The Effects of Dark Patterns: Designers' Responsibility?

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Abstract

Dark patterns, known as malicious design techniques used to deceive users in interfaces, raise concerns about ethical considerations within the design process. Despite previous research on the types and appearances of dark patterns, research on their harmful effects remains understudied. In addition, while many studies have examined users' ability to recognize dark patterns, there has been limited investigation into designers' responsibility in relation to their design choices. This thesis explores the extent to which designers perceive the effects of dark patterns as their responsibility. The research questions focus on designers' recognition, intentional use, and consideration of the consequences of dark patterns in their design choices. Using a qualitative approach, the study consists of two sessions with four participants each, comprising UX and product designers. The participants engaged in a collaborative design activity involving the application of dark patterns, followed by an in-depth discussion. Content analysis was employed to analyze the collected data and identify the occurrence of codes and themes. This research provides valuable insights into designers' subjective experiences and perspectives regarding dark patterns. The findings highlight the need for ethical awareness and informed decision-making in design practices and design education to mitigate the negative impact of dark patterns. By addressing the research questions, this study contributes to the existing literature on the responsible use of dark patterns in design, emphasizing the importance of ethical considerations for designers and other parties involved in the design process.

Keywords: dark patterns, design patterns, ethics in design, responsible design, design choices

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1. Introduction

In an era where technology permeates every aspect of our lives, the ability of persuasive technologies cannot be ignored. Persuasive technology is defined as technology designed to enable attitudinal and behavioral change by persuasion and social influence (Oinas-Kukkonen & Harjumaa, 2008). Persuasive design approaches in themselves are not to be frightened of. By applying psychological principles regarding the functioning of the human mind, designers can create desirable solutions for the user and therefore enhance user experiences (Maier & Hall, 2020). For instance, persuasive techniques could be applied to motivate people towards healthier lifestyles and sustainability. However, comprehension of the human mind can also be misused for malicious intents, by creating interfaces that trick people into performing actions they did not intend to take. Such manipulating design approaches are called *dark patterns*, also known as *deceptive design patterns* (Harry Brignull, 2013). They can be identified by, for example, forcing users to accept unfair privacy settings by making it difficult to change them, or by pressuring customers to finish purchases when costs are added at checkout (Harr & Nyberg, 2021). In order to identify these various deceptive tactics, Brignull (2018) defined 12 distinct forms of dark patterns. Gray et al. (2018) added to this by categorizing them into five different classifications: Nagging, Obstruction, Sneaking, Interface Interference, and Forced Action (See Figure 1).

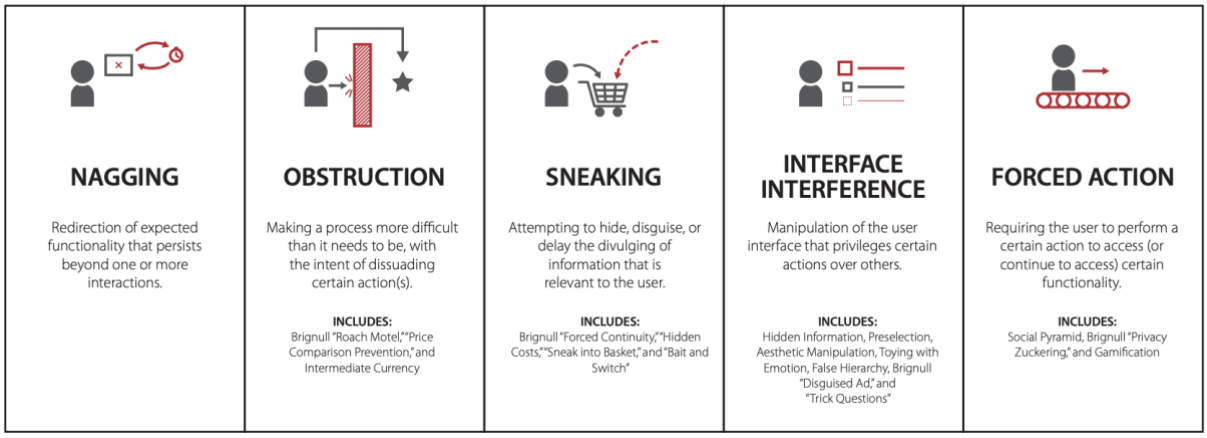

Figure 1: Five classifications of dark patterns identified by Gray et al. (2018)

Dark patterns are often used for the beneficial economic consequences for businesses or companies. However, businesses ignore the fact that in the long term it could also result into decreased user satisfaction, credibility and trust (Gray et al., 2018). Focusing deeper on individual and end-user level, Mathur et al. (2021) describe four main categories of harmful effects dark patterns can cause: Financial Loss, Invasion of Privacy, Cognitive Burden and Loss of Individual Autonomy. For example, by sneaking additional products in the shopping cart, the user could end up spending extra money leading to Financial Loss.

In the EU, dark patterns have drawn significant legal and regulatory attention, such as the law of Digital Single Act and the General Data Protection Regulation (GDPR) (Mathur, 2021). Nevertheless, since the criteria to determine the threshold and the harms of dark patterns are still poorly defined, policymakers have struggled with how to react (Gunawan, 2022). Additionally, one should not rely solely on legal rules to follow when it comes to ethical design choices, as designers should consider ethics and responsible decision-making as an essential part of design (Birkett et al., 2009).

According to the Professional Association for Design (AIGA, 2021), the design industry in 2021 faces challenges of insufficient awareness of the consequences of design choices and limited involvement in decision-making. It could be difficult for designers to refuse requests to use dark patterns due to bureaucratic obstacles (Tahran, 2020). They frequently feel pressured by employers, even when they are aware of the ethical issues around dark patterns (Eskelinen, 2021). Although designers claim to be user-centric, they make unethical choices in favor of the stakeholder (Grey et al., 2018).

The question remains whether designers have the intention of acting unethically, or whether it is just ‘bad design’. This would address another form of deceptive design besides dark patterns: *anti-patterns*. The major difference between the two distinctions is the

deliberate malicious intent involved in dark patterns, as opposed to the skill-lacking, inadvertent application of anti-patterns (Gray et al., 2018).

Regardless of intent, both applications have undesirable outcomes that should be avoided. Considering all stakeholders involved, including companies, designers, and the government, the responsibility for the use of dark patterns cannot be attributed solely to one party. So, with laws too abstract to comply with, companies focused solely on economic growth and designers unable to stand up against unethical design practices, how do we ensure that we design responsibly? The design community should acknowledge its responsibility and consider how to evoke change, especially in a society where the economy is dominated by large companies and the influential role of the designer is perhaps more important than ever (Birkett et al., 2009; Tahran, 2020; Lukoff, 2021).

This thesis aims to explore designers' perceived responsibility of the effects of dark patterns in their design. Results should contribute to an understanding towards what extent designers make conscious design choices with ethical concern. The overarching research question that will be examined is:

RQ: *To what extent do designers perceive the effects of dark patterns as their responsibility?*

The sub-research questions that will be explored in the study are:

1. *Do designers recognize dark patterns?*
2. *Do designers intentionally use dark patterns in their design?*
3. *Do designers consider the effects of dark patterns as a consequence of their design choices?*

2. Theoretical Framework

2.1 Persuasive Technology

Design is fundamentally an act of persuasion, as designers make deliberate changes to the external environment that either directly or indirectly influence behavioral or societal change (Nodder, 2013). Fogg (2003) introduced the term persuasive technology and defined it as "a computing system, device or application intentionally designed to change a person's attitude or behavior in a predetermined way" (Fogg, 2003, p.1). This intentional change of behavior is accomplished through the use of persuasive strategies, applied in a user interface by means of *design patterns* (Toxboe, n.d.). Design patterns are recurring approaches to address common design issues and serve as a shared language among designers. The persuasive design patterns consist of seven types: reduction, tunneling, tailoring, suggestion, self-monitoring, surveillance and conditioning (See Table 1). The commercial sector has regularly used persuasive design strategies to increase profits, stimulate business growth and gain competitive advantages (Maier & Hall, 2020). Besides, persuasive methods have also been utilized for individual benefits, such as encouraging socially desirable behavior or changing unhealthy habits (Gray et al., 2018). When applied responsibly, persuasive design can positively contribute to user experience and user engagement. In the past years, ethical concerns have been highlighted regarding the responsibility of designing persuasive technology, since studies observe a shift from user-centric to business-centric design (Van Nimwegen et al., 2022). This raises the question of whether design is executed with the right intentions, from which the right people benefit.

Persuasive strategy	Description
Reduction	Simplifying a task toward the users' desired outcome; for example, reducing the required steps needed for task completion. This might encourage users to perform the task (correctly) and trust their abilities in tackling the task with a positive approach.
Tunneling	Guiding users toward the desired outcome through a series of steps, frequently initiated by people wishing to change their own behavior.
Tailoring	Providing personalized experiences in terms of the presented interface, information, options, and/or feedback, based on the users' needs and actions. This increases the likelihood that an experience will be perceived as relevant. Tailoring often is employed in conjunction with tunneling.
Suggestion	Giving users suggestions at the right moment. This requires recognition of an individual user's current situation with variables that help to find out when, where, and how suggestions should/could be presented.
Self-monitoring	Enabling real-time tracking of people's behavior to allow them the chance to adjust in reaching desired outcomes. When people know how they are doing, they are more likely to continue with that behavior.
Surveillance	Monitoring the behavior of others to adjust the targets' behaviors in a particular manner. Observing others makes the achievement of a desired outcome more likely as people will try to act to meet the expectations of the observer.
Conditioning	Providing rewards or punishments to shape behaviors and help users toward desired outcomes.

