multiple connections with different people by suggesting new people to network with. This results in the user sharing more information than they actually want to.

3.4 Counterbalancing

Adjustments for survey accuracy

In order to make the survey as successful and smooth as possible, some adjustments were made.
To this end, it was decided at the beginning of the survey that the Mockups would be presented in random order. These measures ensured that the order in which the information was presented did not bias the results and that the data collected reflected participants' actual attitudes and experiences with misleading designs.
To further ensure the integrity of the data, a restriction was implemented in the survey function that did not allow participants to return to previous pages. This measure was taken to prevent participants from changing their answers after receiving additional information in later sections of the survey.
To check the comprehensibility of the questions, a pretest was conducted with one person. The results of the pretest were then incorporated into the final design of the questionaire.

3.5 Setup

The survey was created in SoSciSurvey and uploaded to SoSciSurvey. Participants were given two weeks to complete the survey.
In addition to snowball sampling, participants were recruited through a QR code posted around the university and through social media platforms.
After the participants completed the survey, the data were collected in SoSciSurvey.

Chapter 4

Results

This section of the bachelor thesis describes the collected data in detail. First, the methodological approach to data collection is explained. This is followed by a detailed presentation of the results that are relevant to answering the research questions of the thesis.

4.1 Data Analysis

Since both qualitative and quantitative data were available, both methods were used in the analysis, whereby the study was divided into three parts in order to analyze each section separately and then arrive at an overall conclusion. In addition to MAXQDA24 , Excel, Python and R were also used for the detailed analysis of the data.

Established participation criteria ensure data quality

To ensure the quality and relevance of the data sets, specific criteria were defined for valid participation in the survey.

The criteria for a valid case were that participants completed the questionnaire at least up to page 24 and that they completed at least 75% of the questionnaire.

As a mixture of qualitative and quantitative data was available, both qualitative and quantitative approaches were used in the analysis.

For this purpose, the survey was divided into three parts and each part was evaluated separately. Finally, an overall conclusion was drawn.

The majority of the data was analyzed qualitatively, whereby mainly a thematic analysis according to Braun and Clarke [2006] and occasionally a content analysis according to Mayring [2014] were carried out.

Primarily used thematic analysis from Braun and Clarke [2006] and occasionally content analysis from Mayring [2014] to evaluate qualitative data

While content analysis aims to quantify the data by counting the occurrences of individual codes and processing them using methods suitable for quantitative research, thematic analysis aims to gain a deeper understanding of the phenomena under investigation by identifying patterns or themes in the data.
The coding process was based on the procedure recommended by Braun et al. [2019] which includes the following steps

1. Familiarization
2. Generating codes
3. Constructing
4. Revising themes
5. Defining themes
6. Producing the report

In practice, most of these steps involved several iterations to check, adjust and link the correctness of the codes and the grouping into topics.

4.1.1 Part 1 of the Survey: What do the Participants know about Deceptive Desgins

Open responses were analyzed using inductive coding; standardized responses were quantitatively coded

The first part of the study consisted of free text responses and standardized response formats. The open-ended responses were analyzed using an inductive coding method. This involved approaching the data without predetermined codes in order to develop categories and

codes directly from the content of the responses. Likert scale and yes/no question responses, on the other hand, were coded using a standardized coding procedure. The responses were directly assigned and quantitatively analyzed.

4.1.2 Part 2 of the Survey: Spot the Deceptive Design

Mockup data analysis used an inductive approach, preparing data in Excel for visualization with Python and analyzing responses with MAXQDA24

The second part of the survey focused on the Mockups. An inductive research approach was chosen for the analysis. First, the collected data was prepared for a clear presentation in an Excel spreadsheet. The results for each Mockup were then visualized using a Python script (see Appendix B) to plot the marked points directly on the Mockups. The analysis and coding of the reasons for the scores of the Mockups was done using MAXQDA24. As a starting point for the coding, the corresponding Deceptive Designs were used as a code. As the analysis progressed, additional codes were generated inductively to capture the depth and breadth of the participants' responses.

4.1.3 Part 3 of the Survey: Ranking of Known Deceptive Designs

Analyzed Likert scale data and free text responses using both inductive and standardized coding

The third part of the survey mainly used Likert scales. As in the previous parts, this data was subjected to targeted analysis. The ratings on the Likert scales and the free text responses were analyzed using a coding procedure that integrates elements of both inductive and standardized coding. The quantitative ratings were directly assigned to the predefined categories, while the qualitative justifications required an inductive approach in order to capture the deep structure of the participants' responses and to categorize them accordingly.

4.2 Participants

A total of 40 people took part in the main study (N = 40, mean = 21.1, SD = 1.5), 27 of whom were men and 13 women (see Figure 4.1). The age range was between

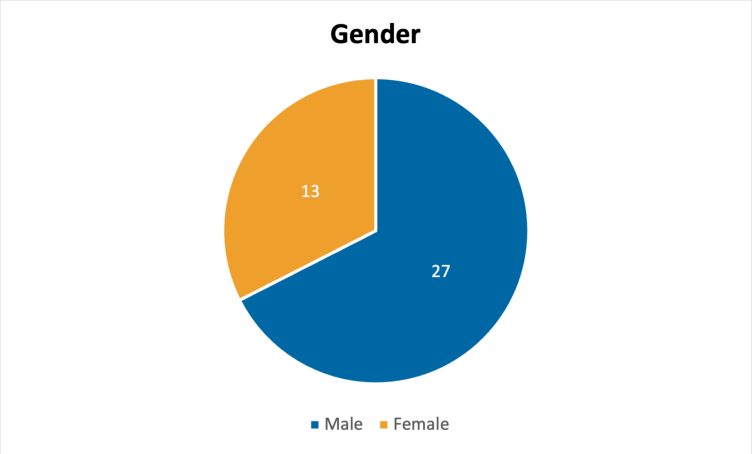


Figure 4.1: The figure shows the gender distribution of the survey participants.

40 participants are predominantly male, with an average age of 21 and a strong preference for WhatsApp, Instagram and TikTok, indicating a tech-savvy, digitally engaged demographic

18 and 23 years, resulting in an average age of 21 years. The majority of participants (32x) had a general higher education entrance qualification (German Abitur). In addition, 5 people had a bachelor's degree, one person had a socalled Fachabitur and 1 person had a Upper secondary school (in german: Gymnasiale Oberstufe).
Students were the most frequently represented occupation (35x), followed by 3 employees and 2 School students. Most participants had an affinity for technology (25x), while the rest stated that they were not tech-savvy. All participants stated that they regularly use digital interfaces. WhatsApp was used almost unanimously (39x), Facebook by only one participant, while Instagram was used by more than half (31x) and TikTok by half (20x). Other platforms such as X (then Twitter), Reddit, LinkedIn and Snapchat were mentioned by other participants.

All participants came into contact with digital user interfaces at an early age. This happened between the ages of 6 and 16 (M = 11.78, SD = 1.97), as shown in the Figure 4.2.

Most participants stated that their first device was a smartphone, followed by a laptop/computer, while one person each named an eReader, a tablet, a console or a Nintendo as their first device.

Participants' first digital device interaction ranged from ages 6 to 16

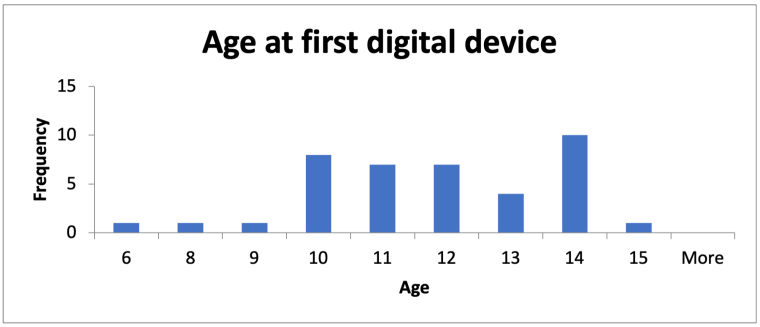


Figure 4.2: The diagram shows the age at which participants received their first device with a digital user interface and illustrates the time of first contact with digital technology

The average time taken to complete the survey was around 3 hours.

4.3 User Perception and Behavioral Adaptation

In order to obtain an overview, a survey on Deceptive Designs was conducted, as mentioned above. Only 6 participants stated that they were already familiar with the term before the survey. In addition, the participants were asked to state what they understood by the term Deceptive Design. To answer this question, participants were asked to provide a free text response.
In a deductive approach, the participants' responses were categorized according to patterns defined by the authors on the basis of known taxonomies, see Table 4.1. In addition to the classification of answers that did not reveal a concrete concept, there were also answers that were not comprehensible in terms of content.

Only 6 knew "Deceptive Designs" before, showing limited prior awareness

However, the term Deceptive Design evoked different

Participants' understanding of Deceptive Designs was categorized deductively based on existing taxonomies

Paper	Deceptive Design	Quantity
Brignull	Hidden Costs	2
	Friend Spam	2
	Disguised Ads	3
	Confirmshaming	3
	Bait & Switch	5
Mathur et al. [2019]	Scarcity	2
	Urgency	2
	Misdirection	2
	Hard to Cancel	2
	Obstruction	4
	Visual Interference	7
Gray et al. [2021]	Nagging	2
	Toying with Emotions	1
	Forced Action	2
	Gamification	2
	Interface Interference	1
	Hidden Information	1

Table 4.1: This table illustrates the types of manipulative elements that participants are familiar with.The deceptive elements come from a variety of works, such as Brignulls website (`https://www.deceptive.design`), Mathur et al. [2019], and Gray et al. [2021]. The most commonly recognized design element is "Visual Interference," followed by "Bait & Switch."

ideas among the participants. After an introduction to the standard terminology and an explanation of the correct definition of Deceptive Design, which explicitly includes manipulative elements that can mislead the user, the open responses were coded.
The resulting codes represent a broad spectrum of understanding and misunderstanding of the term Deceptive Design. Key categories include 'correct definition', which emphasizes the manipulative intent behind the design, but also 'ignorance' and 'misunderstandings', which show that the term is not familiar to all participants. Of interest were the sub-categories relating to specific aspects of Deceptive Design, such as 'Advertising', 'Deceptive sites', 'Deceptive behavior' and 'Misleading design'. These reflect the

participants' perception that Deceptive Design occurs on different platforms and in different forms. This can be seen in the Table 4.2.

The code 'Language barriers' as a separate category shows that not all participants were familiar with the terminology, which could indicate a lack of English language skills. The categories 'Behavioral Design' and 'Design on Platforms' indicate a reflective approach to the topic, focusing on user behavior and the impact of design decisions at platform level. Finally, the category 'Intuitive Design' shows that some participants confuse Deceptive Design with intuitive user guidance, which underlines the complexity of the topic and the need for a differentiated approach.

Participants' interpretations of Deceptive Designs varied widely, showing gaps in understanding ranging from accurate definitions to misconceptions and ignorance

What do you associate with the term	**Frequency**
Correct Definition	7
Ignorance	6
Misunderstanding	0
Advertising	3
Completely Wrong Definition	3
Language Barrier	1
Sensory Stimulating Design	1
Design	1
Deceptive Pages	4
Deceptive Behavior	1
Behavior Design	1
Design on Platforms	3
Misleading Design	8
Intuitive Design	1

Table 4.2: This table shows a structured breakdown of responses to the question of what respondents think a particular term means. Categories such as "Correct Definition," "Ignorance," and "Misunderstanding" provide insight into the respondents' level of understanding, while "Design" is broken down into specific topics such as "Deceptive Sites" and "Misleading Design. Each category is scored numerically to show the frequency of associations

Most respondents frequently encounter misleading designs, indicating common exposure

When asked about encounters with misleading design elements, 22 participants reported frequent encounters, 16 reported infrequent encounters, and 2 reported very frequent encounters. This indicates that the majority of respondents encounter misleading designs on a regular basis.

Participants often adjust their behavior due to misleading design, from increased caution to service avoidance, indicating a significant impact on digital interactions.

When asked if misleading designs changed participants' behavior, many responded that they did. They reported behavioral adjustments such as refusing cookies or being more vigilant to avoid manipulation. Some said they would stop using a service or leave websites if they recognized such designs, reflecting a distrust and critical attitude toward the platforms in question. Decision fatigue and a general discomfort in the digital space were also mentioned.
A smaller group of respondents said they were not influenced by misleading designs, suggesting a degree of caution or the ability to recognize and ignore such designs.

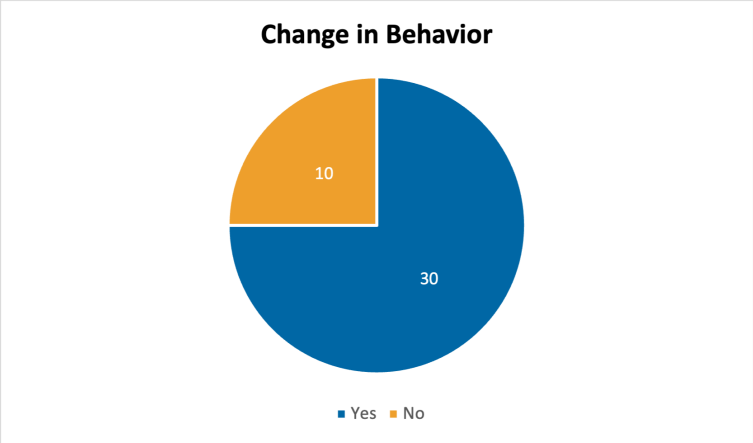


Figure 4.3: This figure shows the ratio of people who reported a change in behavior (yes) to those who reported no change in behavior (no).

The results show that Deceptive Designs have a significant impact on user behavior and that many users change their behavior to avoid the manipulation. These changes range from conscious decisions such as rejecting cookies to avoiding certain pages altogether. Reactions range from cautious suspicion to outright frustration, signaling users'

willingness to critically examine their online interactions.

4.4 Mockups unveiled: Are Deceptive Design Detectable

Deceptive Design recognition in Mockups analyzed with visualizations and coding, excluding incomplete responses

This section deals with the results of the participants' marking and justifying the Deceptive Designs with the static Mockups. These were visualized with a Python script and the responses coded with MAXQDA.
Each Mockup was evaluated separately. Sub codes were also created for each individual Mockup during coding. In addition to the codes already defined with the respective Deceptive Designs, further codes were generated inductively.
Participants who did not provide a reason, skipped Mockups, or provided insufficient responses were excluded from the analysis. This left 35 participants for analysis.

First Mockup analysis: 18 participants recognized both Scarcity and Urgency

In the first Mockup, a total of 18 participants recognized both manipulative designs (Scarcity & Urgency), while 17 participants gave a correct reason. At the same time, 10 participants did not recognize both designs, but only one. In addition, 6 participants stated that they found no manipulative elements. The scarcity pattern was correctly identified 29 times. A red sale mark was highlighted by participants as a manipulative design that we did not specify. All participants' marks are shown in Figure 4.4.

Second Mockup: 10 identified both Confirmshaming and Social Proof

In the second Mockup, a total of 10 participants recognized the two manipulative design elements (Confirmshaming & Social Proof). Again, 9 participants identified the correct motif. 14 participants did not recognize all but one correct design, and again 10 participants did not recognize a correct manipulative design. Confirmshaming is the most common pattern, with 22 recognitions, although many participants also chose manipulation by image, text, or title.

Third Mockup: Scarcity pattern recognized by 13

In the third Mockup, there was only one manipulative pat-

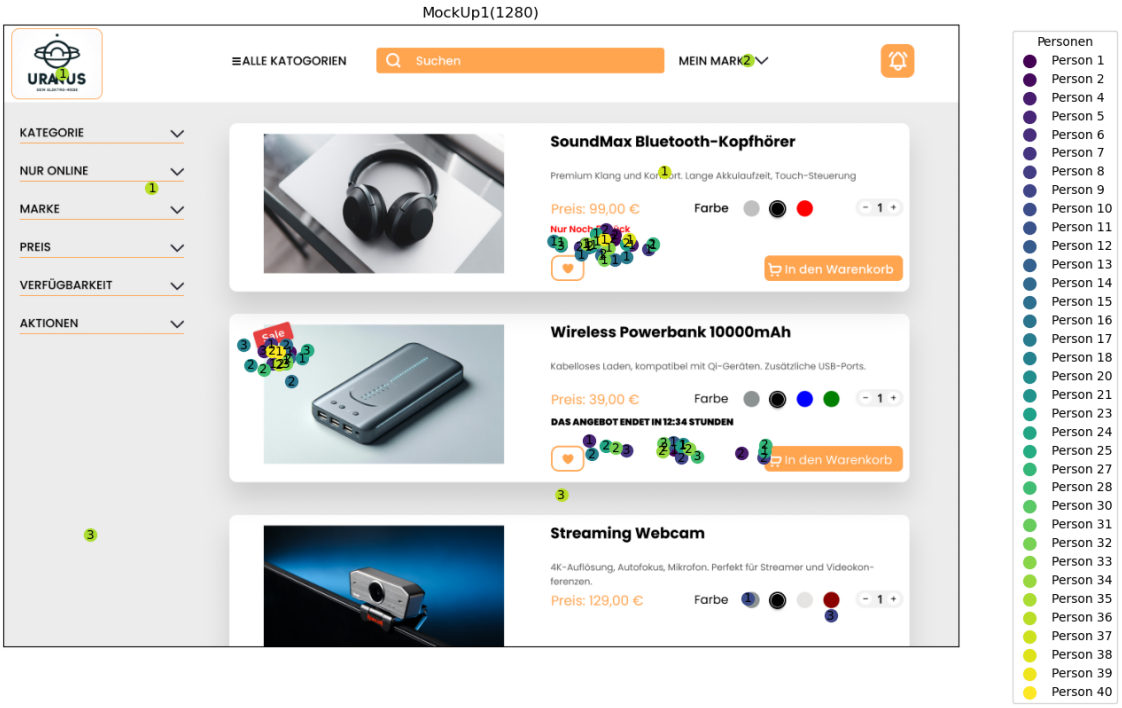


Figure 4.4: The figure depicts the manipulative patterns identified by participants in the first Mockup, including the frequency with which 'Scarcity' and 'Urgency' were recognized. A sales symbol that participants did not expect to see as manipulative is also highlighted, illustrating the nuances of dealing with dark patterns

tern (Scarctiy), which was recognized by 13 participants, all of whom gave a correct reason. 18 participants did not recognize the Deceptive Design. Again, manipulation with images and text was the most frequently selected pattern, which was not previously defined.

Fourth Mockup: Only 6 participants correctly identified

The fourth Mockup contained a total of three deceptive patterns (Urgency, Social Proof, Confirmshaming). Only 6 participants correctly identified these, 4 of whom gave a correct explanation. 24 participants recognized one or two of the given manipulative elements, while 4 participants recognized none. Social proof was recognized most often, while many participants also marked the correct box, but were confused by the colored representation and classified it as manipulative.

Fifth Mockup: Only 10 found both

Beginning with the fifth Mockup the domain changes to Deceptive Designs on social media platforms.
The fifth Mockup also contained two manipulative elements (interactive hook, social brokering). From here on, the domain also changes.
10 participants found both, while 9 gave a correct reason. 15 participants marked one of the two correctly and 12 gave a correct reason for these marks. 10 participants found neither. While many participants recognized the interactive hook (23), social brokering was ahead with 12.