Table 1. Seven Persuasive Technology Strategies by Fogg (2003)

2.2 Dark Patterns

There is a thin line between persuasion and deception. The distinction can be made by considering the intentions of the designer (Van Nimwegen et al., 2022). When deception is intentionally introduced by the use of malicious design tricks, these are called *dark patterns*. The term was first introduced by UX specialist Harry Brignull in 2010, defining them as "tricks used in websites and apps that make you do things you didn't mean to, like buying or signing up for something" (Brignull, 2023, "What are deceptive patterns?" section). Dark patterns steer user behavior towards choices that benefit the company that applied them, such as accepting privacy settings to share data with third parties or paying extra for orders where costs are added. It is also possible for deception to occur without intentional purpose, but rather poor design skills. This phenomenon is known as *anti-patterns* (Gray et al., 2018).

Thus, depending on the designer's initial intentions, a deceptive design patterns may be either a dark pattern or an anti-pattern.

2.2.1 Taxonomies

Prior studies proposed several taxonomies to identify different types of dark patterns. Brignull (2018) initially described a taxonomy consisting of 12 dark pattern classifications. Gray et al. (2018) formulated more broad categorizations of Brignull's taxonomy and bundled them into five distinctions: Nagging, Obstruction, Sneaking, Interface Interference, and Forced Action. For example, Gray et al. (2018) labeled Brignull's "Forced Continuity" (i.e., when a free trial comes to an end and charges your credit card without warning) as "Sneaking" (i.e., attempting to hide, disguise, or delay the divulging of information that is relevant to the user). Additionally, Mathur et al. (2019) discovered 1800 dark patterns on shopping websites using an automated web crawler. Their study introduces a taxonomy that builds on both taxonomies of Brignull (2018) and Gray et al. (2018), yet also reformulates and adds categories such as Social Proof (i.e., informing the user about the activity on the website) and Scarcity (i.e., indicating to users that limited stock is available). Since these taxonomies are the most widely used in the literature, this study uses a combination of all three to provide the most thorough analysis of dark patterns (see Table 2).

Please note that Brignull's taxonomy has been updated in April 2023, and it now describes 16 types of dark patterns instead of 12. The taxonomy does not include any new dark patterns, yet the selection now combines Brignull's old taxonomy with the taxonomies of Gray et al. (2018) and Mathur et al. (2019). Given that this thesis started before the update, the previous taxonomy of Brignull (2018) is used.

Prior studies	Dark Pattern Category	Dark Pattern Type	Description
Gray et al. (2018)	Nagging	-	
	Obstruction	Roach Motel *(Brignull, 2018)*	You get into a situation very easily, but then you find it is hard to get out of it (e.g. a premium subscription).
		Price Comparison Prevention *(Brignull, 2018)*	The retailer makes it hard for you to compare the price of an item with another item, so you cannot make an informed decision.
		Intermediate Currency	You spend real money to purchase a virtual currency which is then spent on a good or service, with the goal of disconnecting you from the real dollar value in order to cause you to interact differently with the virtual currency.
	Sneaking	Forced Continuity *(Brignull, 2018)*	When your free trial with a service comes to an end and your credit card silently starts getting charged without any warning.
		Hidden Costs *(Brignull, 2018)*	You get to the last step of the checkout process, only to discover some unexpected charges have appeared, e.g. delivery charges, tax, etc.
		Sneak into Basket *(Brignull, 2018)*	You attempt to purchase something, but somewhere in the purchasing journey the site sneaks an additional item into your basket, often through the use of an opt-out radio button or checkbox on a prior page.
		Bait and Switch *(Brignull, 2018)*	You set out to do one thing, but a different, undesirable thing happens instead.
	Interface Interference	Hidden Information	Options or actions relevant to the user that are not made immediately or readily accessible.
		Preselection	Any situation where an option is selected by default prior to user interaction.
		Aesthetic Manipulation	Any manipulation of the user interface that deals more directly with form than function. This includes design choices that focus the user's attention on one thing to distract them from or convince them of something else.
		Toying with Emotion	Any use of language, style, color, or other similar elements to evoke an emotion in order to persuade the user into a particular action.
		False Hierarchy	When one or more options have visual or interactive precedence over others, particularly where items should be in parallel rather than hierarchical.
		Disguised Ads *(Brignull, 2018)*	Adverts that are disguised as other kinds of content or navigation, in order to get you to click on them.
		Trick Questions *(Brignull, 2018)*	While filling in a form you respond to a question that tricks you into giving an answer you didn't intend. When glanced upon quickly the question appears to ask one

			thing, but when read carefully it asks another thing entirely.
		Social Pyramid	Requires users to recruit other users to use the service. This is a method commonly used in social media applications and online games.
	Forced Action	Privacy Zuckering *(Brignull, 2018)*	You are tricked into publicly sharing more information about yourself than you really intended to.
		Gamification	When certain aspects of a service can only be "earned" through repeated (and perhaps undesired) use of aspects of the service.
Mathur et al. (2019)	Sneaking	Sneak into Basket *(Brignull, 2018)*	Adding additional products to users' shopping carts without their consent.
		Hidden Costs *(Brignull, 2018)*	Revealing previously undisclosed charges to users right before they make a purchase.
		Hidden Subscription	Charging users with a recurring fee under the pretense of a one-time fee or a free trial.
	Urgency	Countdown Timer	Indicating to users that a deal or discount will expire using a counting-down timer.
		Limited-time Message	Indicating to users that a deal or sale will expire soon without specifying a deadline.
	Misdirection	Confirmshaming *(Brignull, 2018)*	Using language and emotion (shame) to steer users away from making a certain choice.
		Visual Interference	Using style and visual presentation to steer users to or away from certain choices.
		Trick Questions *(Brignull, 2018)*	Using confusing language to steer users into making certain choices.
		Pressured Selling	Pre-selecting more expensive variations of a product or pressuring the user to accept the more expensive variations of a product and related products.
	Social Proof	Activity Message	Informing the user about the activity on the website (e.g., purchases, views, visits).
		Testimonials	Testimonials on a product page whose origin is unclear.
	Scarcity	Low-stock Message	Indicating to users that limited quantities of a product are available, increasing its desirability.
		High-demand Message	Indicating to users that a product is in high demand and likely to sell out soon, increasing its desirability.
	Obstruction	Hard to Cancel	Making it easy for the user to sign up for a service but hard to cancel it.
	Forced Action	Forced Enrollment	Coercing users to create accounts or share their information to complete their tasks.

Table 2: Categories and types of dark patterns with descriptions

2.2.2 Effects of Dark Patterns

In recent years, various research has been done on the appearances of dark patterns, users' recognition of dark patterns and designers' perceptions of the phenomenon (Gray et al., 2018; Chivukula et al., 2018; Mathur et al., 2019; Maier & Harr, 2020). Another aspect of research that remains scarce, is the harmful effects dark patterns can cause. Oftentimes, dark patterns are applied for profit and growth-stimulating purposes for companies, disregarding the impact the manipulative interfaces can have on users. Besides direct consequences, dark patterns can result into lower user satisfaction, credibility and trust in the long term (Gray et al., 2018). Mathur et al. (2021) describes a total of four normative lenses that concern the direct harmful effects of dark patterns, of which two lenses focus on individual and end-user level: Individual Welfare and Individual Autonomy. Individual Welfare concerns dark patterns that affect the choice architecture within the interface to benefit the company at the expense of the user, distinguishing three types of welfare aspects: Financial Loss, Invasion of Privacy and Cognitive Burden (Mathur et al., 2021). These three Individual Welfare aspects, together with Individual Autonomy, are elaborated on in the following section.

Financial Loss

An obvious welfare consequence of dark patterns is that it can cause users to suffer financial loss (Mathur et al., 2021). A strong motivator for companies to apply dark patterns is economic growth, at the expense of the user. By means of malicious interfaces, users are pushed into spending more money than they intended to. For example, adding products in shopping carts without the knowledge of the user (Sneak into Basket), or letting users sign up for an initially perceived free trial when they are actually charged for recurring transactions (Hidden Subscription).

Invasion of Privacy

Another harmful effect of dark patterns is the invasion of the user's privacy (Mathur et al., 2021). According to Bösch et al. (2016), companies strive for systems that consciously violate the privacy of their users driven by financial motives, instead of providing privacy-friendly solutions. Examples include setting privacy defaults to make users share more personal data then they anticipated (Privacy Zuckering) or making it hard for users to adjust privacy options (Roach Motel, Hard to Cancel).

Cognitive Burden

The third welfare consequence argued by Mathur et al. (2021), is when dark patterns make users spend an undesirable amount of time, effort and attention. When users are subjected to cognitive burden by dark patterns causing an information overload, they may be compelled to select the easiest accessible option and avoid complicated choices, in favor of the company. For example, making it difficult for users to unsubscribe from a service by referring them to call a phone number during certain hours (Roach Motel, Hard to Cancel) or forcing users to accept favorable options by continuously showing pop-ups (Nagging).

Loss of Individual Autonomy

This normative lens indicates that users have the right to make their own decisions (Mathur et al., 2021). When dark patterns interfere with individual autonomy, the choice architecture may be altered in a way that leads users to choose certain options, limit users' options, hide options, or make it difficult to make decisions. Most dark patterns threaten individual decision-making. It is, however, challenging to determine when the user autonomy is being violated, or when users are guided towards certain behavior by means of persuasive techniques.

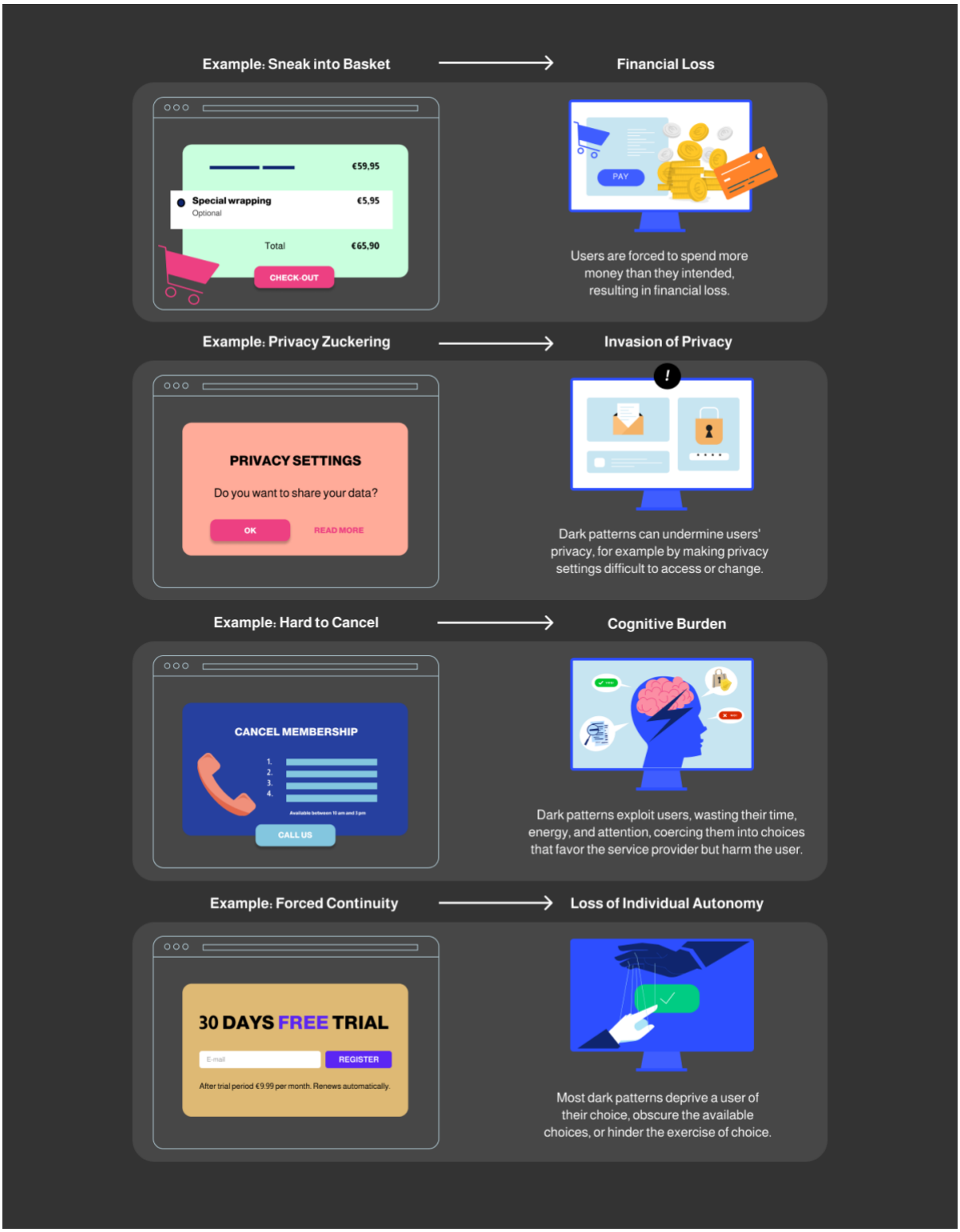

Figure 2: Examples of dark pattern types and their harmful effects

When explaining the harmful effects of dark patterns, the literature associates the effects with multiple types of dark patterns. Although some effects are directly linked to

specific types, there are also many overlaps. For example, Brignull's Roach Motel can result into Financial Loss as well as Cognitive Burden and Loss of Individual Autonomy. More specific, when a user signs up for a subscription and the cancellation process is made complicated (Loss of Individual Autonomy), the user spends an unnecessary amount of time and energy (Cognitive Burden) and it may result in a forced payment of the subscription (Financial Loss). An overview of the harmful effects and the associated dark pattern types is shown in Table 3.

Harmful Effects of Dark Patterns	**Dark Pattern Type**
Financial Loss	Roach Motel, Price Comparison Prevention, Intermediate Currency, Forced Continuity, Sneak into Basket, Hidden Costs, Disguised Ads, Hidden Subscription, Countdown Timer, Limited-time Message, Activity Message, Testimonials, Low-stock Message, High-demand Message.
Invasion of Privacy	Hidden Information, Preselection, Aesthetic Manipulation, Toying with Emotion, False Hierarchy, Disguised Ads, Trick Questions, Social Pyramid, Privacy Zuckering, Gamification, Hidden Subscription, Confirmshaming, Visual Interference, Pressured Selling, Hard to Cancel, Forced Enrollment.
Cognitive Burden	Roach Motel, Forced Continuity, Bait and Switch, Preselection, Aesthetic Manipulation, Toying with Emotion, False Hierarchy, Disguised Ads, Trick Questions, Privacy Zuckering, Confirmshaming, Visual Interference, Pressured Selling, Hard to Cancel
Loss of Individual Autonomy	All

Table 3: Mapping table of harmful effects by type of dark patterns (Mathur et al., 2021)

2.2.3 Legislation

The diversity of dark pattern categories, types and descriptions highlights the conceptual inconsistency in existing research. This also makes it challenging for legislation to detect and react against dark patterns. The European General Data Protection (GDPR) was implemented on May 25th, 2018 to ensure data privacy and security of all residents within the European Union (EU) (Wolford, 2022). Although the GDPR does not explicitly prohibits dark patterns, it does impose obligations to all companies and organizations that process personal data of individuals in the EU. For example, the GDPR Principle of Purpose Limitation states that personal data should only be obtained for valid intentions and should be erased when processing of the data is no longer required (Forbrukerrådet, 2018). Additionally, the Principle of Transparency states that individuals should be provided with an intelligible explanation of what personal data is gathered and for what reason. In late 2021, the European Parliament passed the Digital Services Act (DSA) and the Digital Market Act (DMA), both setting new rules for large online platforms in the EU (European Commission, 2023). These new rules combat dark patterns by prohibiting online platforms to use manipulative design techniques that negatively affect users' free choices (Gunawan, 2022). More recently, the European Data Protection Board (EDPB) introduced guidelines to designers and users of social media platforms on how to recognize and avoid dark patterns (European Data Protection Board, 2022). Additionally, the European Commission conducted a behavioral study on dark patterns and manipulative personalization in the digital environment (European Commission et al., 2022). They found that 97% of the most popular websites and apps used by EU consumers used at least one dark patterns, of which the most common were Hidden Information/False Hierarchy, Preselection, Nagging, Hard to Cancel and Forced Registration. The study states that regardless of the existing EU legislations, alterations might be necessary for effectively tackling dark patterns.

2.3 Ethics in UX design

Within the field of human computer interaction (HCI), the role of ethics in design has received a substantial amount of attention, evoking debate of when design practices are perceived as unethical and when they are socially accepted. The third wave of HCI places emphasis on the importance of culture and value in creating meaningful interactions between humans and machines (Duarte & Baranauskas, 2016). This aligns with the objectives of User Experience (UX) design, which focuses on crafting meaningful and relevant experiences for users with products or services (The Interaction Design Foundation, n.d.). Practitioners of this design discipline are frequently confronted with ethical issues throughout the design process. Various methods and approaches to support ethical design have been introduced over the past years, yet they were primarily aimed at evolving design education, with fewer attention for "everyday" UX design (Gray et al., 2018). Nevertheless, the methods continue to evolve and have proven their effectiveness in a research context.

For example, the ACM Code of Ethics and Professional Conduct provides a list of ethical principles and guidelines for computing professionals to act responsibly, which were last updated in 2018 (ACM Code Task Force, 2018). Examples include Avoid Harm, Respect Privacy and Honor Confidentiality. Nevertheless, it is unknown whether UX professionals consider the ACM to be a regulating authority that is ought to determine their ethical responsibilities (Gray et al., 2018). The design community might benefit more from hands-on methods to be applied in the design process.

Another example includes the process in which at least three experts use rules of thumb to measure the usability of a user interface and reveal issues and insights, called a heuristic evaluation (Nielsen & Molich, 1990). An approach that has been widely adopted, is the set of 10 interaction principles initially formulated in 1990 by Nielsen & Molich and 4 years later revised by Nielsen (1994). The third principle, User Control and Freedom, states

that users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. This principle ties in with Brignull's (2018) formulated dark pattern "Roach Motel", where it is easy to get into a situation, but hard to get out of it. By applying the heuristics, it is expected to avoid a certain number of dark patterns. However, due to the multi-interpretable formulations of the principles, in addition to the required involvement of multiple evaluators, the findings may be difficult and time consuming to summarize (Umar & Tatari, 2008).

A common method for discovering values in design is Value Sensitive Design (VSD), in which the interactional perspective aims at addressing values of both direct and indirect stakeholders, including all individuals affected by the technology its use (Davis, 2009). VSD is able to discover *why* a design might be perceived as beneficial or harmful and supports the uncovering of conflicting values that must be resolved. However, questions have been raised about VSD as to whether it provides sufficient guidance for classifying values, as it can be a complex practice (Gray et al., 2018).

Even though these methods have proven to be effective from an academic perspective, there is a need for more practical tools that strengthen existing methods to encourage ethical engagement of designers (Chivukula et al., 2020). In their study, Chivukula et al. (2020) describe five dimensions of UX design practice that affect ethical awareness. Based on their findings, implications for building upon existing bottom-up methods supporting ethical awareness in design are suggested, as well as implications for HCI and UX education. Finally, they advocate developing a practitioners' own design character and sense of responsibility that strengthens their human-centered design approach, rather than solely following ethical guidelines.

2.4 Designers' responsibility and perceptions

According to designers, companies bear the greatest responsibility in the use of dark patterns, followed by the government and finally the designers themselves (Eskelinen, 2021). Government legislation is often mentioned as being necessary to combat dark patterns. However, legislation does not appear to produce the desired results on its own. Additionally, one should not rely solely on legal rules to follow when it comes to ethical design choices. As Birkett et al. (2009) states, "Design should involve understanding consequences" (p. 6), suggesting that designers should consider ethics and responsible decision-making as an essential part of design.