Sixth Mockup: 6 marked both correct elements

In the sixth Mockup, only 6 participants marked the two correct elements (redirection condition, social brokering) and 5 gave a correct reason. 19 others marked one correct item, but only 8 gave a correct reason. 10 did not make a correct mark. The redirecting condition was recognized most often (28), while social brokering was recognized 12 times.

Seventh Mockup: Only 2 recognized and justified both

The seventh model involved two manipulative elements (Decision Uncertainty, Redirective Condition). The difficulty here was that the manipulative elements were merged. Accordingly, only 2 participants recognized and logically justified both. 17 participants recognized one of them. Decision Uncertainty was recognized most often, followed by Redirective Condition. 15 participants recognized neither.

Eighth Mockup: 22 recognized the Deceptive Pattern

Only one element (Decision Uncertainty) was included in the eighth Mockup. A total of 22 participants recognized it and 19 gave the correct reason. At the same time, 10 participants did not find any pattern.

Ninth Mockup: Recognized and justified correctly by 4 participants

The ninth Mockup included two additional manipulative elements (Interactive Hook, Redirective Condition). Both were recognized and correctly justified by 4 participants. 12 participants did not find any. The Redirective Condition was recognized most often (23).

No Deceptive Design was used, 23 participants recognized this correctly

The last Mockup contained no manipulative element. This was correctly identified by 23 participants. The participants who found something said that the manipulation

was via the text or the icons.

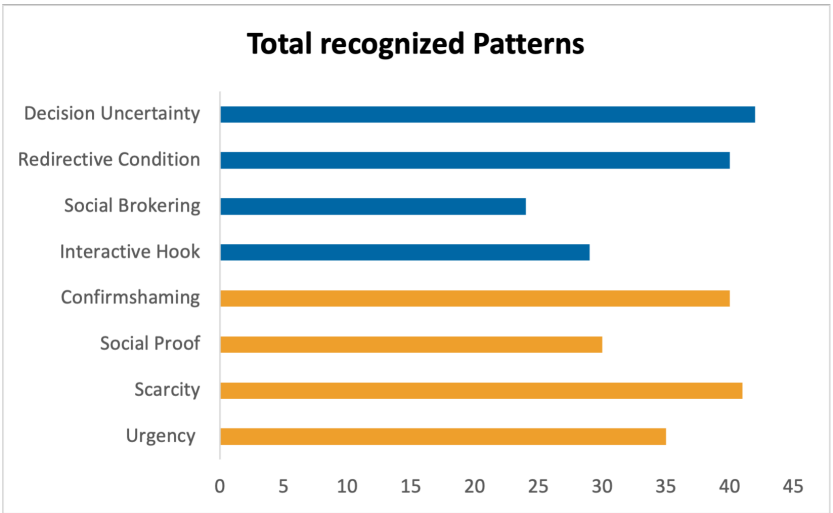


Figure 4.5: The figure shows the number of correctly identified misleading elements, broken down into the domains of social media (blue) and online shopping (orange). 'Decision Uncertainty' was recognized most frequently, while 'Social Brokering' had the lowest recognition rate.

The Figure 4.5 shows the number of correctly identified misleading elements. It is clear that Decision Uncertainty was detected most often, while Social Brokering was detected least often.

4.5 Self-Assessment Evolution in Identifying Deceptive Designs

A significant number of participants initially felt uncertain about their ability to detect Deceptive Designs

Analysis of participants' self-assessments of their ability to identify Deceptive Designs revealed significant changes over the course of the study. At the beginning of the study, when participants were not fully informed about Deceptive Designs, the picture was mixed. 2 participants felt very unsure and 3 felt somewhat unsure of their ability to detect Deceptive Designs, while 14 were undecided (neither). 17 participants were fairly confident and 4 were very confident in their ability to recognize such patterns.

After the definition of a Deceptive Design was presented to the participants, the perception changed significantly. Only 1 participant reported feeling very uncertain and 3 felt somewhat uncertain. The number of undecided participants decreased to 8, while the number of those who felt somewhat confident increased to 24, and the number of those who felt very confident remained at 4. This suggests that the information provided significantly increased confidence in their own judgment.

After the definition of Deceptive Design was presented, the perception changed significantly

Interestingly, the task in which participants were asked to identify misleading designs in the Mockups reduced the participants confidence to detect Dceptive Designs. After this practical exercise, 1 participant felt very insecure and the number of those who felt somewhat insecure increased to 11. At the same time, the number of those who felt neither confident nor insecure decreased to 10 and the number of those who felt fairly confident increased to 17, while only 1 participant still rated himself as very confident.

This indicates that the direct confrontation with Deceptive Designs caused the participants to make a more critical self-assessment of their recognition abilities. The Figure 4.6 shows the change in participants' self-perception of their ability to detect deception over the course of the study. It shows how the feeling of confidence changes after the presentation of the definition of deceptive maneuvers and after the practical exercise with mock-ups.
The visualization clearly shows that the number of participants who felt "somewhat confident" or "very confident" increased after the presentation of the definition of deceptive maneuvers, indicating increased confidence in their own ability to detect deceptive maneuvers. After direct confrontation with Deceptive Designs in the screenshots, a more nuanced assessment was observed, with an increase in the number of participants who felt "not very sure". This may be an indication of the perceived complexity of recognizing such designs in practical applications.

Direct confrontation with Deceptive Designs led the participants to assess their ability to recognize more critically

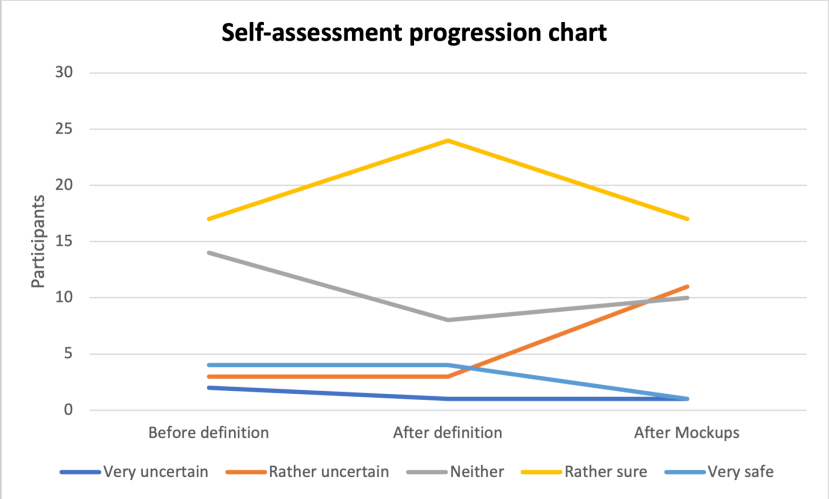


Figure 4.6: The graph shows the progress of the participants' self-assessment of their confidence in recognizing Deceptive Designs, divided into *very unsure* (dark blue), *somewhat unsure* (orange), *neither* (gray), *rather sure* (yellow), and *very sure* (light blue).
There is a clear change in confidence before and after the definition of Deceptive Designs, as well as after viewing the Mockups.

4.6 Consumer Behavior and Detection of Deception

The results show different digital behavior patterns, with social media use being more common than online shopping

As part of the quantitative survey on consumer behavior in the areas of online shopping and social media use, respondents were asked about the frequency of their activities in these two areas. The results were follows:
In the area of online shopping, 10 participants shop less than once a month, 15 shop about once, and 13 shop two to three times. Interestingly, no one shops weekly, while two people do so several times a week. The use of social media varies widely: apart from one person who is active less than once a month, two people use social media weekly and 37 several times a week, underlining the high level of activity on these platforms. This is all illustrated in Figure 4.7.

This data suggests that participants have a significantly higher activity rate on social media than online shopping.

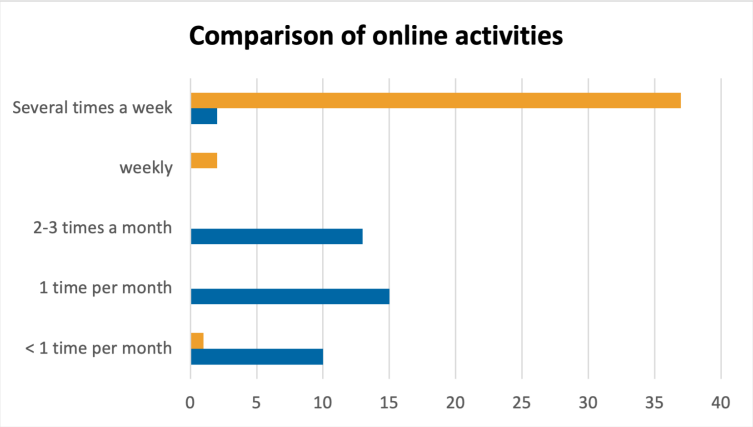


Figure 4.7: The bar chart shows the online shopping habits (blue) and social media use (orange) of the participants. It is clear that online shopping is less frequent and without weekly activity, while social media is used by the majority several times a week, indicating different digital behavior patterns.

In contrast, online shopping appears to be a less routine activity, suggesting different usage behavior in the two areas studied.

In this paper, the relationship between the frequency of use of online services and the ability to recognize misleading designs was investigated.

The results show a very weak negative correlation between the frequency of online shopping and social media use and the ability to detect Deceptive Designs

Given their increasing prevalence in the digital space, it is important to identify factors that influence the recognition of these misleading elements. Following the Bongard-Blanchey approach, a specific scoring system was developed to accurately assess participants' ability to recognize Deceptive Designs. Participants received one point for each correct identification of a Deceptive Design. If they also correctly stated the reason, they were awarded a further point. However, the correlation analysis revealed only a very weak negative correlation between the frequency of online shopping and recognition performance with a coefficient of -0.23, indicating that the ability to recognize Deceptive Designs is hardly influenced by the frequency of online shopping.

A similar analysis for the frequency of social media use resulted in a correlation coefficient of -0.08, which also indicates a very weak negative correlation.

4.7 Security and Detection of Deceptive Designs

The participants' self-confidence and actual performance correlate slightly negatively. Higher self-confidence does not necessarily lead to better performance

Another aspect examined in the study was the participants' confidence in their ability to detect deceptive maneuvers after being familiarized with their definition. This self-confidence was correlated with the actual score obtained on the exam in order to analyze possible correlations between the participants' self-perception and their actual performance.
The analysis showed a correlation of -0.46, indicating a moderate negative correlation. This means that participants who felt more confident in their recognition ability after being introduced to the definition of Deceptive Designs did not necessarily score higher on the actual recognition of these patterns. On the contrary, it appears that higher confidence correlates with poorer performance in some cases.
This result raises interesting questions about the discrepancy between self-perception and actual ability. It could suggest that overconfidence in one's own recognition abilities leads to an underestimation of the complexity and subtlety of Deceptive Designs, which in turn could affect actual recognition performance.

4.8 Ranking of Known Deceptive Designs

The analysis of this Deceptive Design shows mixed perceptions. It is perceived as manipulative and frustrating, but also accepted

The following section presents the results of a ranking analysis of known Deceptive Designs based on the reactions and ratings of end users.
The investigation of the "Roach Motel" Deceptive Design provides information about the perception and reactions of Generation Z. The frequency of encountering this design is perceived to be mixed, with a median of 3 indicating a moderate encounter. However, susceptibility to deception from this design and perceived levels of frustration and manipulation are rated as high, with median scores of 5. These results highlight the strong influence of the Roach Motel design on user experience, particularly in relation to manipulation and frustration. Interestingly, the appear-

ance of the design is rated ambivalently with a median of 3, indicating a certain acceptance of the design despite its negative aspects.
The examples of use range from telecommunication services to gym contracts, which illustrates the prevalence and diversity of the use of Deceptive Design and also establishes a link outside the Internet world. The result is illustrated in Figure 4.8.

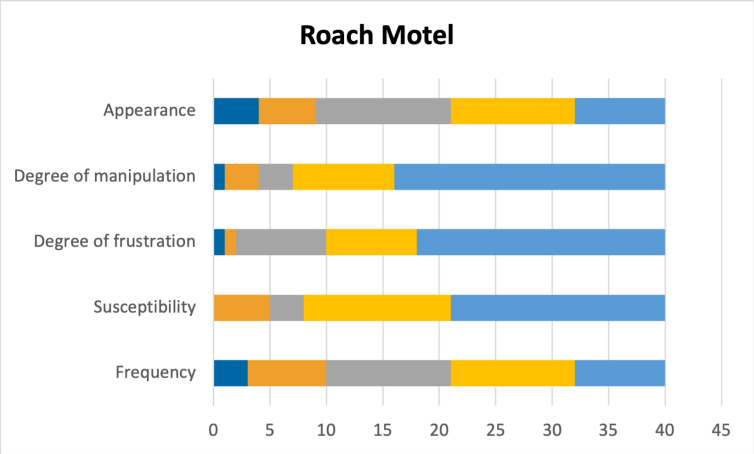


Figure 4.8: The graph shows the results of a survey of participants in the Roach-Motel model. It is clear that the majority found the model manipulative and frustrating. The option ”Strongly Disagree” (dark blue) was consistently the least popular, while ”Somewhat Disagree” (orange) was chosen slightly more often. A few participants chose ”neutral” (gray), a few more chose ”somewhat agree” (yellow). However, the majority chose ”Strongly Agree” (light blue).

The reactions to the Deceptive Design ”Forced Continuity” reflect a clear perception of the users: The majority encounter this design frequently (median: 4) and perceive it as highly misleading (median: 5). Frustration and perceived manipulation by ”Forced Continuity” are also rated as high (median 5 in each case), which indicates an intensely negative user experience. The external appearance of the design is rated as mixed (median: 3), which could indicate that the design itself is not directly perceived as negative. User reports indicate that this Deceptive Design is particularly prevalent for online subscriptions and trial

The reactions to ”Forced Continuity” show a clear tendency: the majority frequently experience this design and find it extremely misleading and manipulative

subscriptions to services such as Norton, PhotoMath and various streaming providers.

"Bait & switch" occurs with varying frequency in the user experience, but is perceived as extremely misleading and manipulative

The Deceptive Design "Bait & Switch" occurs with varying frequency in the user experience (median: 3), but the deception and the resulting frustration are clearly perceived as high (both with a median of 5). The degree of manipulation is also rated as very high (median: 5), which illustrates the critical effect of this design on user behavior. The external appearance of the design meets generates mixed opinions (median: 3). Users report experiences with misleading advertising in apps, which often lead unwanted redirects instead of closing the ad, or prompts to accept cookies, which appear more manipulative than informative.

"Trick questions" are regularly experienced by users and perceived as quite misleading

The misleading design "trick questions" is regularly experienced by users (median: 4) and rated as rather misleading (median: 4). The degree of frustration and manipulation caused by such design elements is also rated as high (median: 4). This indicates a deliberate use of misleading questions to entice users to make decisions that they would not make under other circumstances. Such design elements seem to occur particularly frequently when shopping online, installing programs and registering on new websites. Users report that this type of query is often subtle and sometimes not immediately recognized as misleading.

For the ""hidden costs", the survey revealed an average frequency of encounters, indicating that users regularly experience this design

For the Deceptive Design "hidden costs", the survey revealed an average frequency of encounters (median: 3), which indicates that users regularly encounter this design. However, the susceptibility to deception, the degree of frustration and the degree of manipulation are rated as high (all with a median of 5), which underlines a strongly negative perception of this design. The external appearance is perceived as less attractive (median: 2). Hidden costs are mentioned by users especially when shopping online, booking hotels, airline tickets and other online services such as delivery services, which leads to frustration as the additional costs are often only revealed very late in the purchase process.

All rankings can be found in the Appendix E.

In the final ranking of the five designs, Bait & Switch took first place, followed by Forced Coninuity. Hidden Cost came in third, while Roach Motel came in second to last. penultimate place. Trick Question came in last place. Most participants based their decision on the fact that the above designs actively work against the end user, while the other Deceptive Designs are merely manipulative. Figure 4.9 once again shows which designs were ranked where, with 1 representing first place and 5 representing last place.

The designs were ranked largely based on the fact that the first designs were considered most harmful to the end user, while the other designs were more manipulative.

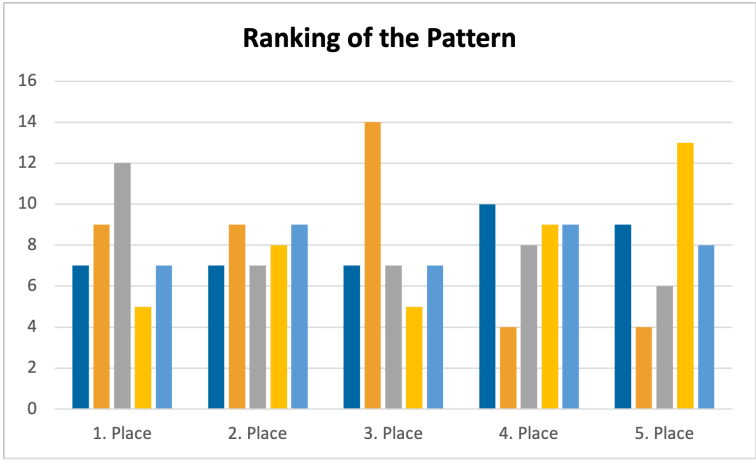


Figure 4.9: The bar chart shows the ranking of fraudulent design patterns based on the participants' ratings. Bait Switch' (gray) tops the list, followed by 'Forced Continuity' (orange) and 'Hidden Costs' (light blue). Roach Motel' (dark blue) ranks fourth, while 'Trick Questions' (yellow) brings up the rear. First place is the most manipulative element, while fifth place is the least manipulative element.

Chapter 5

Discussion

The goal of this study was to get an overview of Generation Z, which has grown up with digital user interfaces [Klaffke, 2021].
In particular, we wanted to find out if the participants had already been exposed to the topic of manipulative design on the Internet and if they were able to recognize it in static Mockups. Furthermore, an assessment of awareness was carried out based on the five factors identified by [M. Bhoot et al., 2021].

Study investigates whether Generation Z recognizes manipulative design

In the following part of the paper, the collected results are discussed from different perspectives and compared with existing findings from previous work.

5.1 Are the People aware of Decepitve Designs?

First, an attempt was made to get an overview of Deceptive Designs in Generation Z. It became clear that few people were familiar with the term Deceptive Designs. Only a handful of people were familiar with the term. This finding is consistent with previous studies that indicate a general lack of knowledge of specific terms related to manipulative online practices M. Bhoot et al. [2021]. Even in the intro-

Study reveals Generation Z's low familiarity with the term "Deceptive Designs

ductory phase, few participants gave the correct definition. Most participants guessed that it had something to do with design, but this was more likely due to the phrase Deceptive Design.