In an article published on XD Ideas (Tahran, 2020), Harry Brignull states that we should prevent rule violations and instead formulate ethical guidelines as a design team beforehand, placing more responsibility on companies and designers. According to Katherine Zhou, Founder of Design Ethically, designers face bureaucratic obstacles and limited decision-making power, making it difficult for them to refuse demands to implement dark patterns (Tahran, 2020). Research of the Professional Association for Design (AIGA) (2021) shows that lack of awareness of the impact of design choices and not participating in decision-making are two important issues within the design industry. Even when designers are aware of the ethical concerns around dark patterns, they often feel compelled by companies to apply them (Ekelinen, 2021). In a study by Gray et al. (2018), student UX designers were given a design challenge to examine the inclusion of user and stakeholder values in their choices. Results showed a tendency to prioritize stakeholder outcomes over user values, sometimes resorting to unethical practices like dark patterns. The study leaves unanswered questions regarding the intentional nature of these unethical choices and the designers' awareness of the detrimental effects of dark patterns on users.

3. Methods

3.1 Research design

In order to gain a deeper understanding of the designer's interaction with design issues and the choices made within the design process, a qualitative study was performed by means of a design activity and a follow-up discussion. The overall goal was to discover to what extent designers consider the effects of their design choices as their responsibility, by investigating their everyday design practice and confronting them with the harmful effects of dark patterns. Results of this study could highlight the ethical awareness of designers, with the potential to strengthen existing design methods and education. The study was executed in two sessions, in which the participants were presented with a realistic design activity they had to perform together as a team. In a similar lab set-up, Chivukula et al. (2018) investigated which user- and stakeholder values were included by the designers in the final design solution. In addition to their study, this study also explained the harmful effects of dark patterns to the designers by letting them interact with dark pattern interfaces, followed by a group discussion. In the follow-up discussion, predefined open questions were asked about the participants' intentions and perceived responsibility.

3.2 Participants

A total of eight design professionals took part in the design activities and the discussions, recruited via snowball sampling and selective sampling. The participants consisted of professionals in a UX-focused position, including UX designers and product designers. Working experience ranged from one-and-a-half years to five years and educational background varied from bachelor's degree to masters' degree. Research claims that a total of six to ten participants is sufficient for generating rich qualitative data within methods similar to focus groups, which the design activity resembled (Powell & Single, 1996;

Rabiee, 2004). The participants were divided into two groups of four participants each to simulate the group size of a realistic design team (Chivukula et al., 2019). The small group size also ensured that each participant had the opportunity to express themselves during the sessions (Gill et al., 2008). The language used in the study and the materials was Dutch, as it was the native language of all participants.

3.3 Data collection

Both design activities lasted one hour followed by a 30-minute discussion, including the following components: introduction of the design activity (10 mins); working together on the design activity (40 mins); presentation of final design (5 mins); interacting with dark pattern interfaces and explaining harmful effects (10 mins); and discussion about intentions and perceived responsibility (20 mins). Since shopping websites most commonly use dark patterns and contribute strongly to the harmful effects (Mathur et al., 2019), the design activity was focused on this segment. The participants were asked to redesign a fictional shopping website, including the homepage, product page, shopping cart and confirmation page (See Appendix A). To slightly provoke the participants in using dark patterns, they were provided with only the client's wishes and no user data. The participants were presented with a list of principles, consisting of interaction design principles and persuasive principles (See Appendix B). They were asked to select a maximum of six principles, of which they felt were the most important to include in the designs. The participants were provided with a set of four pre-designed interfaces per page, of which three included dark patterns and one included no dark patterns (See Figure 3 and Appendix C). From this set of interfaces, the participants needed to choose one design as the 'redesign' for each page. The selected principles and the selected interfaces per session are visualized in Appendix D.

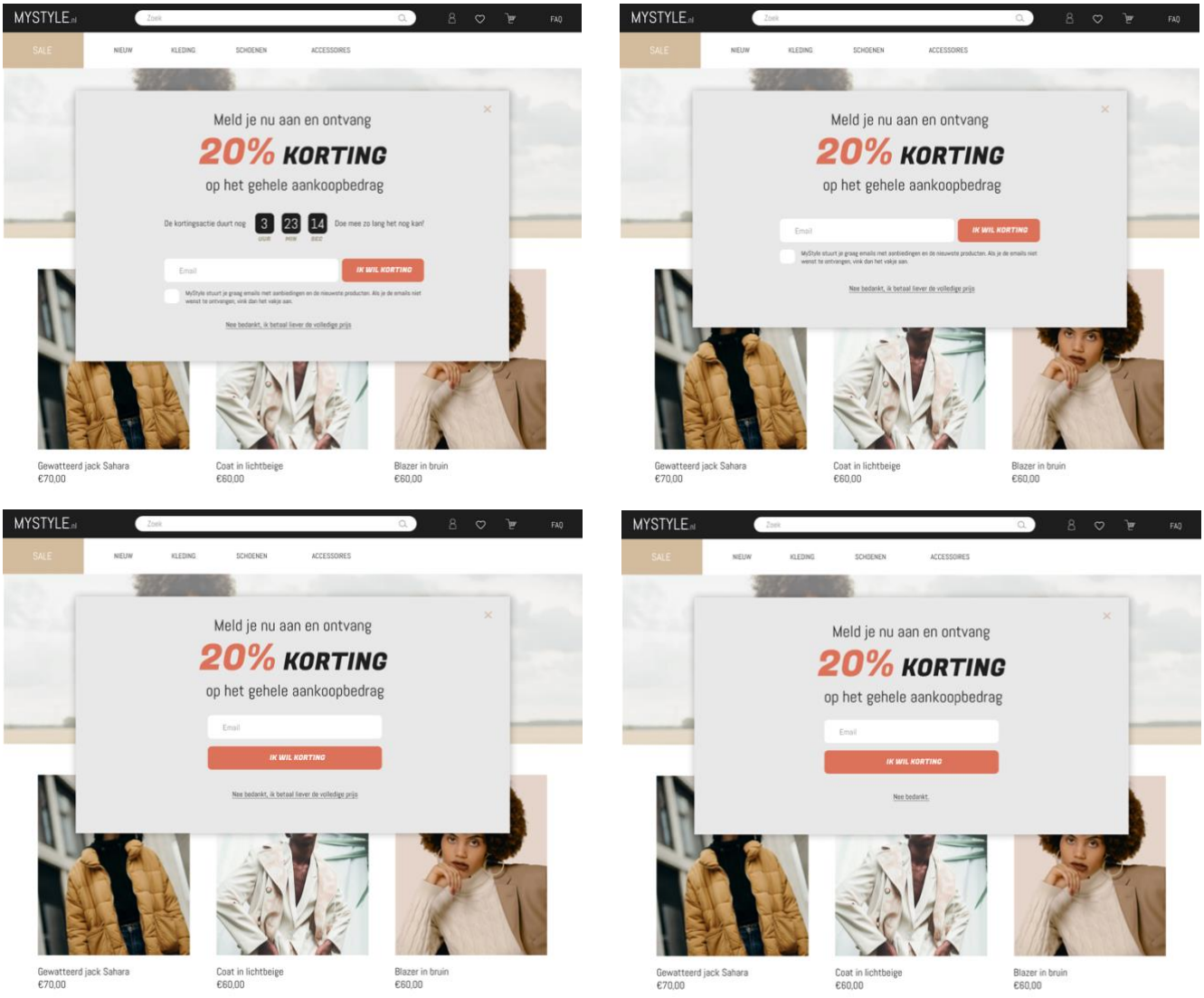

Figure 3: Set of interfaces for 'Homepage' of which three include dark patterns and bottom right includes no dark patterns

The participants were expected to make collective decisions in choosing the interfaces of the pages. Ultimately, this resulted in a selection of four pages (i.e. homepage, product page, shopping cart and confirmation page). After motivating their choices, the harmful effects of dark patterns were shown to the participants, by letting them navigate through the 'dark' interfaces and providing explainer pages for every dark pattern used in the interface (See Figure 4 and Appendix E).

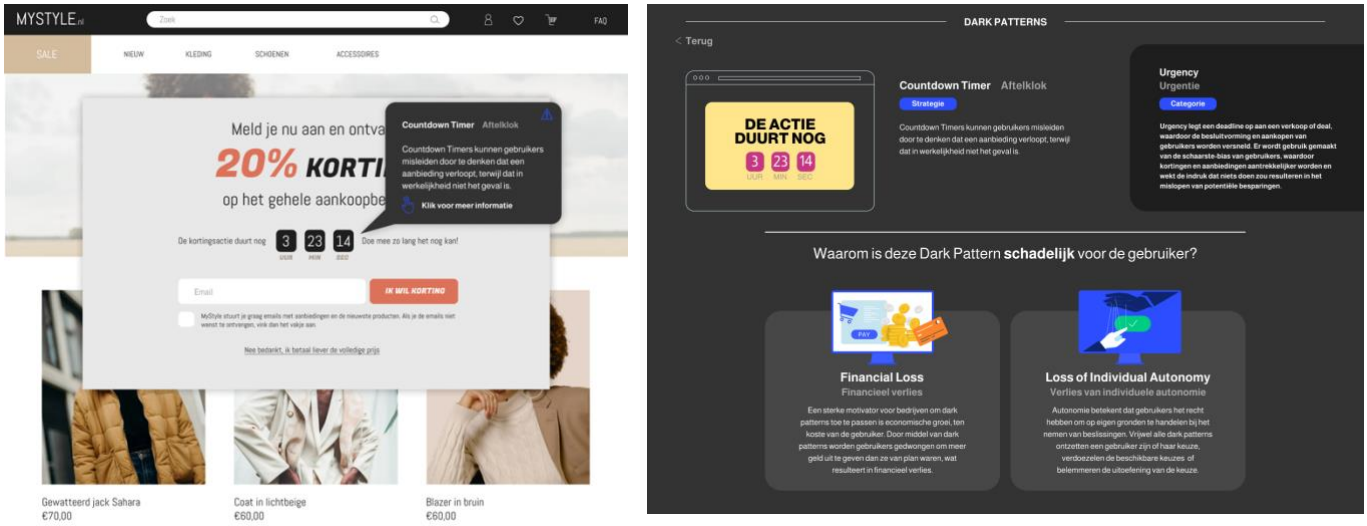

Figure 4: Homepage showing dark pattern information when hovering mouse (left) and dark pattern explainer page (right)

Finally, the participants engaged in a discussion fueled by predefined open questions about their intentions and perceived responsibility (See Appendix F). Examples of questions elaborated in the discussion, are: '*Were you able to recognize any dark patterns in the set of interfaces?*' '*Have you used dark patterns in your final designs and why?*' and '*To what extent do you feel responsible for the consequences of your design choices?*'.