Respondents recalled Deceptive Designs particularly in the context of shopping, but less so in other areas

However, giving examples or even exemplary Deceptive Designs indicates that participants have been exposed to it and can remember it.
This is also reflected in the other works, in which the unconscious contact has already taken place several times. This is confirmed in the survey with the question about the frequency of use of digital user interfaces. Since all respondents answered several times a day, the probability of an indirect contact increases. This is also evidenced by the mention of memories of Deceptive Designs from the work of Mathur et al. [2019], Gray et al. [2023]. In comparison to the work of Pörtner and Weber [2023], it is also clear that there are hardly any deviations from Generation Y. The term was also unknown to them. It is also striking that most participants only thought of deceptive elements when shopping.
It is noticeable that no one recognized further manipulative elements in other areas, such as video streaming, as in the work of Chaudhary et al. [2022], or in the social media areas mentioned in the survey.
This may be because participants' awareness and knowledge of these manipulative elements is not sufficiently developed. This could mean that these elements, especially if they are more subtle, are overlooked or not noticed at all.

Participants showed behavioral changes when recognizing Deceptive Designs, but still showed vulnerability to them

The majority of participants reported changes in behavior when they recognized manipulative designs, often citing increased attention. However, this does not rule out the possibility that they may still fall for misleading elements, as this study shows.
This phenomenon can be explained by the Dunning-Kruger effect Dunning [2011]. People with little knowledge tend to overestimate their own abilities. In this study, participants believe that they can recognize and avoid manipulative elements.
Although participants also claim to make spontaneous decisions, it is clear that Deceptive Designs also succeed with people who claim to want to change their behavior.
Some respondents reported that they were not influenced, and after the Mockups, about half of the participants reported that they felt confident in identifying them. The

Dunning-Kruger effect may also play a role here, as not a single participant recognized all the manipulative elements in the survey.

5.2 Are manipulated Designs Detectable?

Participants showed higher recognition rates for deceptive elements in online shopping compared to social media.

Decision uncertainty was the most frequently detected deception

It is clear that not all of the deceptive elements we created were recognized. It can also be seen that, on average, a manipulative element was recognized more often for online shopping (MD= 8.24) than for social media (MD= 7.06). However, the most frequently detected deception is decision uncertainty, which was detected a total of 42 times. This corresponds to a hit rate of 60%. This may be due to the fact that it was placed very conspicuously in the middle of the Mockup both times and is therefore immediately obvious. At the same time, Social Brokering is the least recognized Mockup with a hit rate of 34%. There may be several reasons for this.
It is clear that Mildner et al. [2023a] also found in his work that participants find it easier to identify domain-specific patterns, here shopping with the work of Mathur et al. [2019].

Social brokering's lower recognition could be because participants are accustomed to it in social networks

Social brokering is not as obvious as other design practices. Since social networks have been using this design for a very long time, it is possible that participants have become accustomed to it and therefore no longer notice it. In addition, the context in which social brokering takes place is more difficult to capture in static Mockups.
The fact that online shopping scored slightly better could be due to the fact that manipulative elements on social media platforms are more difficult to show in static representations. It is clear that, as mentioned above, participants only mentioned online shopping examples when they knew what to look for.

A weak negative correlation between frequency of online shopping and detection of deception patterns suggests that increased shopping may reduce detection due to potential immunity

The correlation value of -0.23 between online shopping and the recognition of manipulative elements indicates a weak negative correlation. This suggests that as the frequency of online shopping increases, there is a slight tendency to recognize less Deceptive Designs. This could be due to the fact that people develop an immunity to such designs. As the value is not strong enough, other factors

may also play a role.

Very weak negative correlation between social media use and deception detection suggests that frequency of social media use has minimal impact on detection ability

A correlation value of -0.08 between the use of social media and the detection of Deceptive Designs in this area indicates a very weak negative correlation. This indicates that increased use of social media is unlikely to be associated with a change in the ability to detect Deceptive Designs. The low strength of this correlation indicates that the frequency of social media use is not a significant factor in Deceptive Design detection.

Bongard-Blanchy et al. [2021]'s findings underscore the importance of intervention and education even when users already have some awareness of deceptive elements. This perspective underscores the gap between recognizing manipulative design elements and being able to effectively resist or avoid them. It is not enough for users to be aware of the existence of Deceptive Design; targeted education and intervention are needed to develop a deeper understanding and effective counter-strategies.

5.3 Classification Compared to other Works

Bait & Switch and Forced Continuity are perceived as highly negative because they directly undermine user interests, leading to deception, frustration, and manipulation

The analysis and ranking of the five Deceptive Designs - Bait & Switch, Forced Continuity, Hidden Costs, Roach Motel, and Trick Questions - based on the participants' responses provides insight into the perceptions and experiences of Generation Z.

The results highlight that certain designs, particularly Bait & Switch and Forced Continuity, are perceived as particularly negative by users. These designs appear to actively work against the interests of the end user, not only causing deception and frustration, but also having a highly manipulative effect. The high ranking of Bait & Switch and Forced Continuity reflects the increasing sensitivity of users to practices that directly undermine their freedom of choice. This is consistent with the research of M. Bhoot et al. [2021] who emphasize the importance of awareness of such designs.

The strong negative reaction to these patterns may also be due to users' increasing familiarity with these practices, as

they are common in online subscriptions and promotions, making them easier to detect.

Hidden Costs and Roach Motel are seen as manipulative but less direct in their harm, possibly due to delayed consequences, highlighting the importance of promoting transparency in digital services

In contrast, "Hidden Costs" and "Roach Motel" are considered manipulative, but not to the extent that they are perceived as direct attacks on the user. This may be because the consequences of these designs often become apparent late in the usage or purchase process, making their immediate threat less obvious. Nevertheless, the high rating of the degree of manipulation underscores the need to promote transparency and fairness in digital service offerings in order to maintain user trust.
Finally, "trick questions," which occupy the last place in the ranking, are perceived as subtly manipulative, which may explain their lower prioritization compared to the more aggressively Deceptive Designs. The fact that these types of design elements are often not immediately recognized as deceptive underscores the importance of educational initiatives to promote digital literacy among users.
Comparisons with other works shows that awareness and critical engagement with Deceptive Designs is becoming increasingly important. It does not matter that the Generation has grown up with digital user interfaces.

5.4 Limitations

The results of the study are subject to a number of limitations that must be taken into account when interpreting the results.

Limitations of the study include its focus on German-speaking Gen Z participants

First of all, it must be mentioned that the survey was conducted in German and only in Germany. As a result, only German-speaking Gen Z participants were surveyed here. Some participants filled out the survey on their cell phone and stated in the feedback form that it was difficult to participate on their cell phone.
Another factor in this study is the homogeneity of the sample. Most of the participants have a German Abitur. In addition, most of the participants are still students. This majority may limit the results. The participants may have similar educational backgrounds, so the findings and trends obtained regarding the perception and evaluation

of fraudulent design patterns may not be representative of a broader and more diverse population.

The use of only eight Deceptive Design elements and their repetition in the study may have led to participant familiarity

In addition, only eight misleading design elements were used in total. There is a risk that the participants were already familiar with one of these patterns and had become accustomed to it. The fact that the patterns appeared twice in total can also lead to the second pattern being recognized directly, even though the participants are not aware of the manipulation behind it. Deceptive Designs occur in many different forms. This must be taken into account in the study. Therefore, not all possible manifestations can be captured.
Although Generation Z was surveyed, a restriction was also made here. The focus on people born in the year 2000 or later is intended to create a clear demarcation within Generation Z. However, this means that although people born earlier belong to Generation Z, according to the American sociologist Debirah Carr they are also referred to as Zillennials[1] and were born in the mid-1990s are not included. This decision limits the representativeness of the study for Generation Z as a whole.
In addition, the selection of participants was limited to people of legal age in order to keep the study period manageable for a bachelor's thesis, which also limits the generalizability of the study results.

The study's scope was limited to online shopping and social media

Furthermore, the study was limited to the areas of online shopping and social media. This means that only Deceptive Designs that primarily occur in these areas were analyzed.

[1] https://edition.cnn.com/2023/05/10/health/what-are-zillennials-wellness/index.html *Accessed: February 2024*

Chapter 6

Summary and future work

A summary and overview of the work is provided below. It concludes with suggestions for further work based on the results.

6.1 Summary and Contributions

This study focuses on the awareness and recognition of Deceptive Design by Generation Z. Despite a high affinity for technology and relatively early exposure to digital user interfaces, it is clear that knowledge of manipulative design elements is limited from an end-user perspective.
To find this out, a survey was developed that is divided into three parts. In the first part, we first examined whether the participants know what misleading designs are and whether they can remember manipulative elements on the Internet.
The second part examined how susceptible the generation is to such designs. Accordingly, Mockups were prepared in which such elements were built in and the participants had to look for them and justify their decision.
In the final section, participants were asked to evaluate and rank different Deceptive Designs. They were also asked to

indicate whether they were familiar to them.
Many participants are aware of the existence of Deceptive Designs, have likely encountered them, and were able to provide explicit memories and examples. However, it is clear that most of these examples come from the shopping environment. Participants' overestimation of their ability to detect manipulative pattern and the specific challenges they face in dealing with them illustrate the complexity of the issue and the need for further research and intervention in this area. On average, one more deceptive element was identified on the Mockups, with the best and worst identified deceptive patterns coming from the social media area.
The third section of the study on Gen Z's perceptions of Deceptive Design patterns shows that Bait & Switch and Forced Continuity in particular are perceived as negative. These designs work directly against the user's interests, while Hidden Costs and Roach Motel are perceived as less directly offensive, but manipulative. Trick Questions was rated as the least aggressive.
This study provides a comprehensive insight into how Generation Z in Germany deals with Deceptive Designs in the digital space, particularly in the areas of online shopping and social media.

6.2 Future work

Ideas for future research topics are presented here. The limitations of this work described in the "Limitations" section can be addressed in a future paper.
In addition to these improvements, other areas can be explored. Since the focus here was only on online shopping and social media, other topics can be explored in further work.
For example, the end-user perspective could be examined again to see if Gen Z is even more vulnerable in other areas. In a further study, "countermeasures" can be developed and tested based on the results. This would be an attempt to develop a countermeasure and see how the generation that has grown up with the Internet deals with it and whether it is beneficial.
Previous research could be expanded to include a larger

and more diverse group of participants to get a more complete picture of Gen Z. This could include participants with different educational backgrounds, different cultural contexts, and different prior digital experiences. Such an approach could reveal if cultural and educational factors influence perceptions and behaviors toward manipulative designs.

Appendix A

Questionaire

The appendix contains the questionaire developed for this study. This was used to gain an in-depth insight into the participants' perceptions and reactions to manipulative design practices.

DI11

Täuschende Designs in digitalen Benutzeroberflächen verstehen

Willkommen und danke für dein Interesse an dieser Umfrage, die Teil meiner Bachelorarbeit ist. Diese Umfrage richtet sich gezielt an Personen, **die zwischen den Jahren 2000 und 2005 geboren sind**. Ziel ist es, die Auswirkungen von Deceptive Designs auf die Nutzererfahrung und das Verhalten junger Erwachsener zu erforschen.

Deine ehrlichen Antworten tragen zu wertvollen Einblicken bei und helfen, transparentere digitale Umgebungen zu schaffen. Alle Ergebnisse werden anonymisiert und keine Publikation wird Rückschlüsse auf dich als Person zulassen. Das bedeutet: Niemand kann aus den Ergebnissen erkennen, von welcher Person die Angaben gemacht worden sind.

Zudem hast du die Chance, einen 20€ Gutschein zu gewinnen.

Mit dem Fortfahren bestätigst du deine Zugehörigkeit zur definierten Altersgruppe und stimmst der anonymisierten Nutzung deiner Daten zu.

DI01

1. Bitte gebe dein Alter an:

Ich bin

Jahre alt

DI03

2. Bitte gebe dein Geschlecht an:

Ich bin: [Bitte auswählen]

DI04

3. Bitte wähle deinen höchsten Bildungsabschluss aus und gib die Fachrichtung an, falls zutreffend:

- Abitur
- Fachabitur Fachrichtung
- Bachelor Fachrichtung
- Master Fachrichtung
- Ausbildung Fachrichtung
- Sonstiges:

DI05

4. Bitte wähle deinen aktuellen Beruf aus:

- Schüler
- Student
- Angestellter
- Arbeitslos
- Wissenschaftlicher Mitarbeiter

DI06

5. Würdest du dich selbst als technikaffin bezeichnen?

(Als technikaffin gilt jemand, der sich leidenschaftlich für neue Technologien interessiert und gerne mit technischen Geräten und Software umgeht)

- Ja
- Nein

DI07

6. Wie häufig nutzt du digitale Benutzeroberflächen (Internetseiten, Apps, etc.)?

- Gar nicht
- Mehrmals im Jahr
- Mehrmals im Monat
- Mehrmals die Woche
- 1-mal am Tag
- Mehrmals am Tag

7. Welche Social Media Plattformen nutzt du? DI08

Kreuze alle zutreffenden an

- [ ] WhatsApp
- [ ] Facebook (Messenger)
- [ ] Instagram
- [ ] TikTok
- [ ] Sonstige: z.B. LinkedIn
- [ ] Keine

8. Wie alt warst du, als du dein erstes Gerät mit Internetzugang erhalten hast? DI09

Ich war

Jahre alt

9. Was für ein Gerät war es? DI12

- ◯ Smartphone
- ◯ Laptop/Computer
- ◯ Tablet
- ◯ Wearables (Smartwatch, fitness tracker)
- ◯ eReader
- ◯ Sonstiges:

P101

Deceptive Designs

Um ein besseres Verständnis davon zu erlangen, wie vertraut du mit dem Konzept Deceptive Designs bist, beginnen wir mit einigen grundlegenden Fragen.

Wichtige Informationen:

Deceptive Designs und Dark Patterns bezeichnen die gleiche Praxis in der Nutzeroberflächengestaltung. In dieser Umfrage wird jedoch konsequent der Begriff 'Deceptive Design' verwendet

Es ist vollkommen in Ordnung, falls du bisher noch nichts von diesem Begriff gehört hast – deine Meinung und Erfahrung sind dennoch sehr wertvoll für diese Studie.

P102

10. Hast du vor der Umfrage schonmal vom Begriff Deceptive Design im Zusammenhang mit digitalen Benutzeroberflächen gehört?

- ◯ Ja
- ◯ Nein

P104

11. Was stellst du dir unter dem Begriff Deceptive Design vor?

Beantworte die Frage kurz

P106

12. Wie umfangreich schätzt du dein eigenes Wissen über Deceptive Designs ein?

Sehr geringes Wissen	Geringes Wissen	Mittleres Wissen	Gutes Wissen	Sehr gutes Wissen
◯	◯	◯	◯	◯

P105

13. Woher kennst du den Begriff ‚Deceptive Design'?

Nenne Quellen (z.B. Webseiten, Artikel oder Studien), durch die du auf diesen Begriff gestoßen bist.
Falls du den Begriff nicht kennst oder keine Quellen nennen kannst, überspringe diese Frage.

P107

14. Kannst du dich an eine Situation erinnern, in der du auf ein Designelement in einer digitalen Benutzeroberfläche gestoßen bist, das absichtlich irreführend erschien? Wenn ja, gebe bitte eine kurze Beschreibung an.

P108

15. Wie sicher fühlst du dich bei der Identifizierung und Erkennung von manipulativen Elementen in digitalen Benutzeroberflächen?

Sehr unsicher	Eher unsicher	Weder noch	Eher sicher	Sehr sicher
○	○	○	○	○

P109

16. Wie oft kaufst du online ein?

- ○ Weniger als einmal im Monat
- ○ Etwa einmal im Monat
- ○ 2- bis 3-mal im Monat
- ○ Wöchentlich
- ○ Mehrmals pro Woche

P116

17. Wie oft nutzt du Social Media?

- ○ Weniger als einmal im Monat
- ○ Etwa einmal im Monat
- ○ 2- bis 3-mal im Monat
- ○ Wöchentlich
- ○ Mehrmals pro Woche

P202

Deceptive Designs – Spot the Deceptive Pattern in the Wild

Dieser Abschnitt beginnt mit der Definition von Deceptive Designs (Zunächst ist hier die originale englische Definition und die nachfolgende deutsche Übersetzung dient dem besseren Verständnis für deutschsprachige Teilnehmer).

Nachdem du einige Fragen beantwortet hast, werden dir 10 Screenshots gezeigt. Auf diesen Screenshots sind zwischen 0 und 3 Deceptive Designs drin. Deine Aufgabe ist es, diese Elemente zu markieren und kurz zu erklären, warum du diese als Deceptive Design einstufst.

Definition:

Deceptive Designs are deceptive elements in a user interface deliberately crafted to mislead, confuse, or deceive users into taking actions that may not align with their best interests.

Deceptive Designs sind trügerische Elemente in einer Benutzeroberfläche, die absichtlich so gestaltet sind, dass sie Nutzer täuschen, verwirren oder zu Handlungen verleiten, die möglicherweise nicht in ihrem besten Interesse sind.

P203

18. Welche Arten von Deceptive Designs kennst du bereits?

Bitte nenne diese stichpunktartig

P204

19. Wie sicher bist du dir, dass du manipulative Elemente in digitalen Benutzeroberflächen erkennen kannst?

- Sehr unsicher
- Eher unsicher
- Weder noch
- Eher sicher
- Sehr sicher

P205

20. Wie häufig begegnest du Deceptive Designs?

- Sehr selten
- Selten
- Häufig
- Sehr häufig

P206

21. Verändert sich dein Verhalten im Internet, wenn Deceptive Designs verwendet werden?

- Ja
- Nein

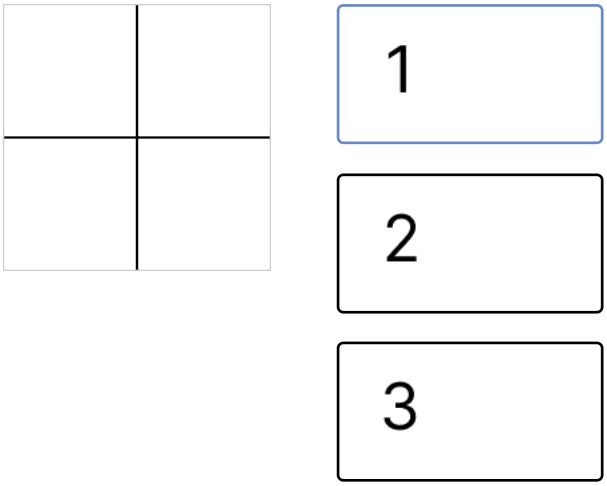
P207

22. Bitte begründe deine Antwort kurz:

P230

23. Auf den folgenden Seiten bekommst du verschiedene Screenshots von Webseiten und Applikationen zu sehen. Bitte markiere auf den Seite, die Elemente, die du als manipulativ einstufst und begründe deine Antwort. Auf dieser Seite findest du ein Beispiel, das dir zeigt, wie du Markierungen innerhalb der Umfrage setzen kannst. Betrachte das Beispielbild, um einen Eindruck davon zu bekommen, wie du die Deceptive Designs auf den Screenshots markieren sollst.
Nutze für jedes Deceptive Design eine eigene Markierung.

Mit einem Klick fügst du eine Markierung hinzu. Um eine Markierung zu entfernen, klicke erneut darauf.