3.4 Data analysis

Both the design activities and discussions were audio recorded with consent of all participants. After conducting the study, the recordings were transcribed and the participants were anonymized by encoding them as P1, P2, P3, and so on. The method used for analyzing the data was content analysis, a research technique applied to identify the occurrence of specific words, themes or concepts within qualitative data (Columbia University Mailman School of Public Health, n.d.). Content analysis is primarily used to uncover the intentions of an individual or group, to describe attitudinal and behavioral responses to communications, or

to identify patterns in communication content. For the first sub-research question (‘*Do designers recognize dark patterns?’*), the category *Recognition of Dark Patterns* was divided into four codes: (1) *aware, positive attitude*; (2) *aware, negative attitude*; (3) *unaware, positive attitude*; and (4) *unaware, negative attitude*. For example, when a participant recognized the dark pattern as deceiving or malicious, i.e. expressed a negative tone while discussing it, this was coded as *aware, negative attitude* (See Appendix G). The occurrence of these codes, together with the participants’ decisions on whether they used or did not use a dark pattern, were translated into the broader categories (1) *intentionally used*; (2) *intentionally not used*; (3) *unintentionally used*; and (4) *unintentionally not used*. These provided answers for the second sub-research question (‘*Do designers intentionally use dark patterns in their design?*’). In addition of answering this sub-research question, codes were formulated to provide insights into the motives of the participants to intentionally or unintentionally use or not use a dark pattern. These motives were categorized based on whether they aimed to benefit either the client or user, or whether they were included in line with the chosen principles, leading to the following codes: (1) stakeholder-oriented; (2) user-oriented and (3) principle. The interview questions asked in the discussion to the participants provided additional insights into both sub-research question 1 and 2, as well as sub-research question 3 (‘*Do designers consider the effects of dark patterns as a consequence of their design choices?’*) (See Appendix H). The software program Atlas.ti was used for coding and analyzing the data. The analysis outcomes are discussed in the Results section.

4. Results

The following section presents the results of a qualitative content analysis aimed at examining the extent to which designers perceive the effects of dark patterns as their responsibility. The research question was supported by three sub-research questions: (1) *Do designers recognize dark patterns*; (2) *Do designers intentionally use dark patterns in their design*; and (3) *Do designers consider the effects of dark patterns as a consequence of their design choices?* The analysis sought to gain insights into the perspectives and attitudes of designers towards the ethical implications of incorporating dark patterns into their designs. Three main themes will be discussed, addressing each of the sub-research questions: (1) Recognition of Dark Patterns; (2) Intentional Use of Dark Patterns and (3) Perception of Responsibility for Dark Pattern Effects.

4.1 Recognition of Dark Patterns

Recognition of dark patterns involved assessing whether participants identified the dark patterns as deceptive or malicious design tactics, indicating their awareness of the manipulative nature of the dark pattern. When participants verbalized to be aware of the malicious intent behind the design pattern, this was interpreted as them having recognized the dark pattern as deceptive. Conversely, when participants did not express their awareness of this aspect, this was interpreted as them not having recognized the dark pattern as deceptive. The recognition of each dark pattern in the interfaces was assessed per session and listed in a table (See Appendix I). In session 1, participants recognized 7 out of the total 14 dark patterns as deceptive. In session 2, only 5 dark patterns were recognized. Participants in both sessions quickly noticed visually prominent dark patterns as deceptive, such as the Countdown Timer, Sneak into Basket and Preselection. For example, participants indicated the Countdown Timer to be intrusive, trust-violating and stressful. P4 expressed: "*It does not inspire trust. It creates*

a sense of urgency, but not trust." Participants found it more challenging to recognize text-based dark patterns, including Hard to Cancel, Forced Continuity, Trick Questions and Privacy Zuckering. It is probable that the participants overlooked these dark patterns. For instance, the participants in session 1 identified the dark pattern Trick Questions in the Homepage interface as deceptive, but the same dark pattern went unnoticed in the visually more crowded Shopping cart interface. The same occurred with the Confirmshaming dark pattern. Dark patterns that occur frequently in daily life in the same or a similar form, such as False Hierarchy, Low-stock Message and Testimonials, were not identified as deceptive, yet rather perceived as valuable additions benefiting both the client and user. The dark pattern Bait and Switch was recognized by the participants in session 1 as confusing for the user, as P2 stated: "*I don't find 'continue' entirely clear. Where are you going?*". In session 2 this dark pattern was not recognized. In addition to the participants' expressions during the design activity, the participants' answers to discussion question 1 (Q1: *Were you able to recognize any dark patterns in the set of interfaces?*) were also taken in consideration for evaluating the recognition of dark patterns. The term "dark patterns" was unknown to all participants, although the participants indicated they did recognize the malicious intent of some design patterns. P7 indicated, for example: "*I think it's mainly like, you recognize the strategy behind it, but I didn't realize it was a dark pattern and that it's actually not acceptable*."

4.2 Intentional Use and Motives of Dark Patterns

The intentional or unintentional use or non-use of dark patterns was assessed by looking at the attitude towards the dark patterns, as well as the occurrence of dark patterns in the chosen interfaces. Additionally, the motives behind using the dark patterns were interpreted as either stakeholder-oriented, user-oriented or aligned with the chosen principles. The attitudinal expressions of the participants towards dark patterns was interpreted as

‘*positive attitude*’ or ‘*negative attitude*’. The intentional or unintentional use or non-use of each dark pattern in the interfaces, as well as the motives for using or not using it, was assessed per session and listed in a table (See Appendix I). Attitudes towards the more visually prominent dark patterns (i.e., Countdown Timer, Sneak into Basket and Preselection) were predominantly negative. The negative attitude resulted in participants intentionally not choosing the interfaces with these dark patterns, with participants in both sessions expressing the benefit of the user as the motive of their decision. Participants frequently expressed their thoughts from the user’s perspective, empathizing with the user experience. For example, the dark pattern Sneak into Basket made P3 indicate: “*I would have the feeling that I’m being taken for a ride. So, we won’t choose that one*.” Attitudes towards text-based dark patterns depended more on their visual aspects than on the content of the pattern and impact on the user. For example, in session 1, the participants suggested to add dark pattern Privacy Zuckering to their chosen interface to benefit the user and to adhere to their chosen principle *Aesthetic and Minimalistic Design*. P3 stated: “*You want as few steps as possible. If you have to tick twice, you also have to read it all.*” It appeared that the participants frequently did not thoroughly read the text-based dark patterns or simply did not perceive them as deceptive. The majority of these dark patterns were not recognized, which led to both intentional and unintentional use and non-use, with varying motives. In session 1, participants reasoned predominantly from the user’s perspective and their chosen principles, whereas in session 2, the participants mainly reasoned from the perspective of both the user and the client. For example, in session 1, participants recognized the deceptive nature of the dark pattern Trick Questions in the Homepage interface and decided not to use it, prioritizing the user’s interests. In session 2, participants did not recognize the dark pattern, yet did not choose this interface either, as they aimed to prioritize the client’s interests by withholding the content from the user. The participants had a positive attitude towards the dark patterns Low-stock Message,

False Hierarchy and Testimonials. They expressed positive associations with these patterns based on their own user experiences. For example, P6 indicated: "*I also find it [Low-stock Message] nice to know. Like, okay, I have to make a quick decision. I can't leave it in my shopping cart for another two weeks.*" This resulted in intentionally using or unintentionally not using these dark patterns to either benefit the user or the client, or to adhere with the principles. In session 1, the participants had a predominantly negative attitude towards the dark pattern Bait and Switch, making them intentionally not use it in the user's interest. In contrast, this dark pattern was unnoticed in session 2 and was used intentionally to meet the client's wishes. The participants' answers to discussion questions 2 (Q2: *Have you used dark patterns in your final design and why?*) and 3 (Q3: *In your everyday life, do you use dark patterns in your design and why?)* also provided insights into the intentions of the participants. Among the four web shop pages the participants were asked to redesign, i.e. to choose from the predesigned interfaces, participants in session 1 selected one interface that included dark patterns, while in session 2, two interfaces with dark patterns were chosen. In session 1, participants chose an interface with dark patterns that they perceived as 'grey' rather than 'dark', considering it relatively harmless for the user, and selected it in favor of the client. In session 2, participants also indicated they did not perceive most dark patterns as unlawful or harmful and some dark patterns were even considered beneficial for the user. When asking the participants about their dark pattern use in everyday life, P1 indicated to have used false friend testimonials for a start-up website in order to gain trust of new customers. P4 added to this by admitting having filtered out negative reviews to show on a website. P2 has used the dark pattern False Hierarchy in the past in order to influence behavior through the use of color. P1 experienced working with a client asking to act unethical, without being able to reject the application of dark patterns in the design. P1 stated: "*It was all about showing as many reviews as possible from various target groups together*

[…]. But in order to gain trust from large healthcare institutions, they combined all reviews, even though it didn't align with the product's intended purpose. […] I didn't agree with the design, but at the same time, I felt compelled to go along with it. If you push back too much, you risk getting fired. So, it was a challenging situation for me because I didn't support the design, so to speak." The other participants indicated not to have used any dark patterns in their everyday life thus far.