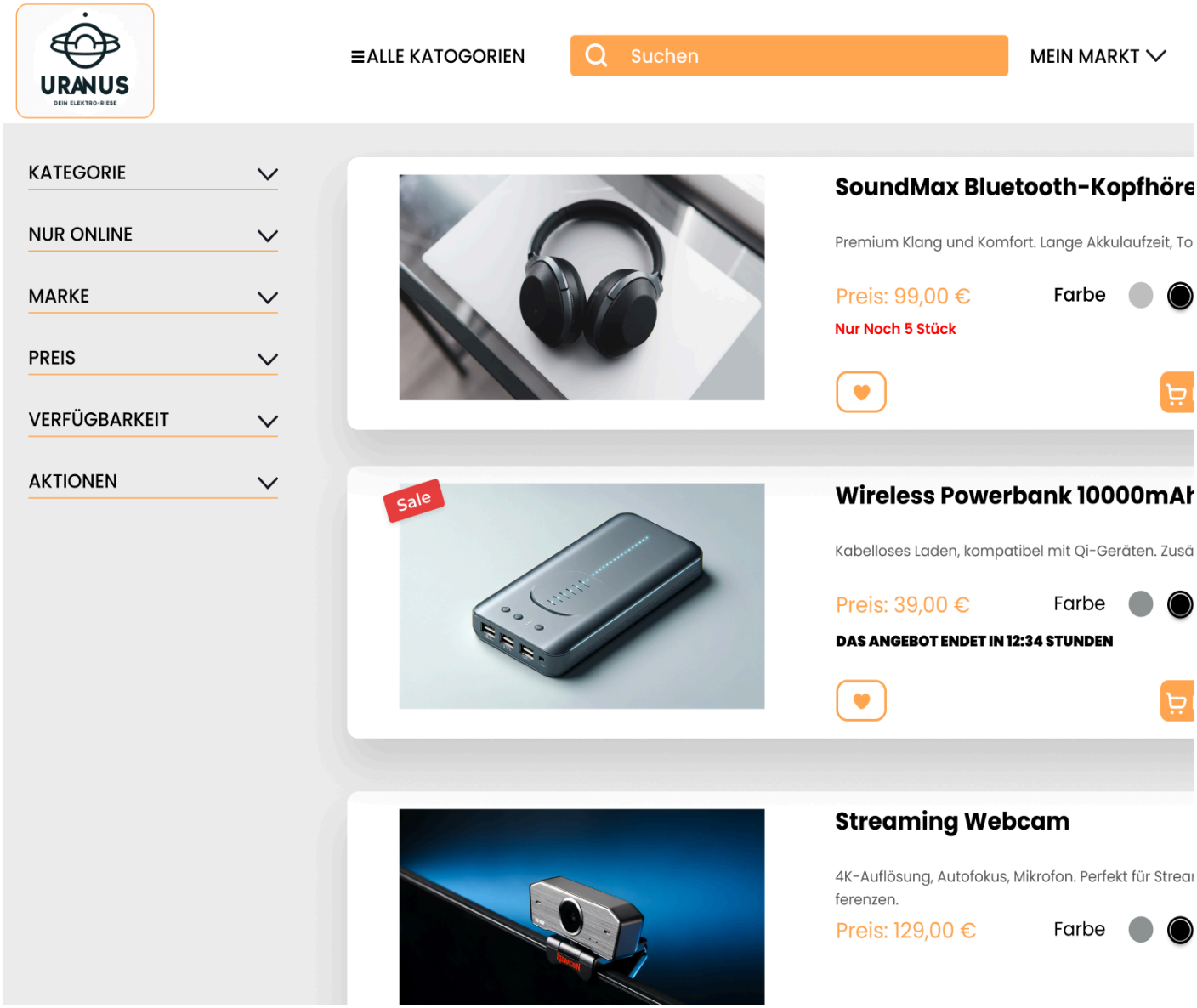
PHP-Code

```
question('P229');  // Zettel in zufälliger Reihenfolge ziehen
$pages = valueList('P229', NULL, 'label');  // Gezogene Zettel auslesen
setPageOrder($pages, 'Practical Test');  // Seiten als Seitenabfolge definieren
```

question('P229')

24. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot. P209

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

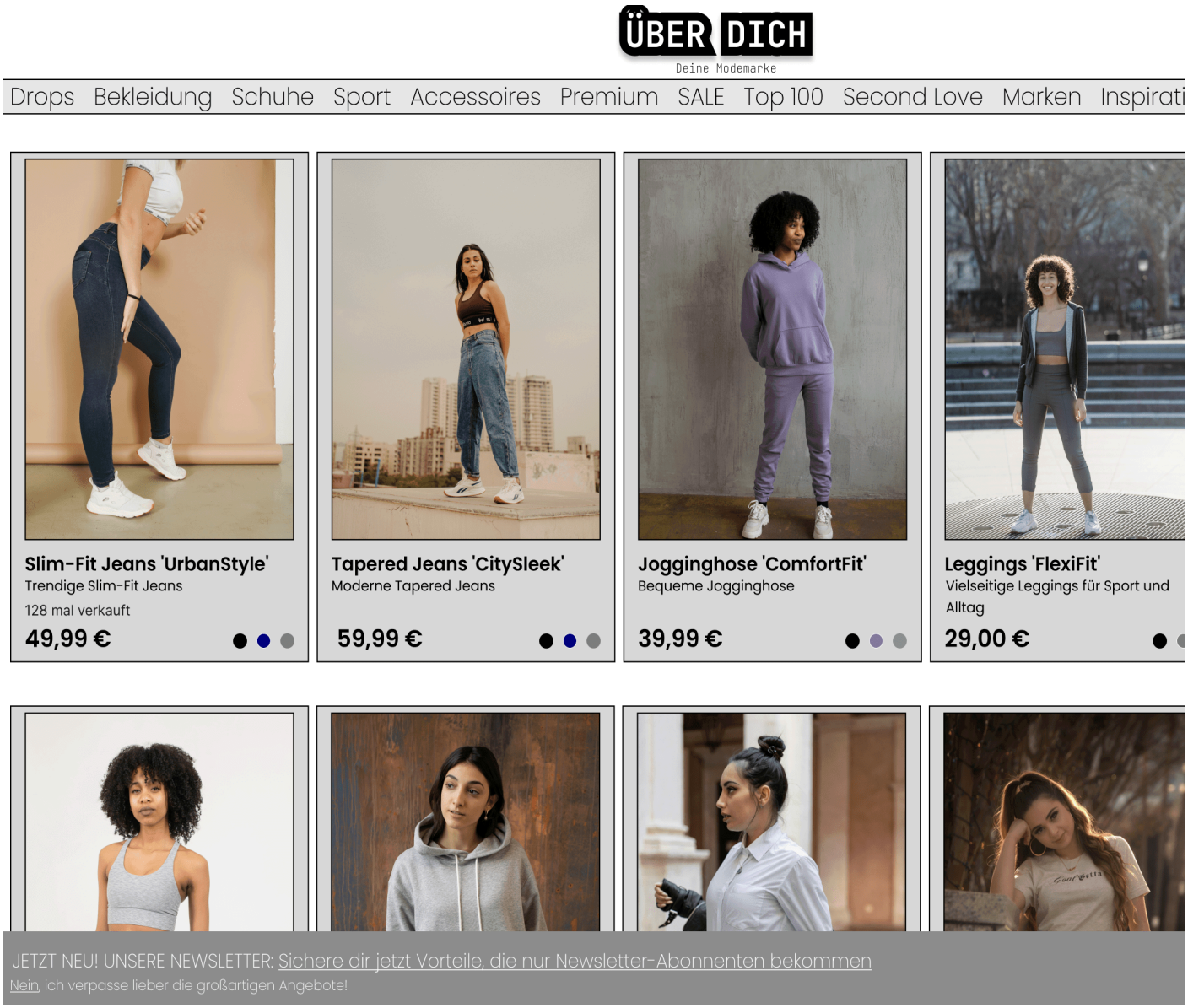
P210

25. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine **0** in das obere Feld ein.

26. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot. P211

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

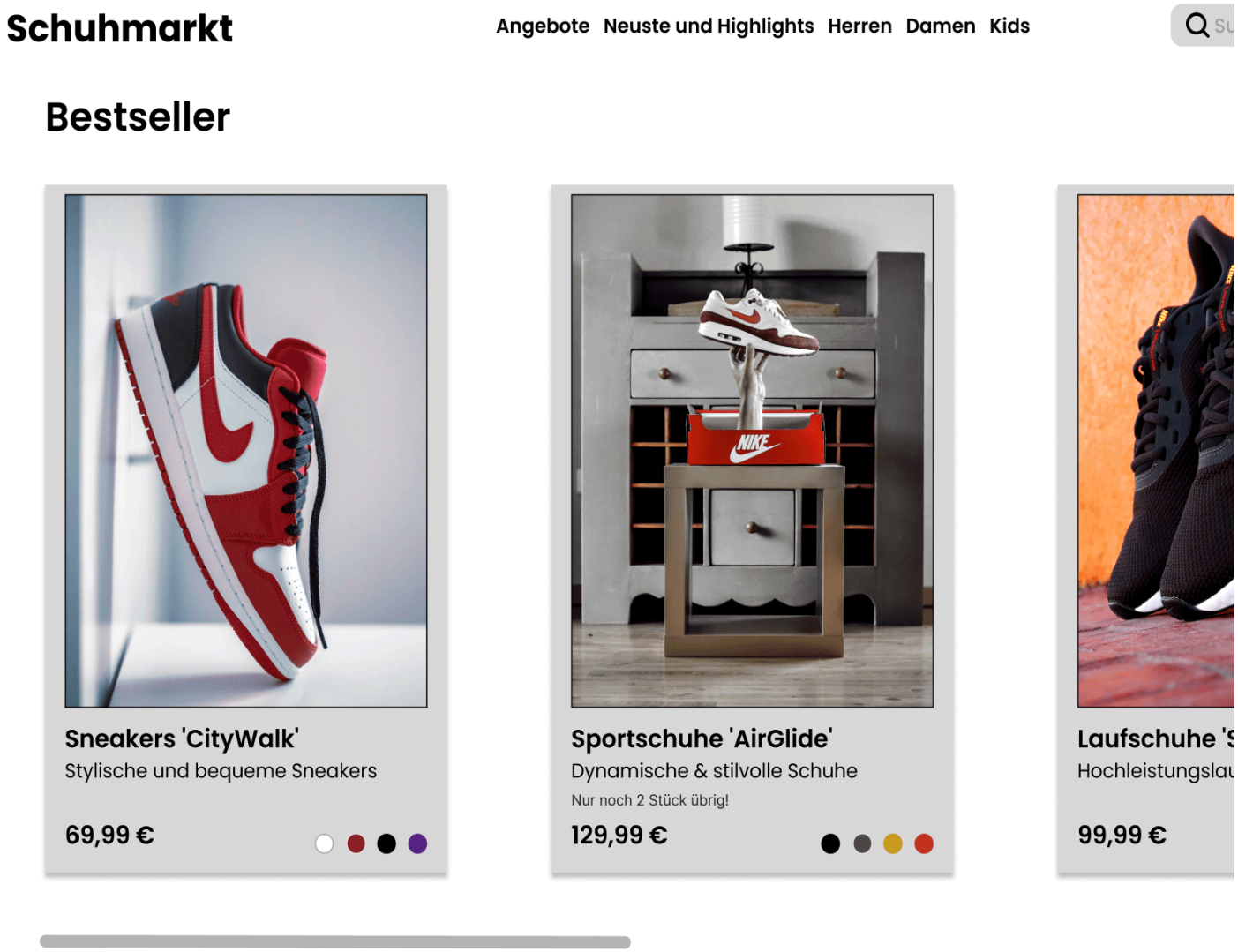
P220

27. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine **0** in das obere Feld ein.

28. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot. P212

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

P221

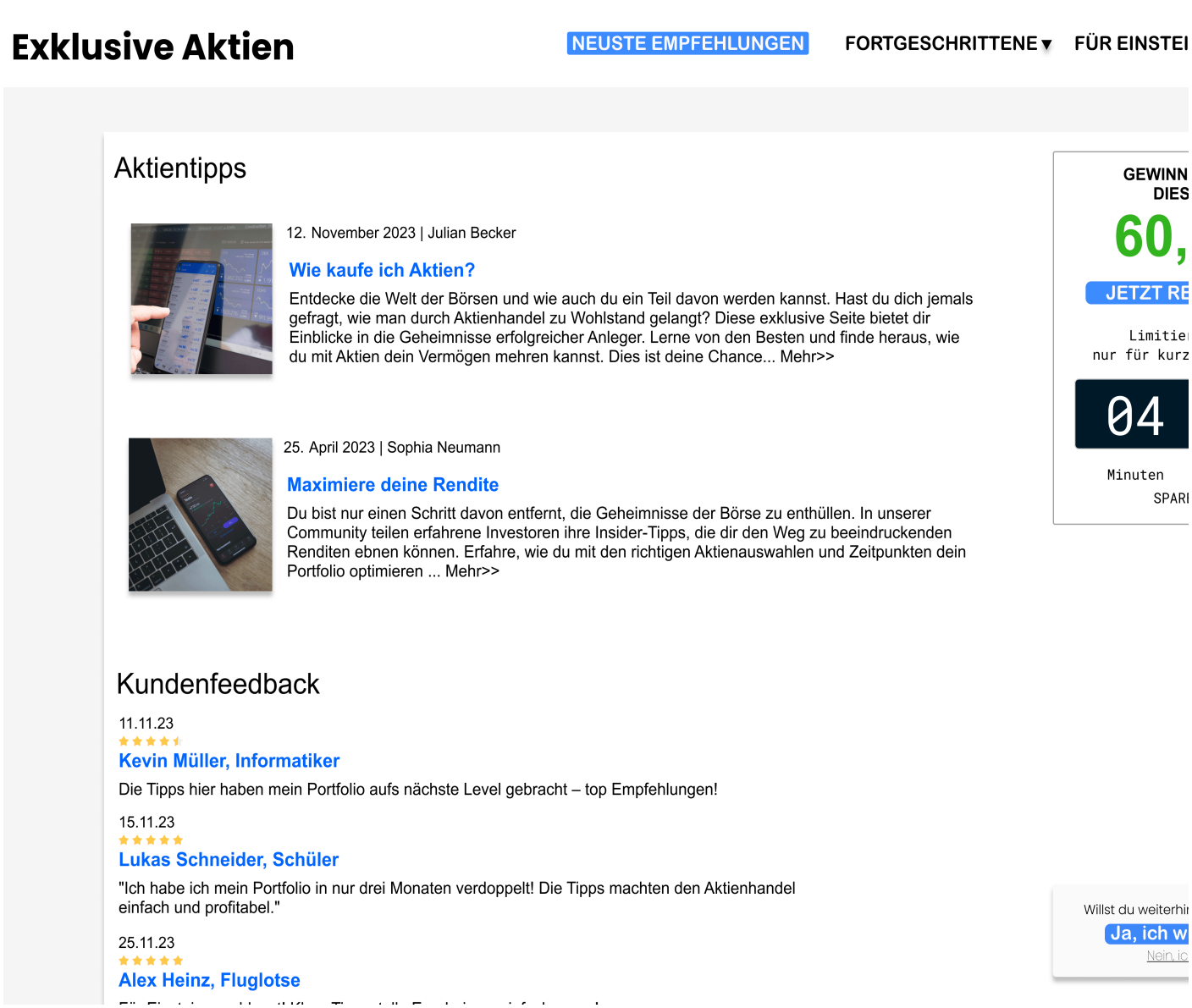
29. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine **0** in das obere Feld ein.

P214

30. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot.

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

P222

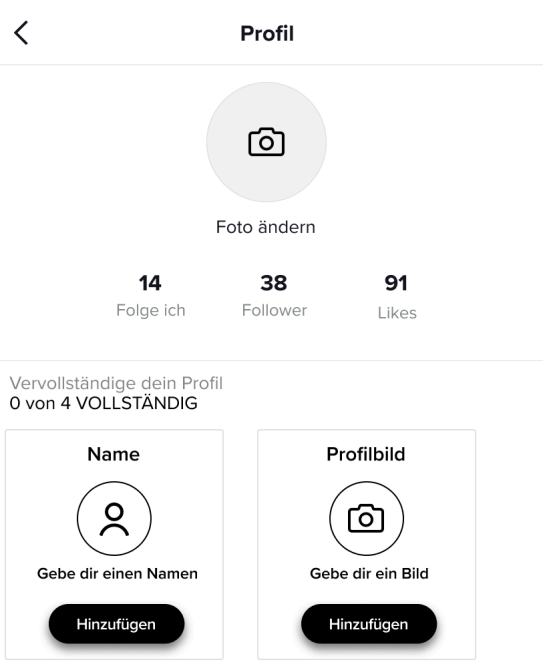
31. Trage hier deine Begründung ein.

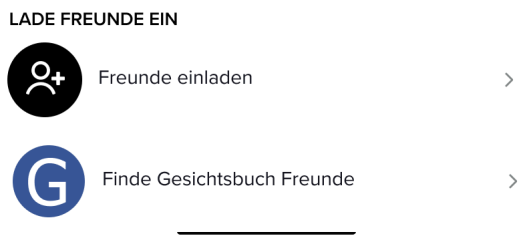
Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine **0** in das obere Feld ein.

P215

32. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot.

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.





1

2

3

P223

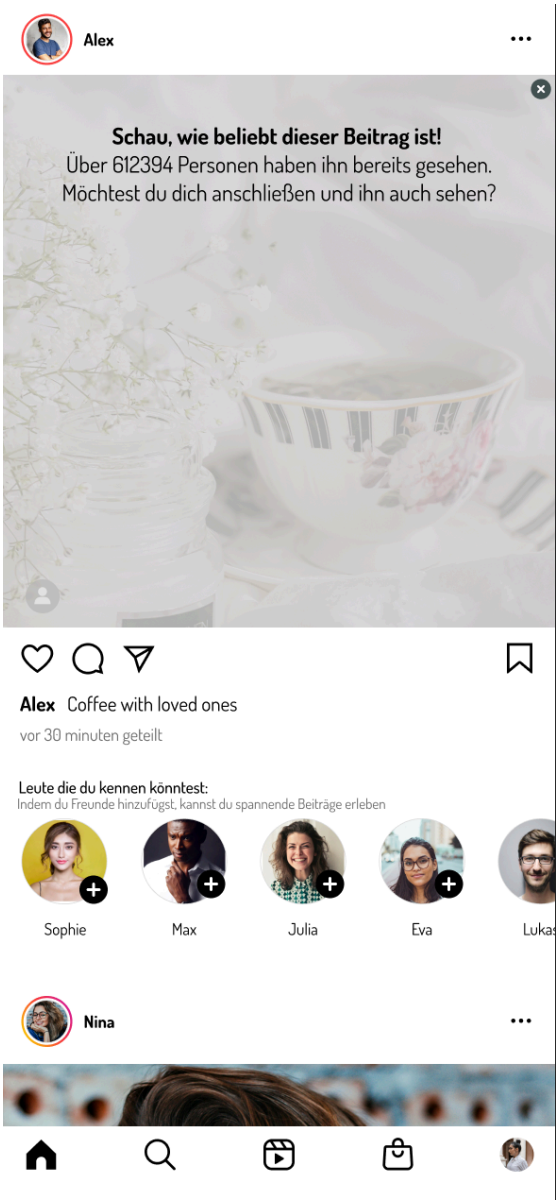
33. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine 0 in das obere Feld ein.

P216

34. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot.

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

P224

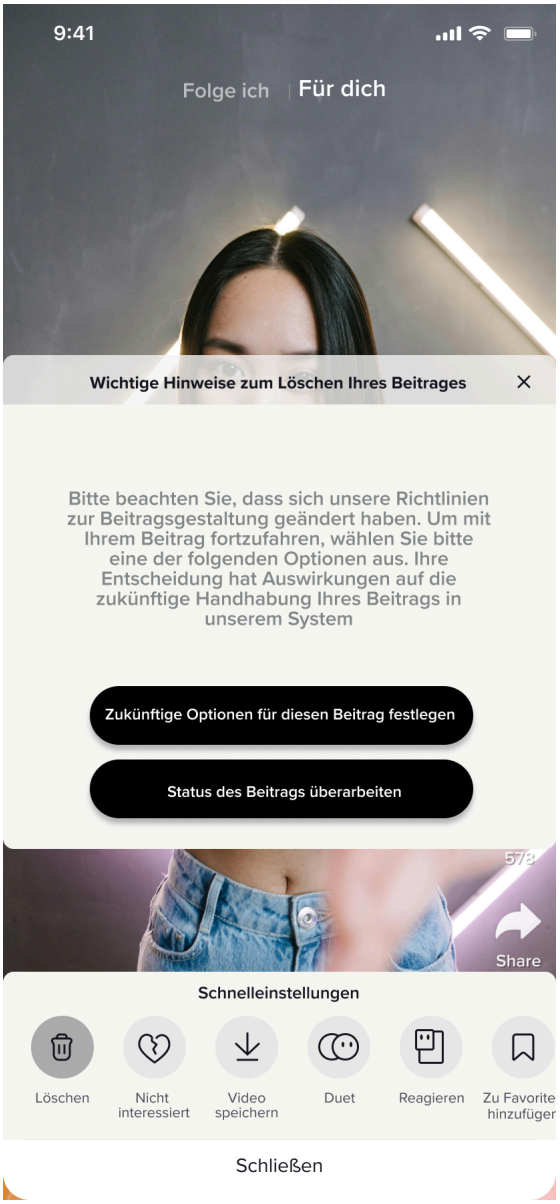
35. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine 0 in das obere Feld ein.

P217

36. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot.

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

P225

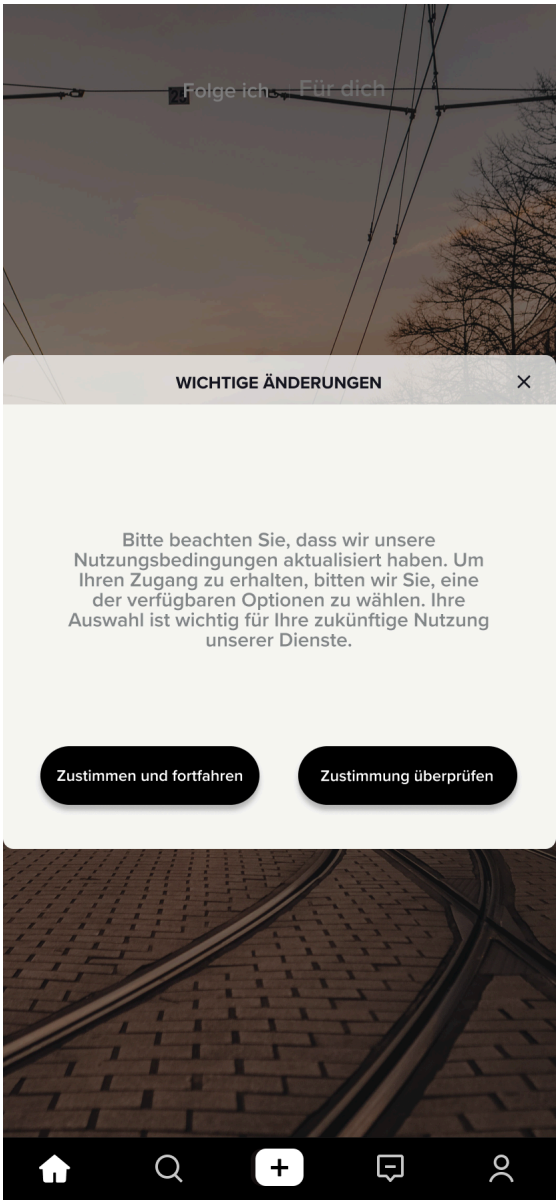
37. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine 0 in das obere Feld ein.

P218

38. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot.

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

P226

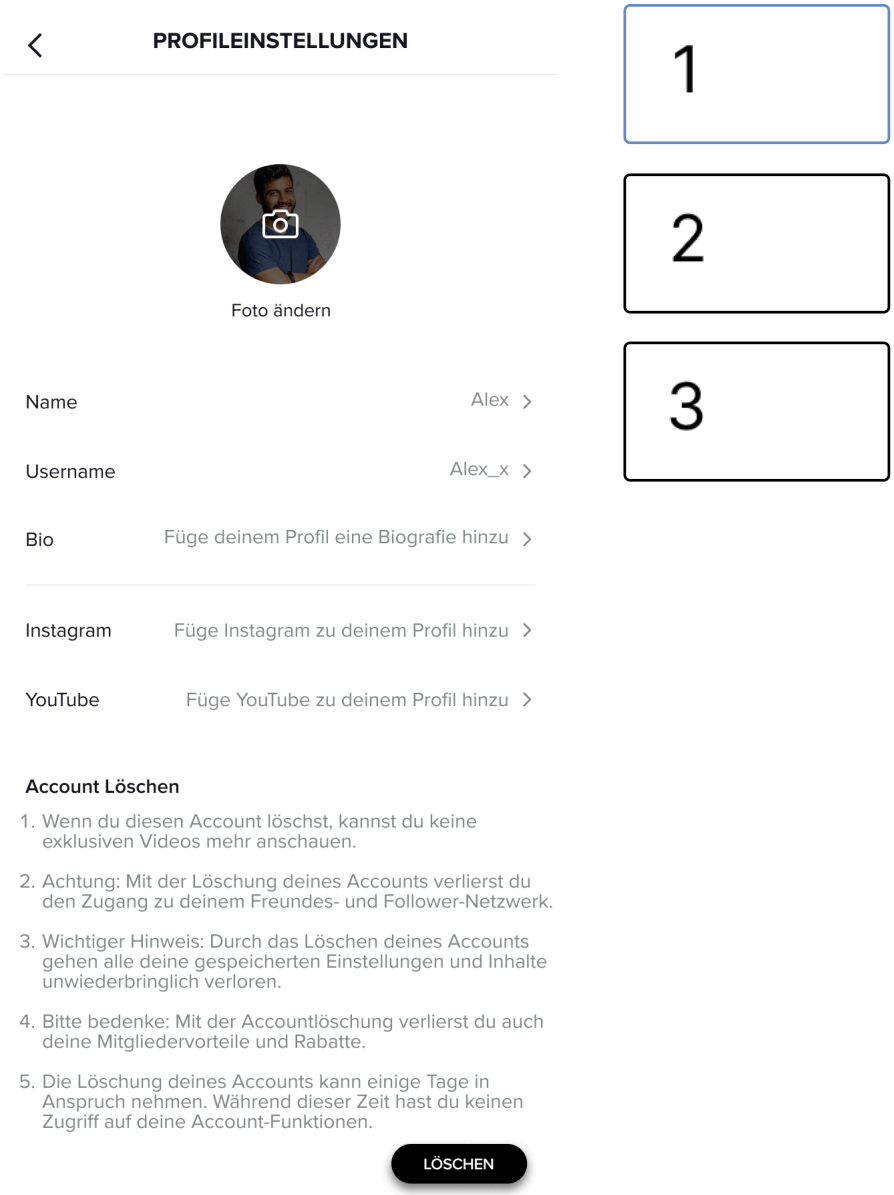
39. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine 0 in das obere Feld ein.

P219

40. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot.

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



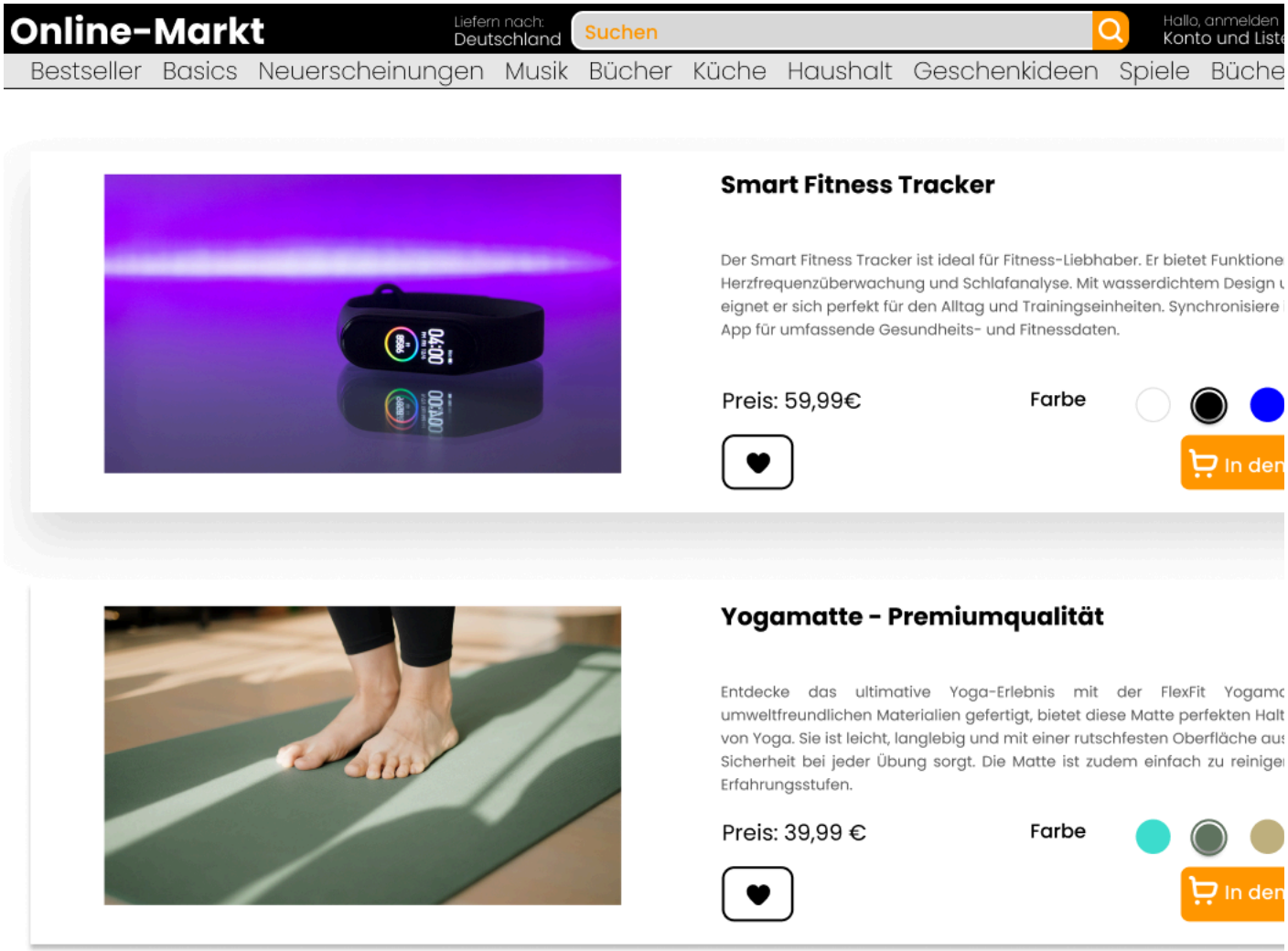
P227

41. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine 0 in das obere Feld ein.

42. Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Begründe jede Markierung kurz in dem Textfeld unter dem Screenshot. P213

Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



1

2

3

P228

43. Trage hier deine Begründung ein.

Gebe bitte an, um welche Markierung es sich handelt.
Falls du keine Deceptive Designs gefunden hast, trage eine `0` in das obere Feld ein.

Seite 17
Practical Test

44. Wie sicher hast du dich bei der Identifizierung von Deceptive Designs auf den eben gezeigten Screenshots gefühlt? P208

○ Sehr unsicher ○ Eher unsicher ○ Weder noch ○ Eher sicher ○ Sehr sicher

---

Seite 18

P301

Deceptive Designs in Practical Test

In diesem Abschnitt werden dir Definitionen und Bilder zu verschiedenen Deceptive Designs präsentiert. Bitte bewerte jedes Design anhand der folgenden Kriterien:

Häufigkeit: Ich begegne diesem Deceptive Design.
Anfälligkeit: Dieses Deceptive Design täuscht Nutzer.
Frustrationsgrad: Dieses Deceptive Design ist frustrierend.
Manipulationsgrad: Dieses Deceptive Design ist manipulativ.
Erscheinungsbild: Das Design dieses Deceptive Designs ist ansprechend.

Gib im Freitextfeld an, ob und in welchem Kontext dir dieses Deceptive Design bereits begegnet ist.

PHP-Code

```
question('P317');  // Zettel in zufälliger Reihenfolge ziehen
$pages = valueList('P317', NULL, 'label');  // Gezogene Zettel auslesen
setPageOrder($pages, 'Ranking');  // Seiten als Seitenabfolge definieren
```

question('P317')

P302

45. Roach Motel ist ein betrügerisches Muster, bei dem es einfach ist, sich für einen Dienst oder ein Abonnement anzumelden, aber sehr schwierig, es zu kündigen. In der Regel wird die Kündigungsoption versteckt, die Nutzer müssen den Kundendienst anrufen, um zu kündigen, und der Kündigungsprozess ist übermäßig komplex und zeitaufwändig. Dies kann dazu führen, dass die Nutzer den Versuch, den Dienst zu kündigen, aufgeben und für einen längeren Zeitraum weiter für den Dienst bezahlen.

Die New York Times gestaltet die Anmeldung für ein Abonnement einfach, doch die Kündigung ist schwierig, oft erfordert sie einen Anruf beim Kundenservice und lange Wartezeiten, im Gegensatz zur schnellen Erstellung eines neuen Abonnements.

Quelle: [Roach motel (Brignull, 2010)]

Häufigkeit: Ich begegne diesem Deceptive Design.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Anfälligkeit: Dieses Deceptive Design täuscht Nutzer.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Frustrationsgrad: Dieses Deceptive Design ist frustrierend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Manipulationsgrad: Dieses Deceptive Design ist manipulativ.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Erscheinungsbild: Das Design dieses Deceptive Designs ist ansprechend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu

P303

46. Fallen dir Situationen ein, wo du diesem Deceptive Design begegnet bist?

P318

47. Der Nutzer meldet sich auf einer Website für eine kostenlose Testversion an und wird dabei aufgefordert, seine Kreditkartendaten einzugeben. Nach Ablauf der Testphase wird ihm automatisch der kostenpflichtige Dienst in Rechnung gestellt. Der Nutzer wird weder angemessen daran erinnert, noch erhält er eine einfache und schnelle Möglichkeit, die automatische Verlängerung zu stornieren.

creditexpert.co.uk verwendet Forced Continuity, bei dem eine kostenlose Testversion stillschweigend in einen monatlichen kostenpflichtigen Dienst übergeht, wenn der Verbraucher nicht eingreift.

Quelle: [Forced Continuity (Brignull, 2010)]

Häufigkeit: Ich begegne diesem Deceptive Design.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Anfälligkeit: Dieses Deceptive Design täuscht Nutzer.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Frustrationsgrad: Dieses Deceptive Design ist frustrierend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Manipulationsgrad: Dieses Deceptive Design ist manipulativ.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Erscheinungsbild: Das Design dieses Deceptive Designs ist ansprechend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu

P312

48. Fallen dir Situationen ein, wo du diesem Deceptive Design begegnet bist?

P319

49. Man nimmt sich eine Sache vor, aber stattdessen geschieht etwas anderes, Unerwünschtes.

Microsoft nutzte das Bait-and-Switch-Muster, indem Pop-ups, die ein Upgrade auf Windows 10 empfehlen, so gestaltet wurden, dass das Klicken auf das X (oben rechts) die Zustimmung zum Upgrade bedeutete.

Quelle: [Bait and switch (Mildner, 2023)]

Häufigkeit: Ich begegne diesem Deceptive Design häufig.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Anfälligkeit: Dieses Deceptive Design täuscht Nutzer.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Frustrationsgrad: Dieses Deceptive Design ist frustrierend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Manipulationsgrad: Dieses Deceptive Design ist manipulativ.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Erscheinungsbild: Das Design dieses Deceptive Designs ist ansprechend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu

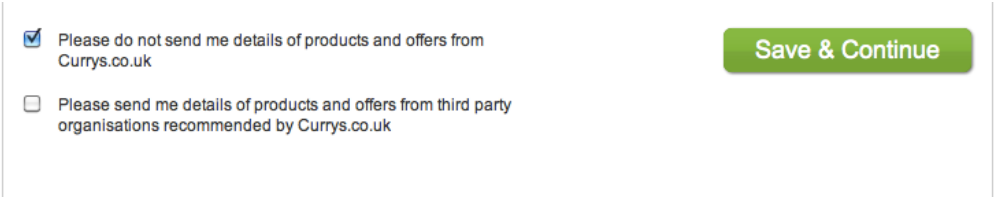
P313

50. Fallen dir Situationen ein, wo du diesem Deceptive Design begegnet bist?

P320

51. Das Deceptive Design der Trickformulierung nutzt die Erwartungen der Nutzer und eine zweideutige Sprache aus, um die Nutzer in die Irre zu führen und zu täuschen. Es ist normal, dass Nutzer im Internet nur überfliegen, um die schiere Menge an Informationen zu bewältigen, mit denen sie konfrontiert werden. Das bedeutet, dass sie nicht jedes Wort auf jeder Seite lesen und verweilen. Trickreiche Formulierungen machen sich diese Strategie zunutze, indem sie einen Inhalt so aussehen lassen, als würde er eine Sache sagen, während er in Wirklichkeit etwas anderes aussagt, was nicht im Interesse des Nutzers liegt.