4.3 Perception of Responsibility for Dark Pattern Effects

The perception of responsibility for the effects of dark patterns was assessed by considering the participant's answers to discussion question 4 (Q4: *To what extent do you feel responsible for the consequences of your design choices?*), question 5 (Q5: *Were you aware of the harmful effects of using dark patterns in your design?*) and question 6 (Q6: *To what extent do you feel responsible for the harmful effects of dark patterns?*). When discussing Q4, participants in session 1 indicated they feel moderately responsible. P1 mentioned questioning themselves during the design activity whether they were designing from the perspective of either the user or the client. P3 stated: "*The client naturally has different objectives than the user*." P1 emphasized that the design approach would vary depending on the context, and specifically mentioned approaching the design differently for healthcare-related projects. In session 2, all participants indicated feeling responsible for the consequences of their design choices. P8 stated: "*I feel very responsible in that regard. I also think that as a designer, it is very important to consider what ethical boundaries you personally set for yourself […]. You should be able to look at yourself in the mirror.*" According to P5, all clients share the common goal of maximizing profit, which often conflicts with considerations of sustainability or ethics. Additionally, ethics are undereducated in design education, particularly regarding the ethical challenges arising from the client-designer relationship. Regarding Q5, all

participants indicated they were not aware of the harmful effects of dark patterns. *Financial Loss* was considered the most harmful by participants in session 1, as this effect was the easiest for them to relate directly as a consequence of dark patterns. When discussing Q6, all participants indicated feeling responsible. Only P2 expressed a lack of responsibility: "*Nowadays, when you start a web shop, you have to use them [dark patterns]. But I would do it subtle. As long as no one dies…*". According to P3, the level of responsibility varies depending on the user. When users have limited financial resources, they are compelled to visit cheaper websites that may employ dark patterns. P7 suggested that a designer without knowledge of dark patterns is more likely to follow-up the client's wishes, ending up applying them. P6 added to this: "*I don't think a lot of people have the intention to act unethical. But I think many people are just ignorant*." Participants from session 1 agreed that the government does not need additional regulations on dark patterns, as existing consumer protection laws suffice, according by them. Instead, they suggest that the government should focus on educating consumers about dark patterns, enabling them to recognize and avoid them. P3 acknowledged that as designers, they perceive interfaces differently from regular consumers, emphasizing the importance of the consumers being well-informed on the subject. The participants agreed that it is a shared responsibility between designer, user and client. All participants in session 2 emphasized the crucial role of the government in combating dark patterns. P8 stated: "*I think the consumer always ends up being the victim of what is being offered […]. And if legislation were to say: this is just not allowed; it helps the consumer.*" The participants concurred that it is particularly important to protect consumers without adequate knowledge or financial resources through legal safeguards against the detrimental effects of dark patterns.

5. Discussion

This study aims to explore to what extent designers perceive the effects of dark patterns as their responsibility. Three sub-research questions were examined by means of a qualitative study, including two sessions in which UX- and product designers participated in a design activity and a follow-up discussion. The previous section covered the results of the study, extracted by performing content analysis. This section discusses the main findings per sub-research question, followed by the limitations of the study. Finally, suggestions for future research will be provided.

5.1 Findings

Do designers recognize dark patterns?

None of the participants were familiar with the term “dark patterns”, however half or less of the totality of dark patterns applied in the interfaces was recognized by the participants as being deceptive towards the user. This lack of recognition could be attributed to an inadequate visualization of the dark patterns in the pre-designed interfaces. Additionally, the interfaces presented only a selection of dark pattern types as defined by Gray et al. (2018) and Mathur et al. (2019), rather than encompassing the full range of types and variations. Part of the selection consisted of the most common dark patterns discovered in the most popular websites and apps in the EU (European Commission, 2022), including False Hierarchy, Preselection, Hard to Cancel and Forced Registration/Continuity. In addition, 10 other dark patterns were randomly selected and visualized in the interfaces. It is plausible that the dark patterns used in this study were not identified, while the unselected dark patterns may have been recognized by the participants.

Do designers intentionally use dark patterns in their design?

Overall, only one interface containing dark patterns was chosen in session 1, whereas in session 2, two interfaces with dark patterns were selected. Dark patterns that were recognized by the participants as deceptive, were intentionally not used in the designs. A similar study by Gray et al. (2018) suggested that unethical decisions were made by designers to benefit the stakeholder, without the intention of the designers being assessed. Current research shows that unrecognized dark patterns were either intentionally or unintentionally used or not used, aimed to benefit the user or the client, or to adhere to the chosen principles. In addition to Gray et al. (2018), this study indicates that motives for using dark patterns are not solely client-oriented, as the ignorance of the designer could lead to applying them with the intent of favoring the user. This would imply that the majority of dark patterns applied in design, are in fact anti-patterns, due to their unintentional, ignorant nature (Gray et al., 2018). The statement of Birkett et al. (2009) is further supported, emphasizing the importance of understanding consequences in design, as the ignorance seems to be the crucial aspect. This places more emphasis on the importance of ethics in design education.

According to Eskelinen (2021) and Tahran (2020), designers often face pressure from employers to apply dark patterns. In the current research, only one participant reported having experienced employer pressure and feeling ill-equipped to resist the demand. Previous research states that companies are primarily driven by profit motives when employing dark patterns and tend to disregard the impact on users (Mathur et al., 2019). The participants affirmed the potentially different interests of the client and the user when composing a design, suggesting that the client often has a profitable goal and that the user's needs are not always paramount. However, since the vast majority of participants stated that they had never been compelled by clients to engage in unethical behavior, their statements are based on assumptions rather than personal experiences. Therefore, findings of Eskelinen (2021),

Tahran (2020) and Mathur et al. (2019) regarding employer pressure cannot be supported by the current study.

Do designers consider the effects of dark patterns as a consequence of their design choices?

None of the participants were aware of the potential harmful effects of dark patterns. These findings confirm those of the AIGA, implying that the design industry in 2021 lacks sufficient awareness of the consequences of design choices (AIGA, 2021). According to Birkett et al. (2009), Tahran (2020) and Lukoff (2021), the design community should acknowledge its responsibility and make well-considered choices. Except for one participant, all others expressed a strong sense of responsibility towards the damaging consequences. Again, this strengthens the unintentional nature of applying dark patterns. The participants agreed that the use of dark patterns and the resulting harm is a shared responsibility of designers, users, clients, and the government. They argued that users have a certain degree of responsibility, yet their lack of knowledge, often combined with limited financial resources, impedes their capacity to identify dark patterns or resist their influence. The participants foresee the government playing a dual role: proactively informing users about dark patterns and regulating and penalizing companies that employ them. In 2021, the EU implemented regulations such as the Digital Services Act (DSA) and the Digital Markets Act (DMA) with the aim of preventing online platforms from employing manipulative design patterns (European Commission, 2023). Furthermore, the European Data Protection Board (EDPB) issued guidelines in 2022 to assist designers and users in recognizing and avoiding dark patterns (European Data Protection Board, 2022). However, it remains uncertain whether their effects are visible yet and whether they are adequate in effectively addressing dark patterns.

5.2 Limitations

The current study has several limitations that should be considered when interpreting the reported results and conclusions.

First, the findings are based on a small sample of UX- and product designers and may not be generalizable to the entire design community. The participants consisted of mainly females (6 out of 8) and the age range was relatively small (25 to 29). Additionally, working experience in a UX-related position was also relatively short, varying from one-and-a-half years to five years. Also, the participants were all Dutch designers living and working in the Netherlands, making it a an even more selective group that was recruited for the study.

Second, the study set-up might have influenced the behavior of the participants and therefore the results. The design activity set up was created as to simulate a real-life design project, in a resembled design team in which the participants needed to work in collaboration. However, the study might have been subject to social desirability bias resulting in the participants behaving unnaturally, as the participants were aware of them being audio recorded and observed. Additionally, the design challenge was structured in a way to mildly provoke the participants into using dark patterns, by not providing any user data in the assignment and only the client's wishes. This is not a realistic approach for designers, which may have caused the participants to behave differently than they would normally do. Besides, one participant mentioned that a health-related context would require a different approach than the context of a web shop. This could suggest that the ethical considerations of designers may be influenced by the design context, which could be an interesting field of research.

Third, since there are so many different types of dark patterns, it was not possible to include all types and there had to be made a selection to use in the study. Therefore, the study might not be generalizable to all dark patterns. Besides, dark patterns come in many different forms, which means that the application of dark patterns in this study do not encompass the

entirety of their real-life appearances. This potential limitation could have impacted the identification of dark patterns and consequently influenced the results.

Fourth, the current study only examined the sense of responsibility of UX and product designers, while this discipline might not bear full responsibility regarding the use of dark patterns. Looking at the multidisciplinary nature of design, it must be stated that design is always a collaborative process of multiple stakeholders. To counter the harmful effects of manipulative design strategies, whether they are applied intentionally (dark patterns) or unintentionally (anti-patterns), it is necessary to question all parties involved in the design process about their sense of responsibility of their design choices. Involving only UX and product designers, might have provided a limited view on the design process, possibly leading to using dark patterns.

5.3 Future Research

Based on the current study, some suggestions are provided for future research exploration.

First, if the study were to be replicated, it is advisable to examine a larger sample size to represent a larger population and to make the results more reliable. The study may yield different outcomes depending on the designers' diverse demographic backgrounds or varying years of work experience. For example, designers with more experience might exhibit a better ability to identify and have encountered dark patterns more frequently.

Second, the study could be conducted within existing design teams to make the participants' behavior as natural as possible, allowing for an investigation of the actual dynamics within a collaborative team. When the participants are already familiar with working together, it could mitigate the influence of social desirability bias and yield more

reliable outcomes. Moreover, customizing the design task to the design team's experiences would enhance the study's alignment with designers' real-life situations.

Third, a replication of the study could examine a greater variety of dark patterns and their appearances. In this way, the study could provide a better estimation of which among all dark patterns are more or less difficult to be recognized by designers and which ones are most commonly used.