Die „Tricked you into a newsletter sign-up"-Taktik verwirrt Nutzer durch negativ formulierte Zustimmung für das Nicht-Erhalten von Newslettern und positiv formulierte Zustimmung für das Erhalten, was dazu führt, dass schnelle Leser irrtümlich beiden zustimmen



Quelle: [Trick questions (Brignull, 2010, Mathur et al., 2019)]

Häufigkeit: Ich begegne diesem Deceptive Design.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Anfälligkeit: Dieses Deceptive Design täuscht Nutzer.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Frustrationsgrad: Dieses Deceptive Design ist frustrierend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Manipulationsgrad: Dieses Deceptive Design ist manipulativ.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Erscheinungsbild: Das Design dieses Deceptive Designs ist ansprechend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu

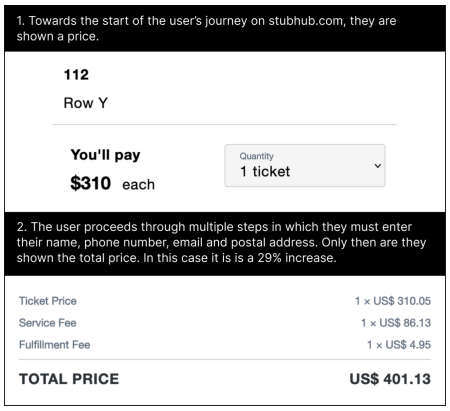
P314

52. Fallen dir Situationen ein, wo du diesem Deceptive Design begegnet bist?

P321

53. Versteckte Kosten bedeuten, dass zusätzliche Gebühren, Abgaben oder Kosten verschleiert oder verschwiegen werden, bis der Nutzer den Kauf- oder Anmeldeprozess weit vorangetrieben hat. Zu diesem Zeitpunkt hat der Nutzer bereits Zeit und Mühe in die Transaktion investiert und ist eher bereit, trotz der unerwarteten Kosten weiterzumachen.

Stubhub lockte Nutzer mit niedrigen Preisen an und enthüllte erst kurz vor der Bezahlung höhere Endpreise, was laut einer Studie zu höheren Ausgaben und Kaufabschlüssen führte.



Quelle: [Hidden costs (Brignull, 2010)]

Häufigkeit: Ich begegne diesem Deceptive Design.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Anfälligkeit: Dieses Deceptive Design täuscht Nutzer.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Frustrationsgrad: Dieses Deceptive Design ist frustrierend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Manipulationsgrad: Dieses Deceptive Design ist manipulativ.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu
Erscheinungsbild: Das Design dieses Deceptive Designs finde ich ansprechend.	1 Stimme überhaupt nicht zu	2	3	4	5 stimme ich voll zu

P315

54. Fallen dir Situationen ein, wo du diesem Deceptive Design begegnet bist?

Seite 24

Ranking

P308

55. Bitte ordne die folgenden fünf Deceptive Designs nach dem Grad ihrer Manipulierbarkeit, beginnend mit dem Design, das du als am manipulativsten empfindest (1) bis zu dem, das du als am wenigsten manipulativ empfindest (5).

Hier ein kleiner Reminder für die Deceptive Designs:
Roach Motel: Das Anmelden für ein Dienst ist einfach, aber das Kündigen ist sehr schwierig.
Forced Continuity: Die Anmeldung erfolgt mit einer kostenlosen Testphase, wobei auch die Kontodaten angeben werden. Nach Ablauf der Zeit wird automatisch Geld abgebucht.
Bait and Switch: Man nimmt sich eine Sache vor, aber stattdessen geschieht etwas anderes, Unerwünschtes.
Trick Questions: Durch eine verwirrende Formulierung, wird der Nutzer in die Irre geführt.
Hidden Cost: Versteckte Kosten, die erst sehr spät zum Vorscheinen kommen.

Roach Motel	1
Forced Continuity	2
Bait & Switch	3
Trick Questions	4
Hidden Cost	5

P309

56. Bitte begründe deine Antwort kurz.

Seite 25

P310

Vielen Dank für deine Teilnahme an dieser Umfrage!

Für Anmerkungen, weiterführendes Feedback oder Interesse an den Ergebnissen meiner Bachelorarbeit stehe ich gerne zur Verfügung. Deine Meinung und Vorschläge sind mir wichtig. Nochmals vielen Dank für deine wertvolle Unterstützung!

P311

57. Hier kannst du dein Feedback und weitere Ideen hinterlassen:

P316

☐ Ich will am **Gewinnspiel** teilnehmen. Ich willige ein, dass meine E-Mail-Adresse bis zur Ziehung der Gewinner gespeichert wird. Diese Einwilligung kann ich jederzeit widerrufen. Meine Angaben in dieser Befragung bleiben weiterhin anonym, meine E-Mail-Adresse wird nicht an Dritte weitergegeben.

Vielen Dank für deine Teilnahme!

Ich möchte mich ganz herzlich für deine Mithilfe bedanken.

Dein Engagement ist sehr geschätzt und trägt wesentlich dazu bei, ein tieferes Verständnis für Deceptive Designs zu gewinnen. Die von dir investierte Zeit und die geteilten Erfahrungen sind für diese Forschung sehr wertvoll. Deine Antworten werden vertraulich behandelt und sind ein unverzichtbarer Teil dieser Studie.

Deine Antworten wurden gespeichert, Du kannst das Browser-Fenster nun schließen.

Möchten Sie in Zukunft an interessanten und spannenden Online-Befragungen teilnehmen?

Wir würden uns sehr freuen, wenn Sie Ihre E-Mail-Adresse für das SoSci Panel anmelden und damit wissenschaftliche Forschungsprojekte unterstützen.

E-Mail:

Am Panel teilnehmen

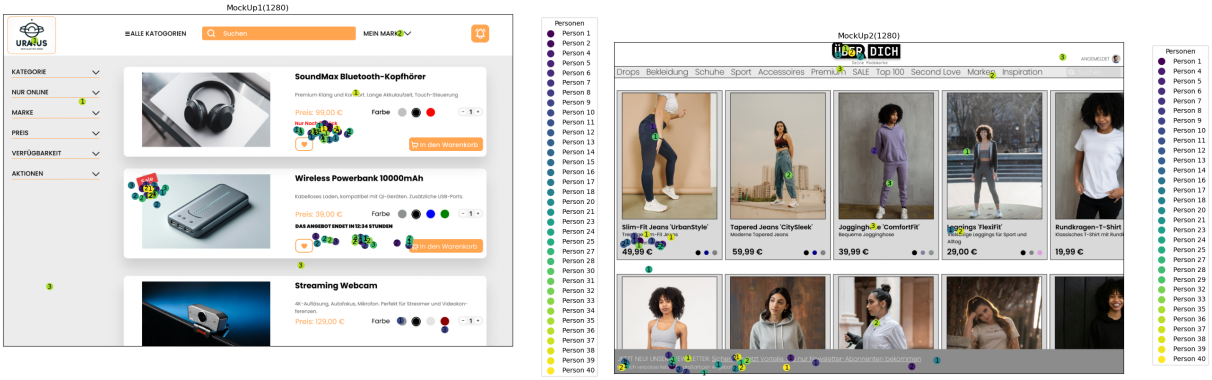
Die Teilnahme am SoSci Panel ist freiwillig, unverbindlich und kann jederzeit widerrufen werden.
Das SoSci Panel speichert Ihre E-Mail-Adresse nicht ohne Ihr Einverständnis, sendet Ihnen keine Werbung und gibt Ihre E-Mail-Adresse nicht an Dritte weiter.

Sie können das Browserfenster selbstverständlich auch schließen, ohne am SoSci Panel teilzunehmen.

Appendix B

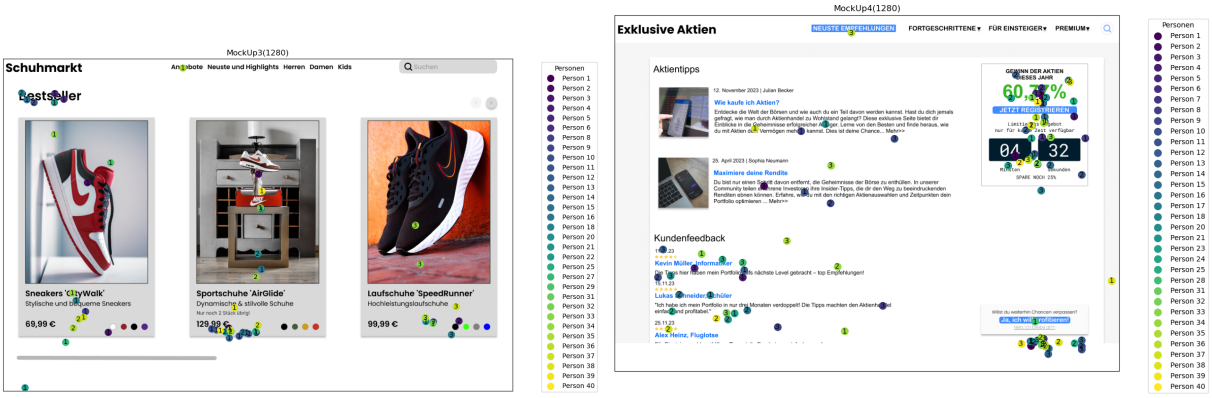
Visualized Mockups

In the appendix you will find the mockups created by the participants as part of this study. This visual data complements the results of the questionnaire and provides concrete examples of user interaction with manipulable design elements.



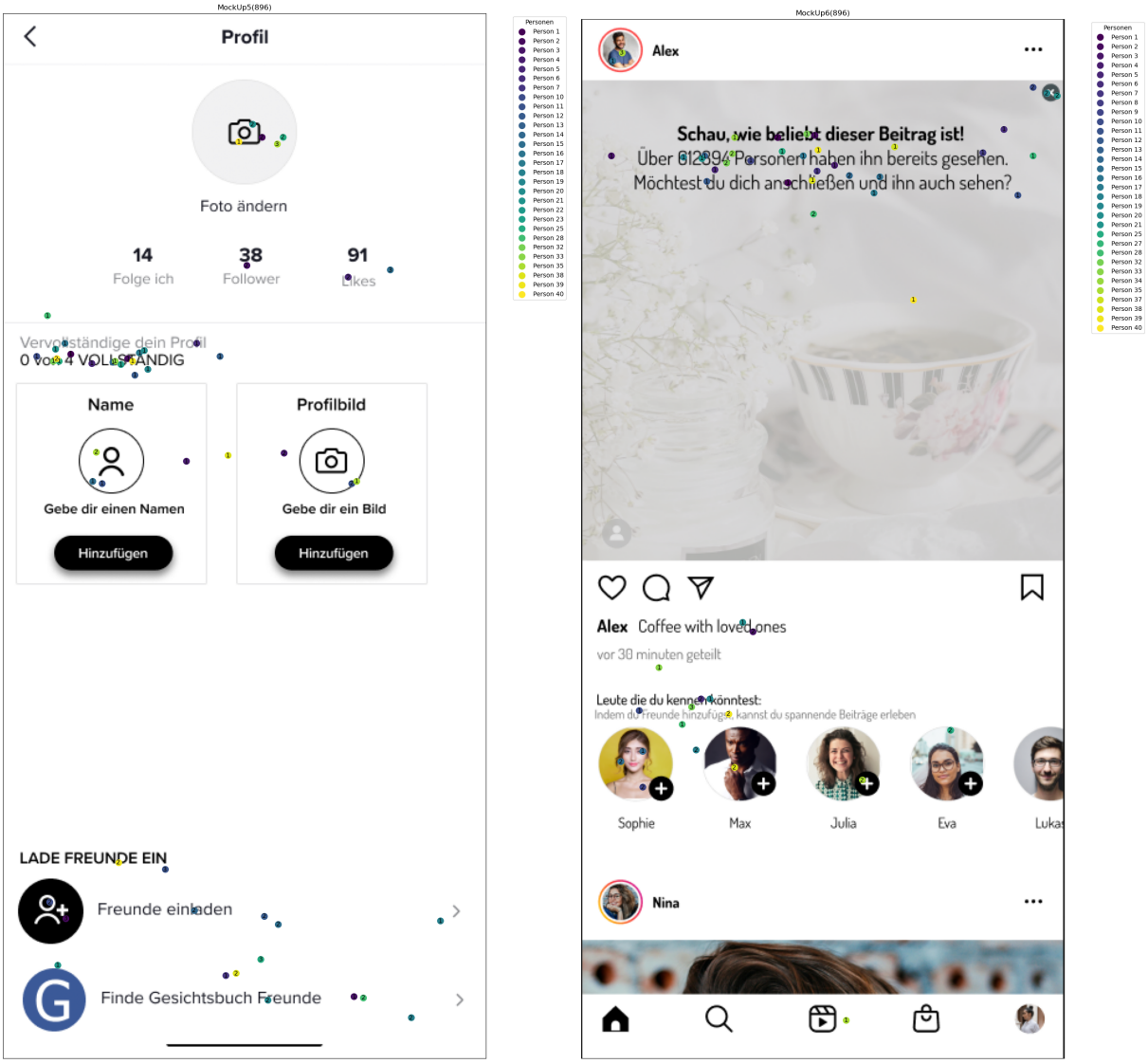
(a) Mockup 1 with all markings

(b) Mockup 2 with all markings



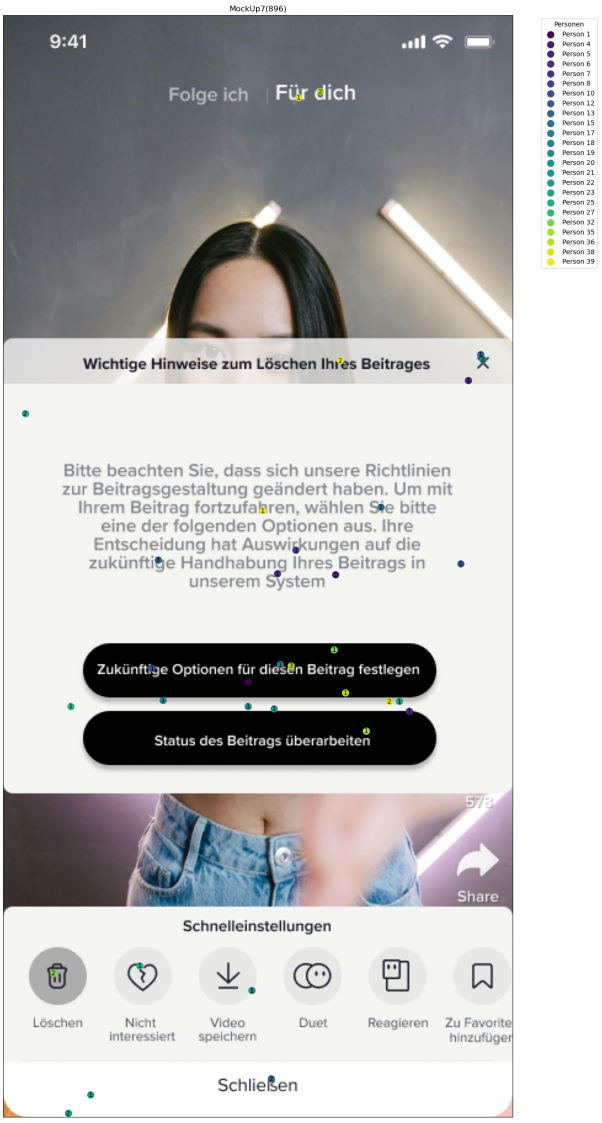
(c) Mockup 3 with all markings

(d) Mockup 4 with all markings

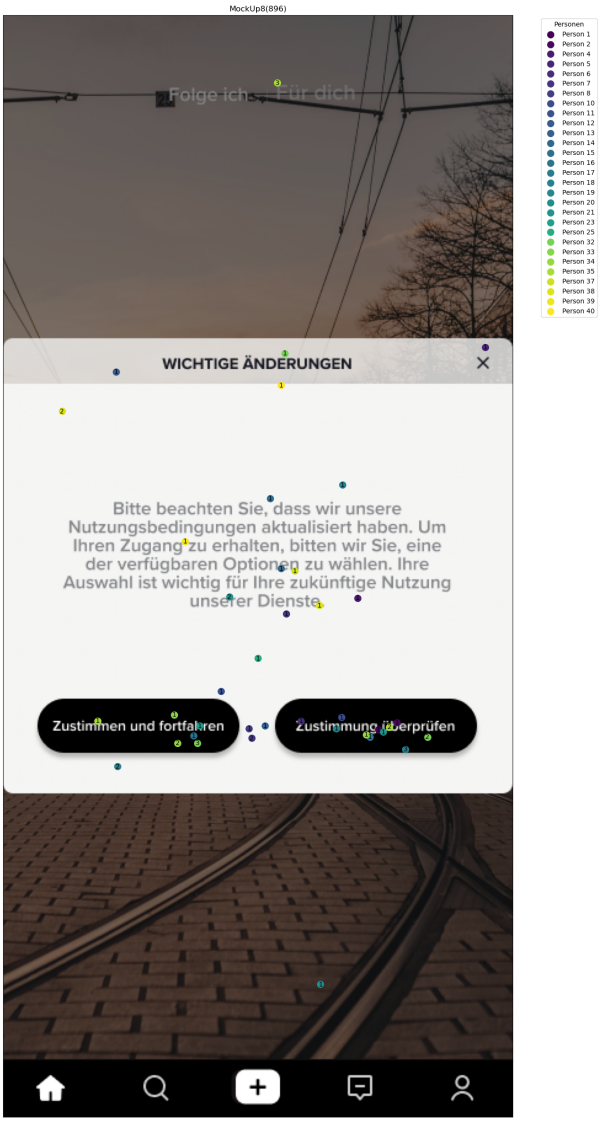


(e) Mockup 5 with all markings

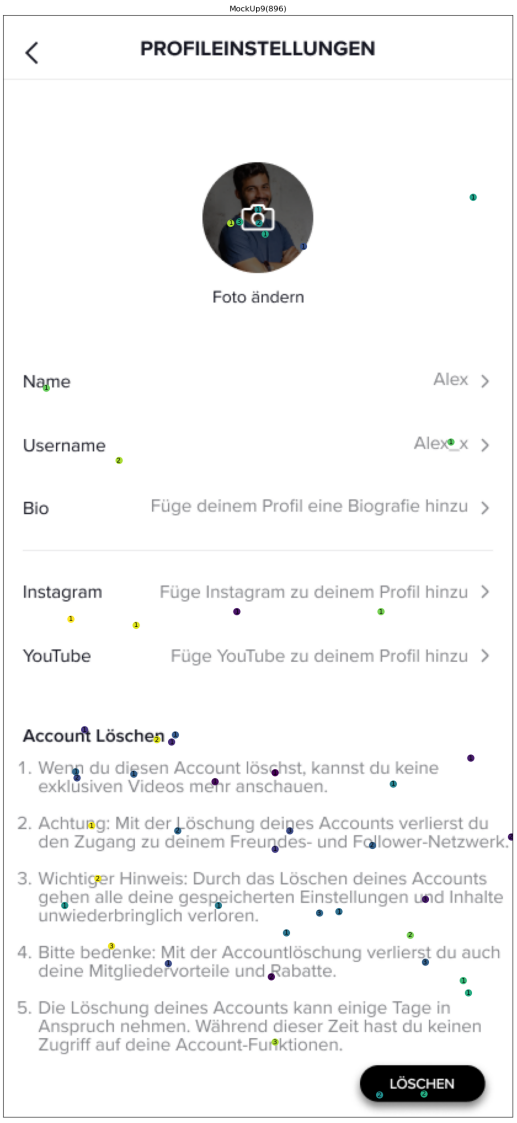
(f) Mockup 6 with all markings



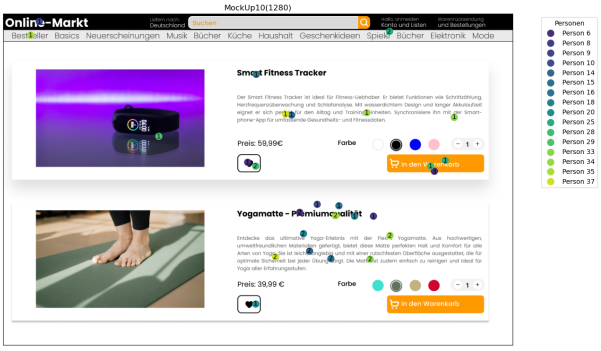
(g) Mockup 7 with all markings



(h) Mockup 8 with all markings



(i) Mockup 9 with all markings



(j) Mockup 10 with all markings

Appendix C

Codebook

The appendix contains the codebook, which serves as a key for the systematic analysis of the survey data. It contains detailed definitions and examples for each category and code that were used to classify responses and gain deeper insights into the topic of manipulative designs.

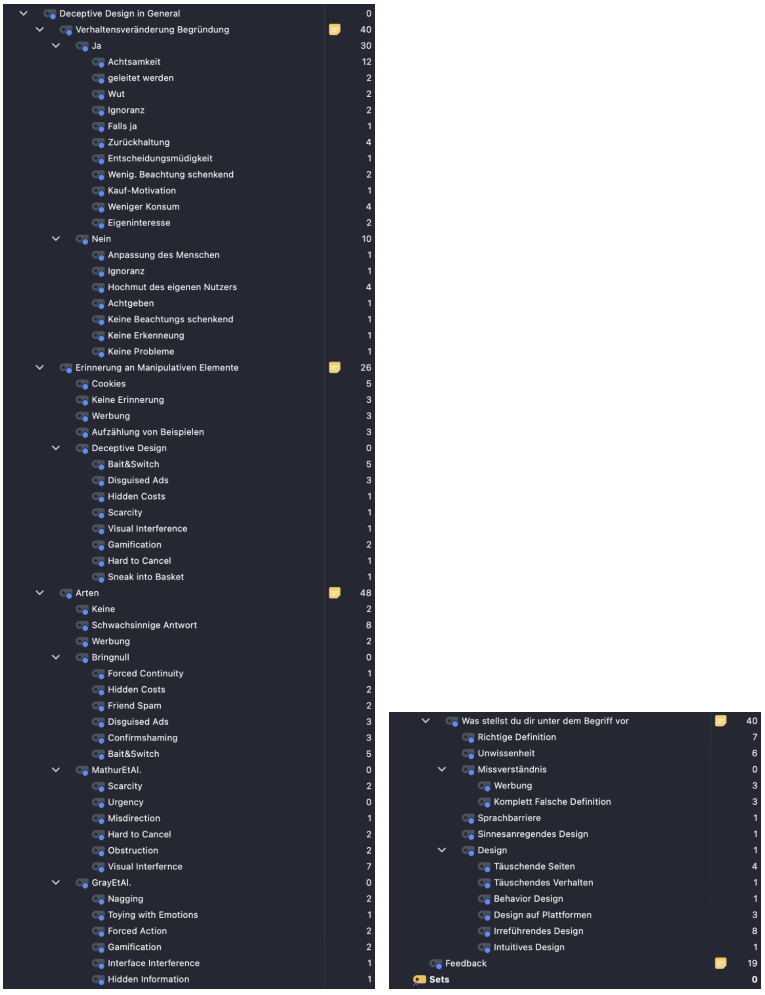


Figure C.1: The figure shows the first part of the codebook.

Figure C.2: The figure shows the second part of the codebook.

Figure C.3: The figure shows the first third of the codebook.

Appendix D

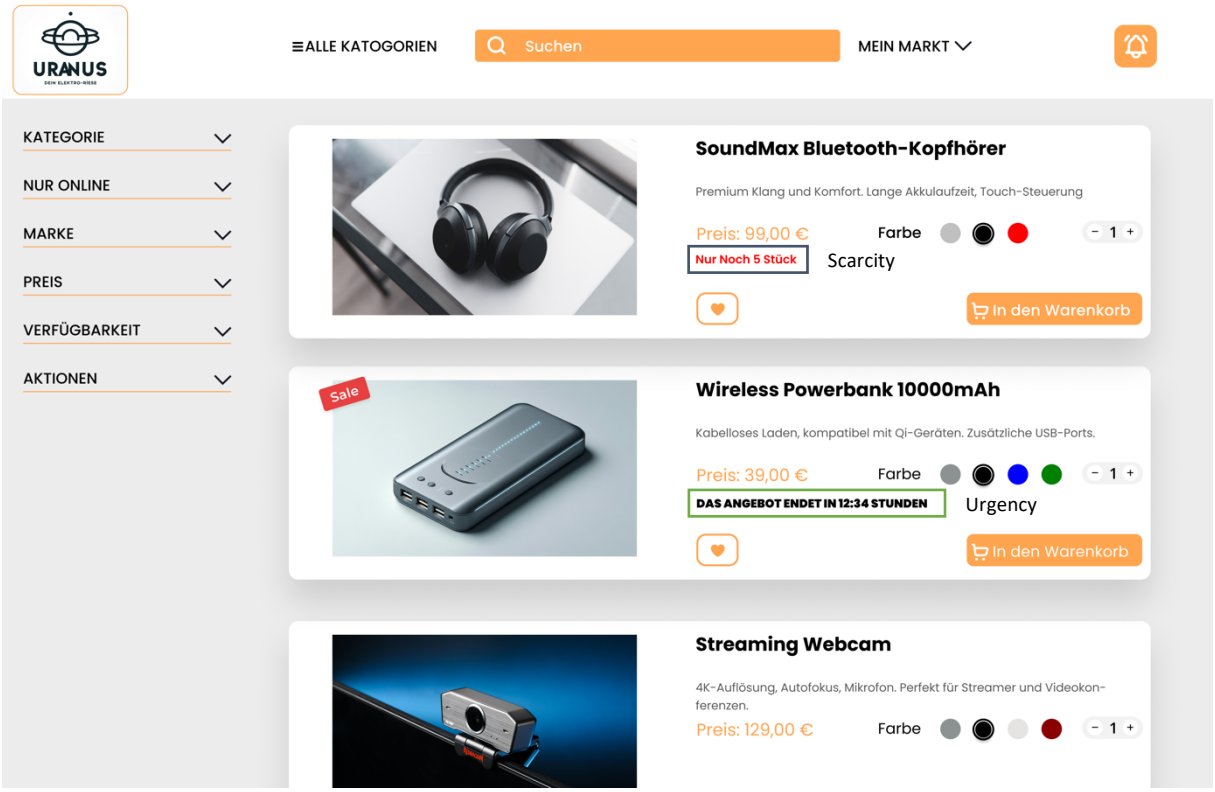
Created Mockups

The appendix contains the Mockups that we created for this study. c

Screenshot 1

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.

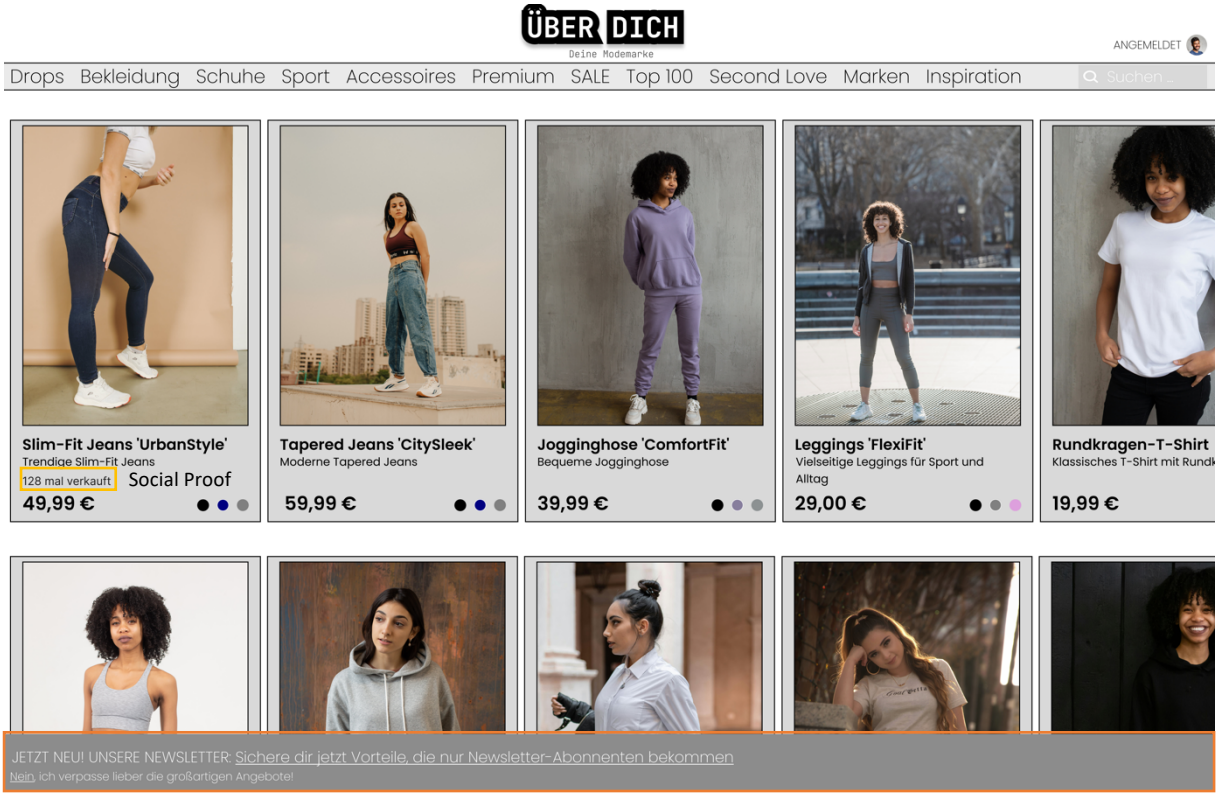
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



[Freitextfeld]

Screenshot 2

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.

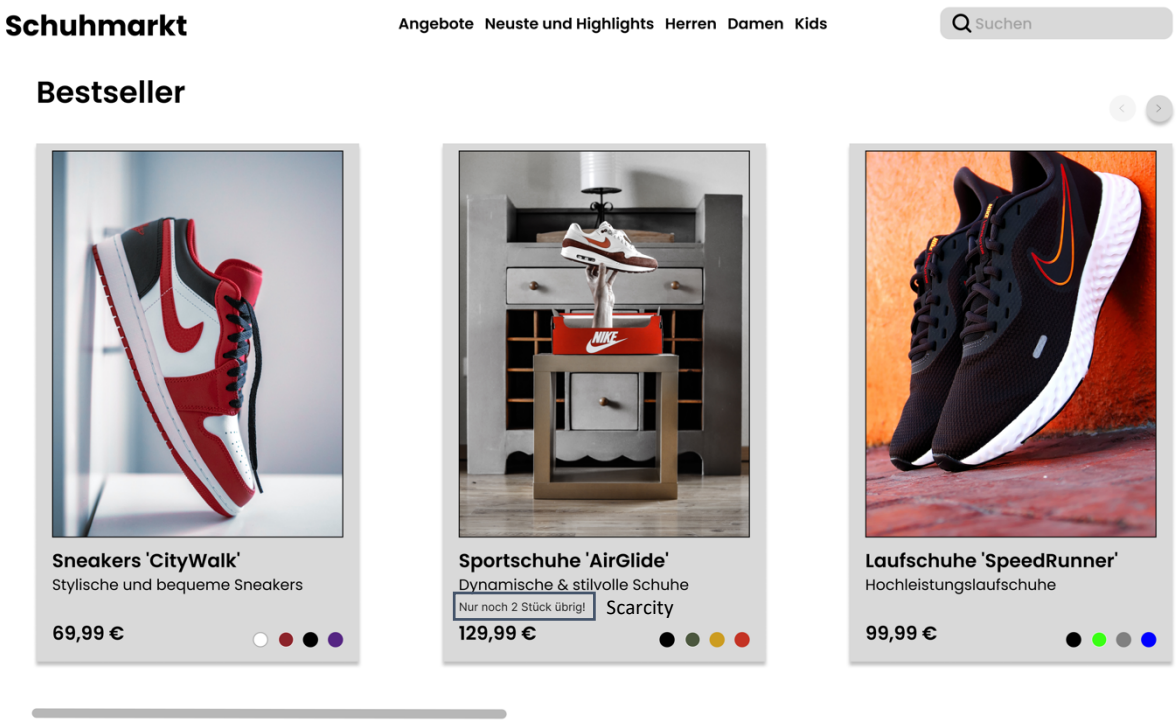


Confirmshaming

[Freitextfeld]

Screenshot 3

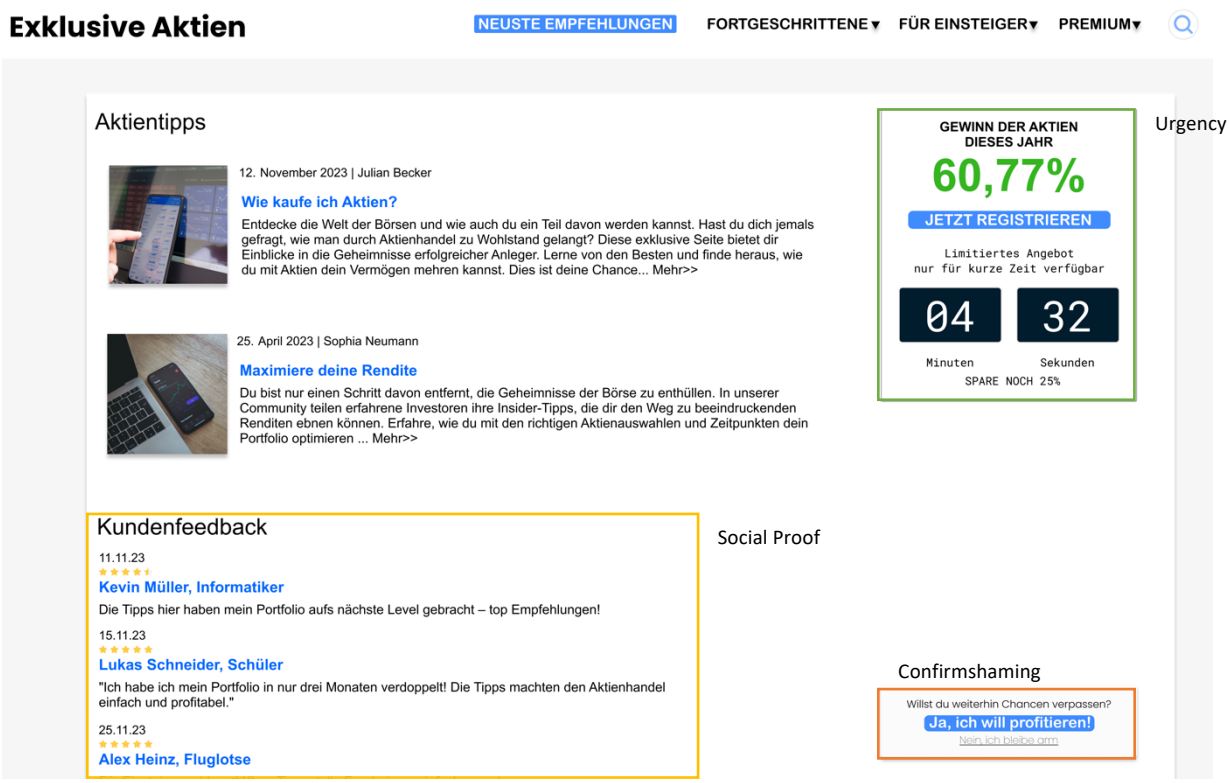
Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können



[Freitextfeld]

Screenshot 4

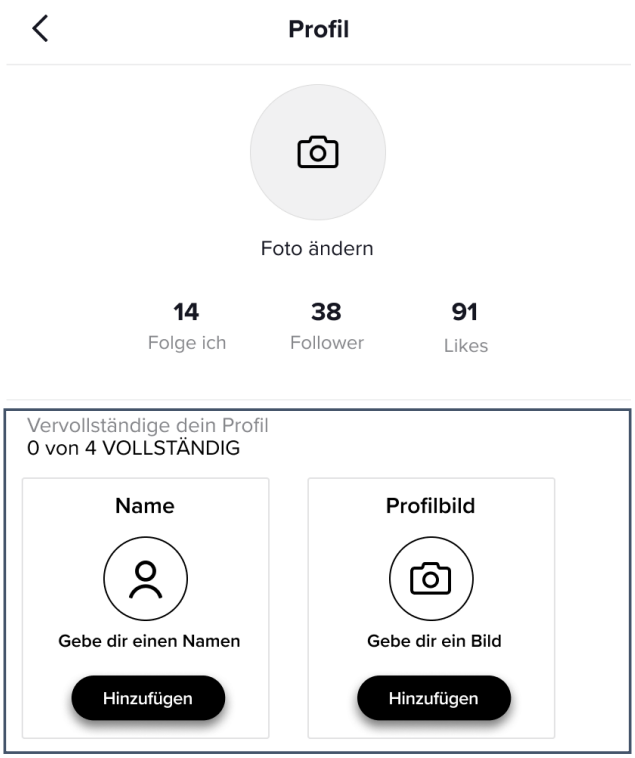
Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



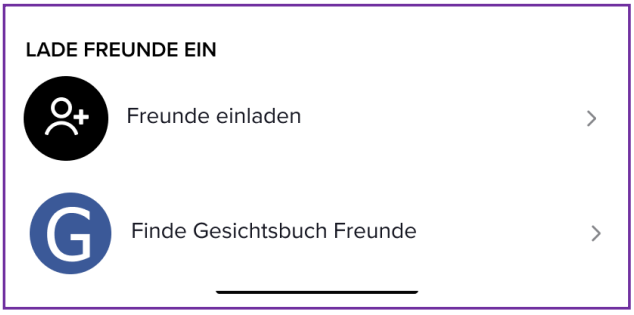
[Freitextfeld]