Fourth, future studies could place more emphasis on the ethical challenges in the relationship between client and designer. Previous research has already indicated the tendency of designers to conform to client demands, resulting in the use of malicious design patterns (Tahran, 2020; Eskelinen, 2021). In the present study, only one participant had encountered such challenges. This limited occurrence may be attributed to the participants' relatively short years of working experience. Moreover, the participants suggested enhancing education on client-designer relationships, enabling designers to effectively confront such situations in the future. This underscores the need for further investigation into this aspect.

6. Conclusion

To answer the main research question to what extent designers perceive the effects of dark patterns as their responsibility, the outcomes of all three sub-research questions are considered. First, designers do not recognize the majority of dark patterns as being deceptive strategies. The participants' lack of familiarity with the term "dark patterns" implies a need for better education and awareness regarding this concept. Second, the study shows that designers generally use dark patterns unintentionally, as they perceive the dark patterns they applied as harmless to the user. Designers do not use dark patterns intentionally in their design when they recognize it as deceptive. Third, designers consider the effects of dark patterns as a consequence of their design choices, yet also as a result of divergent client demands, lack of education, unaware users, and insufficient government intervention. Exploration of the sub-research questions has yielded insights into the extent to which designers perceive themselves as responsible for the effects of dark patterns. Designers feel responsible for the effects of dark patterns to a certain extent, as they acknowledge the impact their design choices can have on the user. However, they believe that they share responsibility with the client, the user, and the government. In addition, they express the importance of ethics in design education, as well as the challenges involved in client-designer relationships. The findings underscore the need for ongoing discussions, education and support to promote ethical design practices and empower designers to make informed decisions that prioritize user well-being.

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Appendices

A. Design activity introduction

Dutch

Bedankt voor jullie participatie in dit onderzoek. Het doel van dit onderzoek is om te zien hoe en waarom ontwerpers bepaalde ontwerpkeuzen maken. De activiteiten zullen audio worden opgenomen, hierbij zal jullie anonimiteit worden gewaarborgd. Jullie kunnen ten alle tijden besluiten om uit het onderzoek stappen.

Opdracht

Het is de bedoeling dat jullie 4 pagina's van een fictieve shopping website gaan herontwerpen, bestaande uit de homepagina, productpagina, winkelwagen en bevestigingspagina. De opdrachtgever heeft de volgende wensen: meer bezoekers trekken, meer producten verkopen en meer VIP-membership registraties. Bespreek zo veel mogelijk hardop wat je ziet, denkt en doet.

Materialen

Jullie worden voorzien van een selectie met principes, die jullie kunnen gebruiken als fundering van jullie ontwerpkeuzen. Jullie mogen een selectie van 6 principes kiezen die volgens jullie het belangrijkste is om te verwerken in de ontwerpen. In het programma Figma krijgen jullie per pagina 4 interfaces te zien om uit te kiezen. Besluit gezamenlijk welke interface jullie kiezen in het eindontwerp.

Tijdsplanning en afsluiting

Jullie krijgen in totaal 40 minuten om de 4 ontwerpen uit te kiezen. Na deze 40 minuten, mogen jullie de ontwerpkeuzen presenteren en motiveren. Hierna volgt een korte activiteit en een discussie, die bij elkaar ongeveer een half uur zullen duren. Als er vragen zijn kun je die altijd aan mij stellen.

English

Thank you for your participation in this research. The aim of this research is to see how and why designers make certain design choices. The activities will be audio recorded, your anonymity will be guaranteed. You can decide to withdraw from the research at any time.

Assignment

You are asked to redesign 4 pages of a fictitious shopping website, consisting of the homepage, product page, shopping cart and confirmation page. The client has the following wishes: attract more visitors, sell more products and more VIP membership registrations. Discuss aloud what you see, think and do as much as possible.

Materials

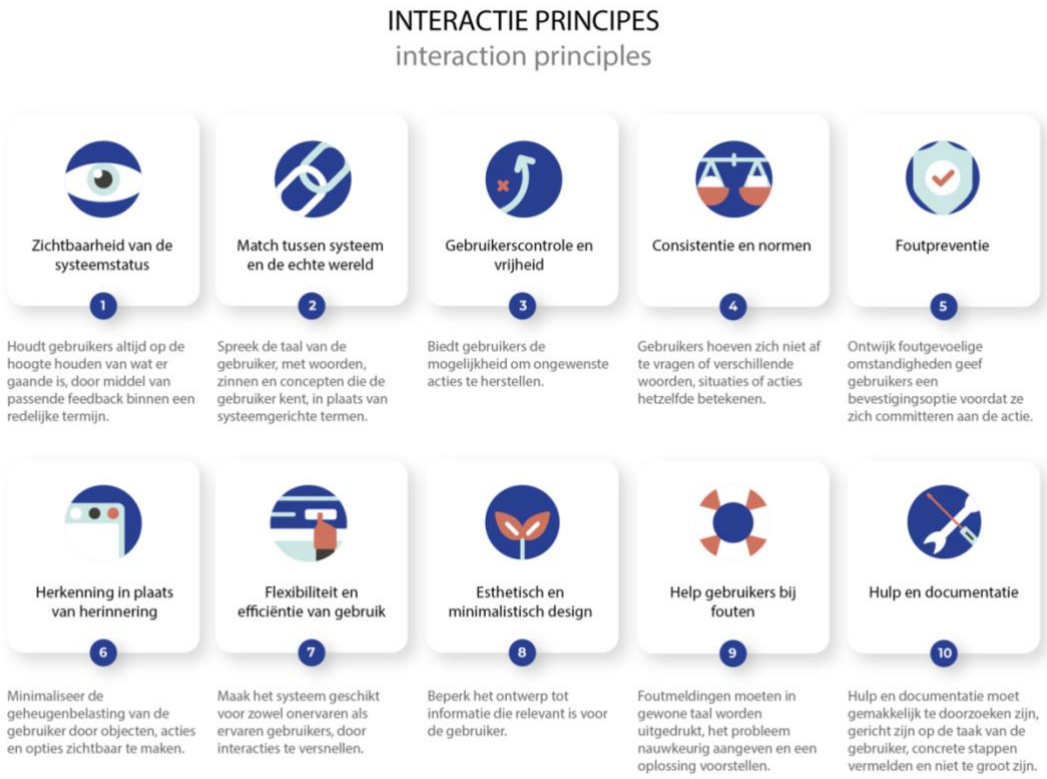
You are provided with a selection of principles to use as the foundation of your design choices. You may choose a selection of 6 principles that you think are the most important to incorporate into the designs. In the Figma program you will see 4 interfaces per page to choose from. Decide together which interfaces you choose for the redesign.

Time planning and closing

You will have a total of 40 minutes to choose the 4 designs. After these 40 minutes, you may present and motivate the design choices. This is followed by a short activity and a discussion, which will take about half an hour in total. If there are any questions, you can ask me any time.

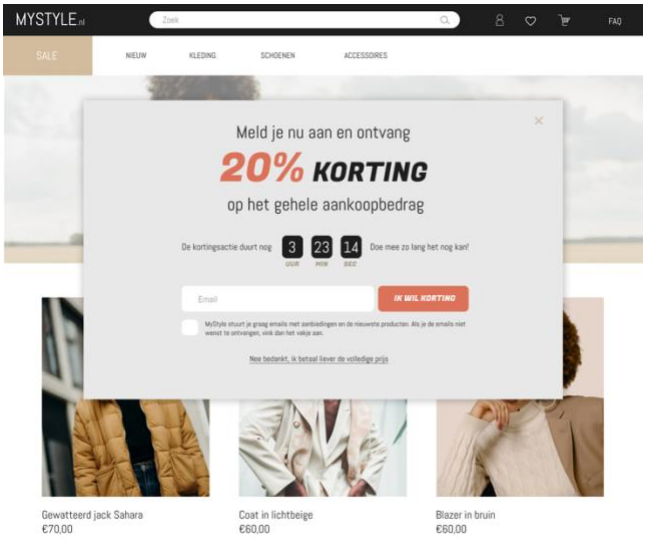
B. Interaction principles and persuasive principles

Interaction principles by Nielsen (1994) and persuasion principles by Fogg (2009) in Dutch