Screenshot 5

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



Interactive Hook

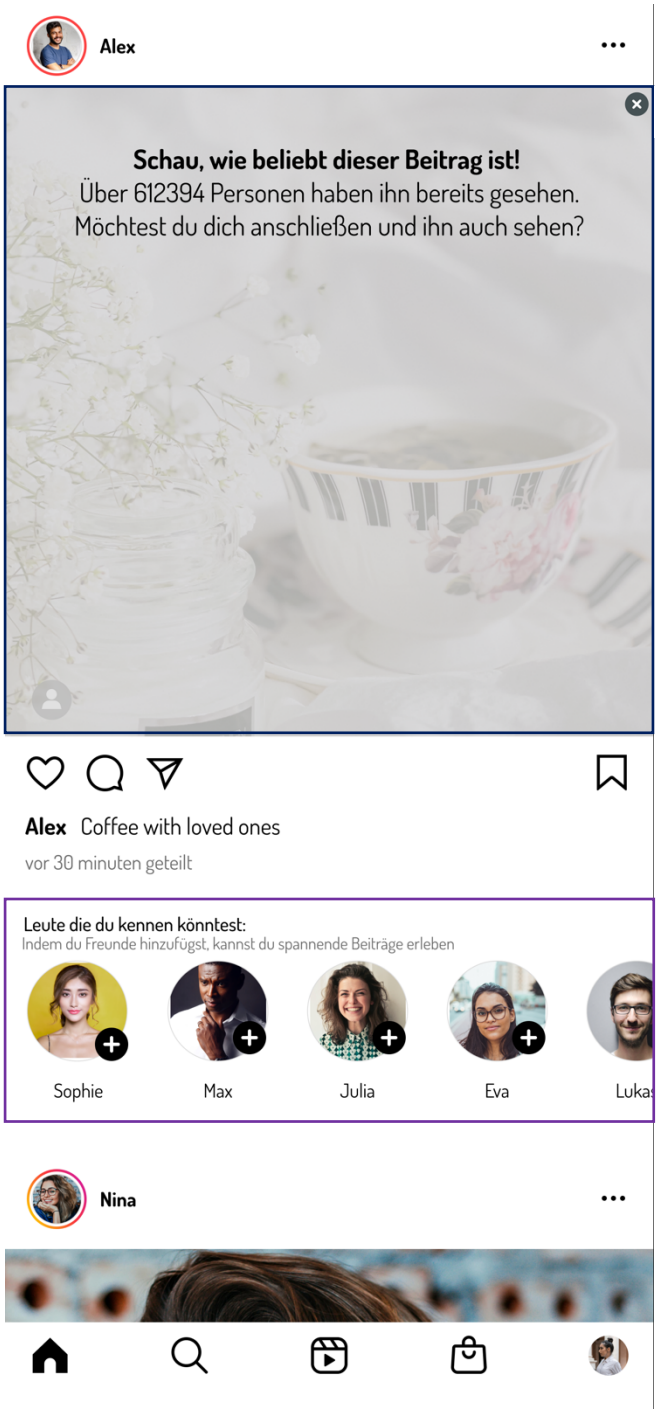


Social Brokering

[Freitextfeld]

Screenshot 6

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



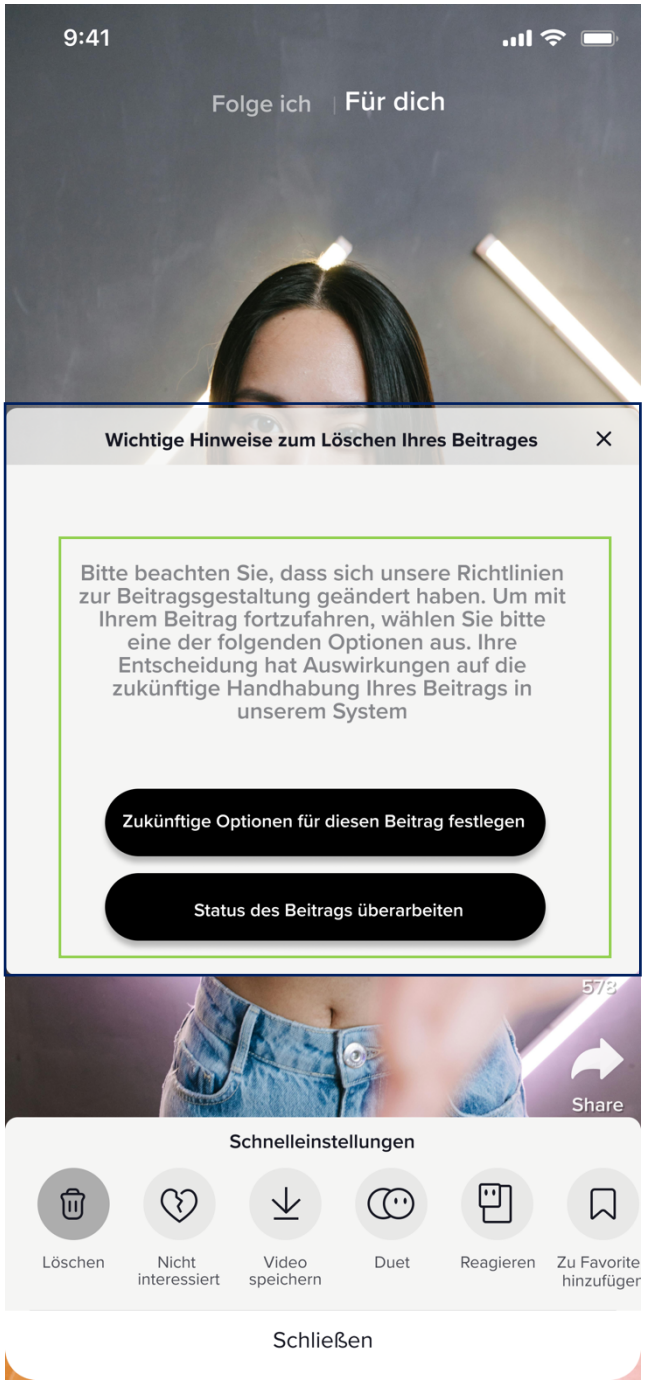
Redirective Condiction

Social Brookering

[Freitextfeld]

Screenshot 7

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



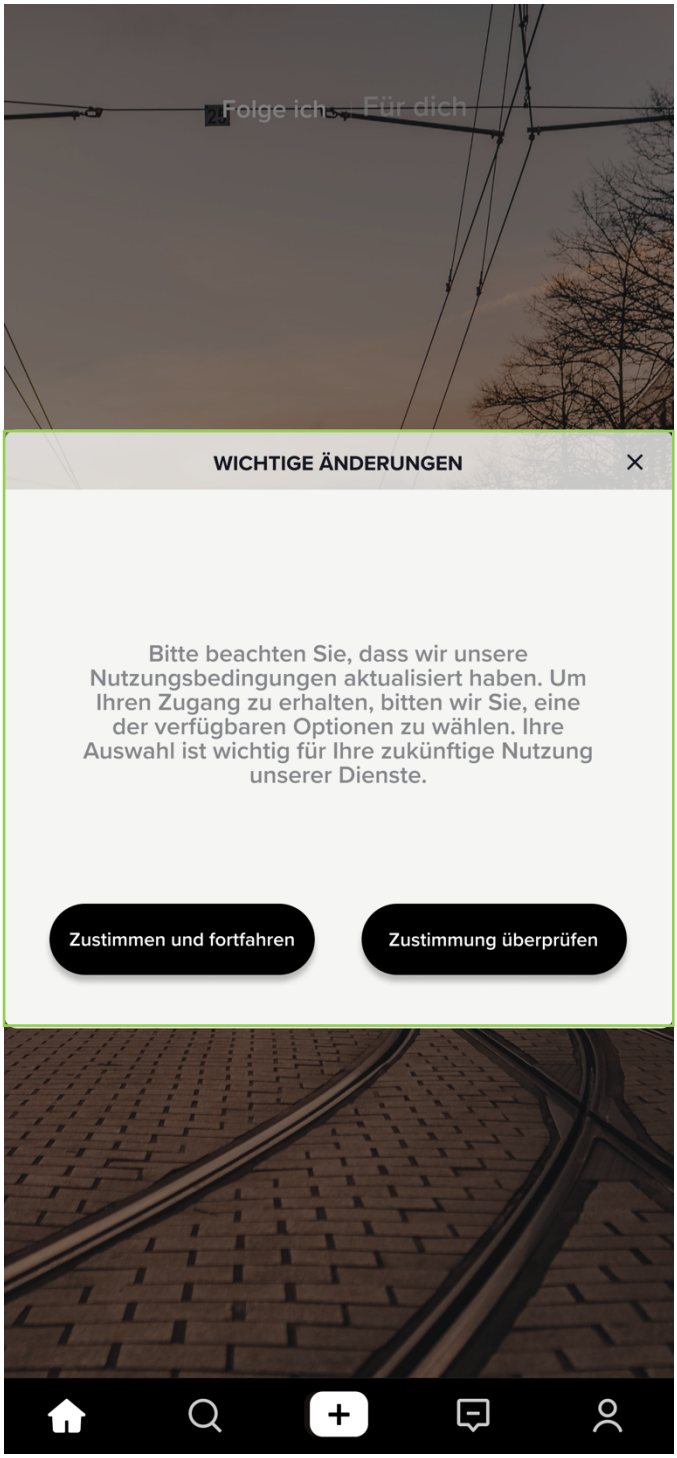
Redirective Condiction

Decicision Uncertainty

[Freitextfeld]

Screenshot 8

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.

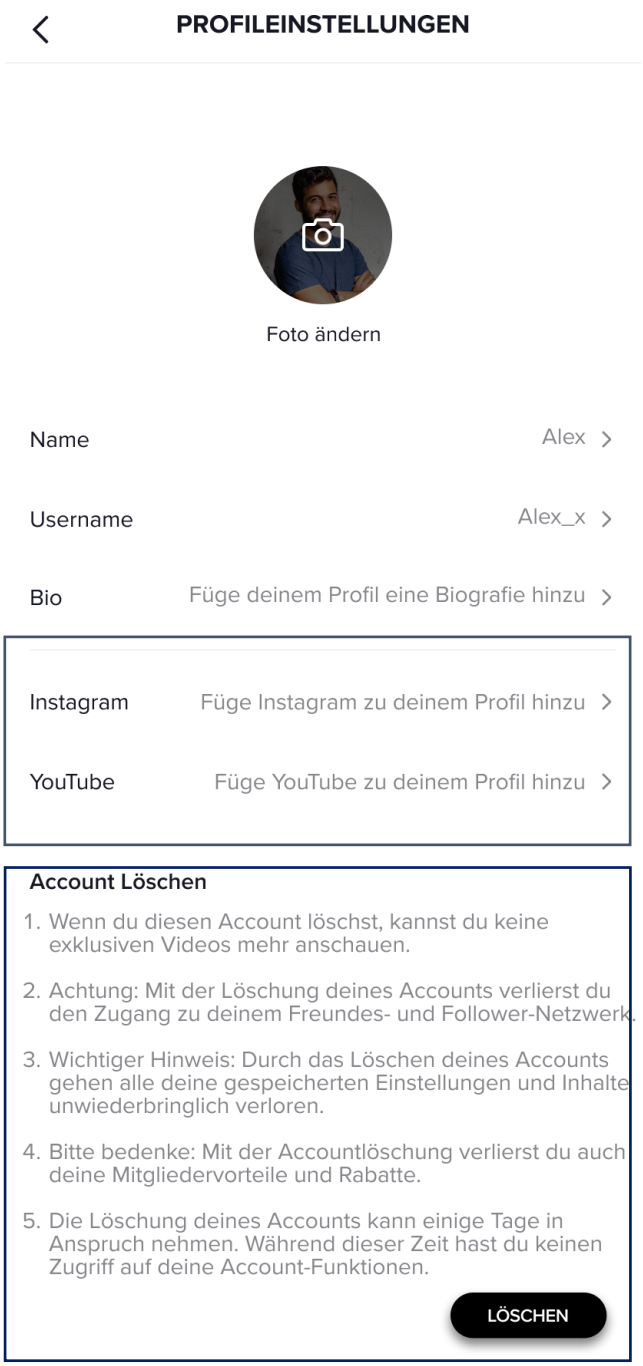


Decicision Uncertainty

[Freitextfeld]

Screenshot 9

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.



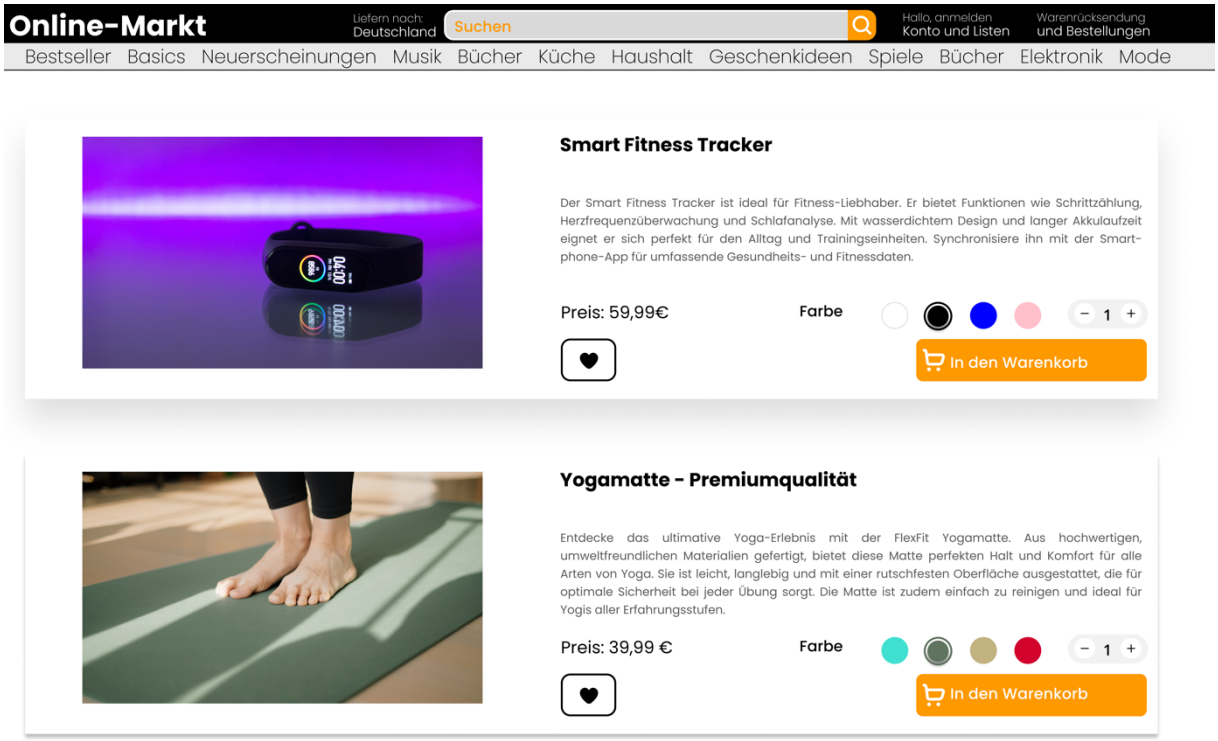
Interactive Hook

Redirective Condiction

[Freitextfeld]

Screenshot 10

Bitte markiere auf dem Screenshot alle Elemente, die du als Deceptive Designs identifizierst. Für jede Markierung solltest du eine kurze Begründung hinzufügen, warum du diese Elemente als irreführend oder täuschend einstufst.
Beachte, dass auf dem Screenshot zwischen 0 und 3 Deceptive Designs vorhanden sein können.

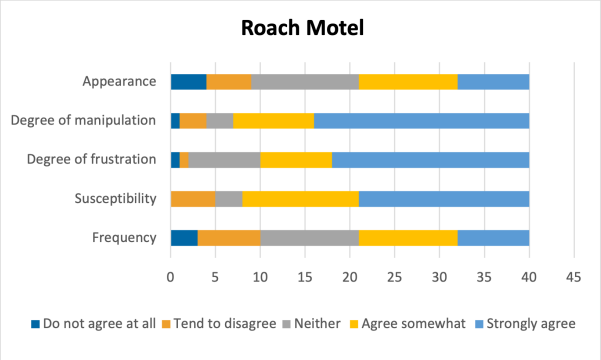


[Freitextfeld]

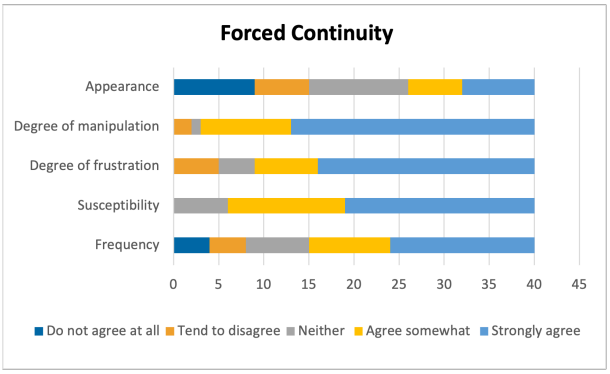
Appendix E

Ranking Deceptive Designs

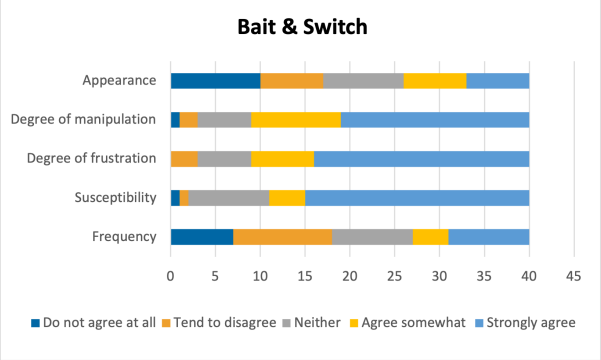
In the appendix you will find the evaluations of the different deceptive designs created by the participants as part of this study. This visual data complements the results of the third part of the questionnaire.



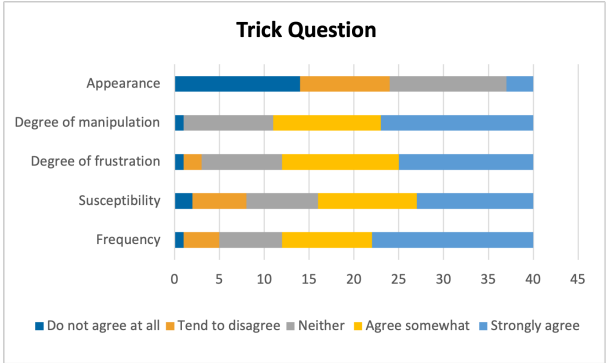
(a) Participant responses on perceptions of the *Roach Motel* Pattern, highlighting levels of agreement with statements regarding appearance, manipulation, frustration, susceptibility, and frequency.



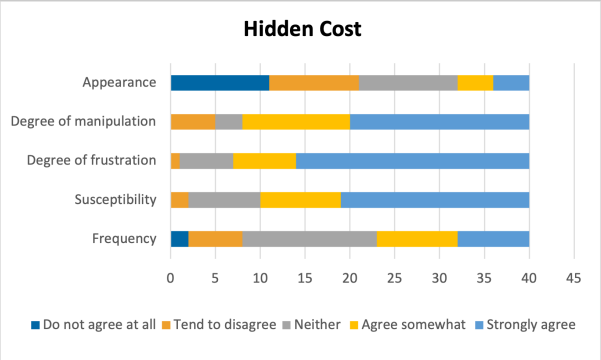
(b) Participant responses on perceptions of the *Forced Continuity* Pattern, highlighting levels of agreement with statements regarding appearance, manipulation, frustration, susceptibility, and frequency.



(c) Participant responses on perceptions of the *Bait & Switch* Pattern, highlighting levels of agreement with statements regarding appearance, manipulation, frustration, susceptibility, and frequency.



(d) Participant responses on perceptions of the *Trick Question* Pattern, highlighting levels of agreement with statements regarding appearance, manipulation, frustration, susceptibility, and frequency.



(e) Participant responses on perceptions of the *Hidden Cost* Pattern, highlighting levels of agreement with statements regarding appearance, manipulation, frustration, susceptibility, and frequency.

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