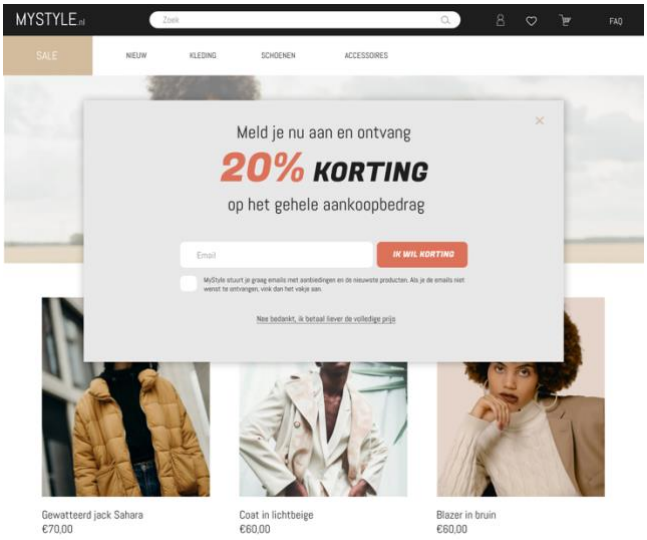


C. Set of interfaces

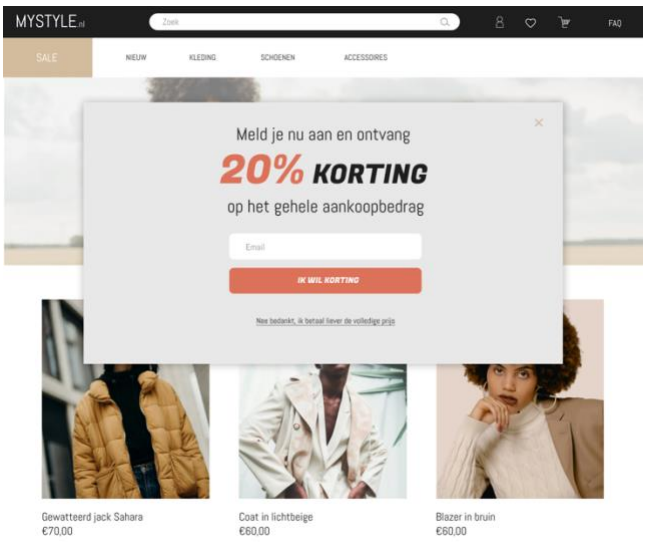
Homepage interfaces



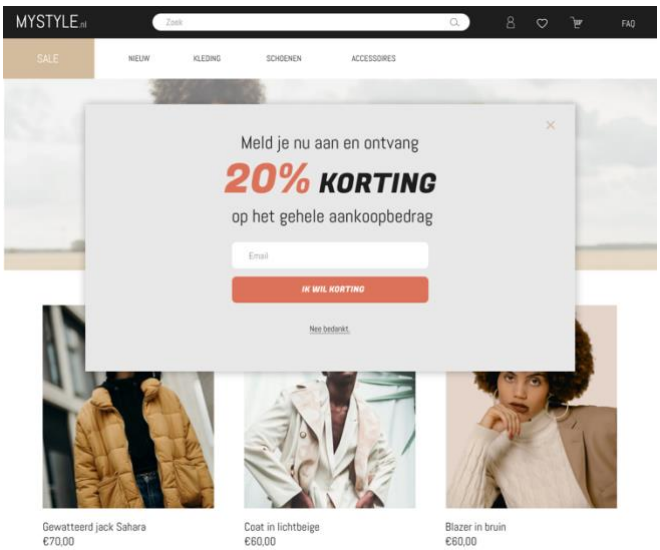
Interface 1: including Countdown Timer, Trick Questions and Confirmshaming



Interface 2: including Trick Questions and Confirmshaming

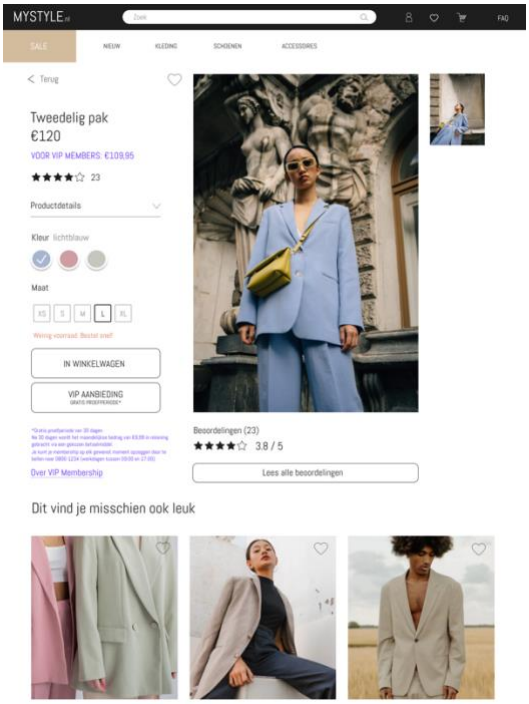


Interface 3: including Confirmshaming

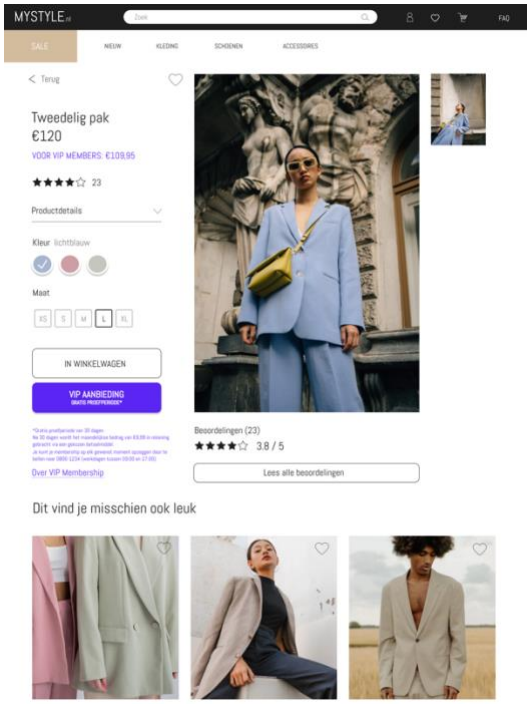


Interface 4: "Bright", no dark patterns

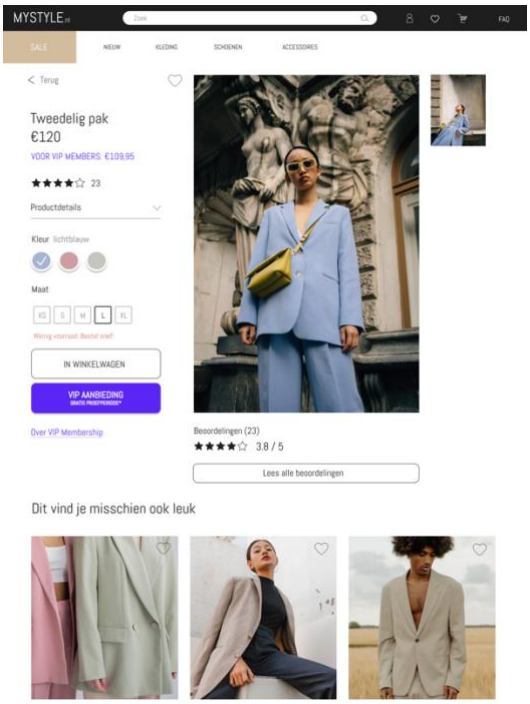
Product page interfaces



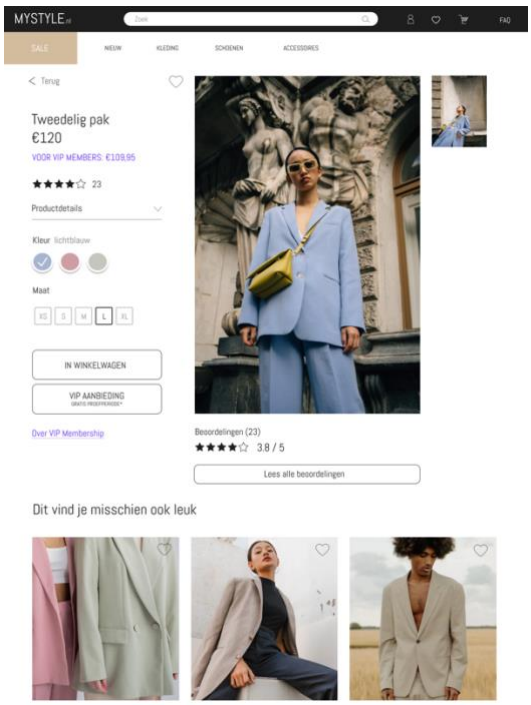
Interface 1: including Hard to Cancel, Forced Continuity and Low-stock Message



Interface 2: including Hard to Cancel, Forced Continuity and False Hierarchy

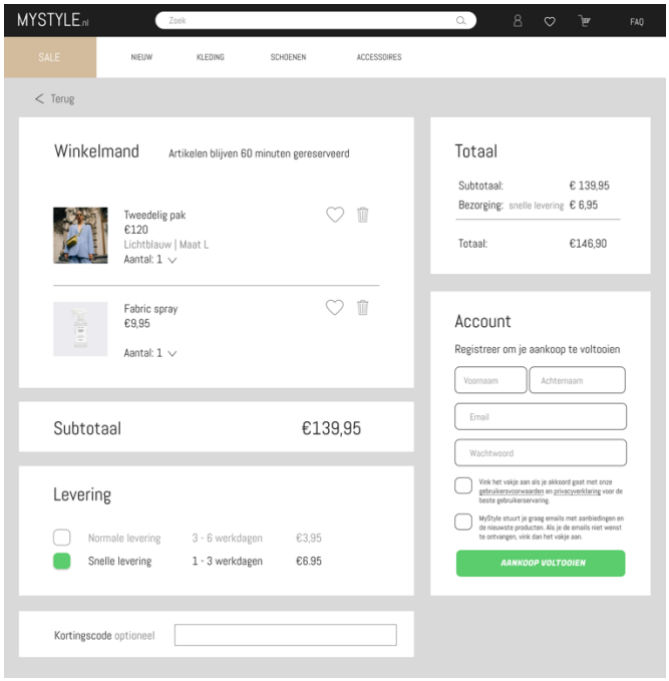


Interface 3: including Low-stock Message and False Hierarchy

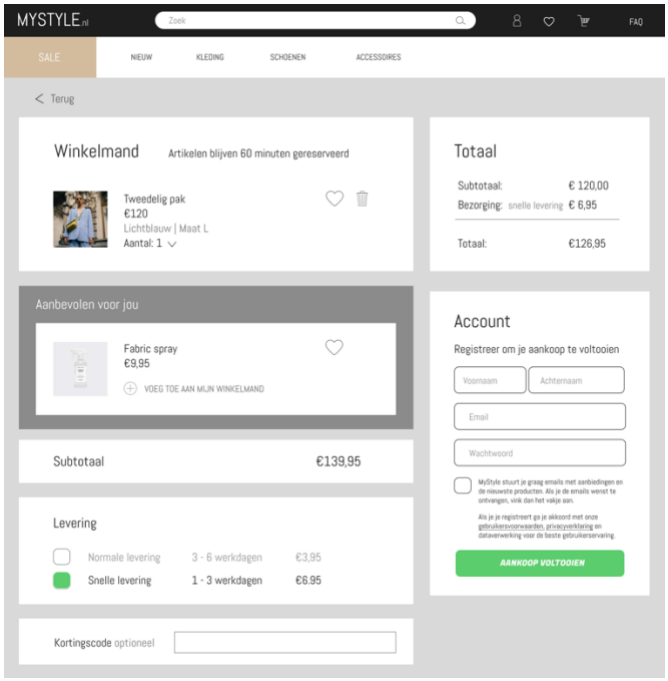


Interface 4: “Bright”, no dark patterns

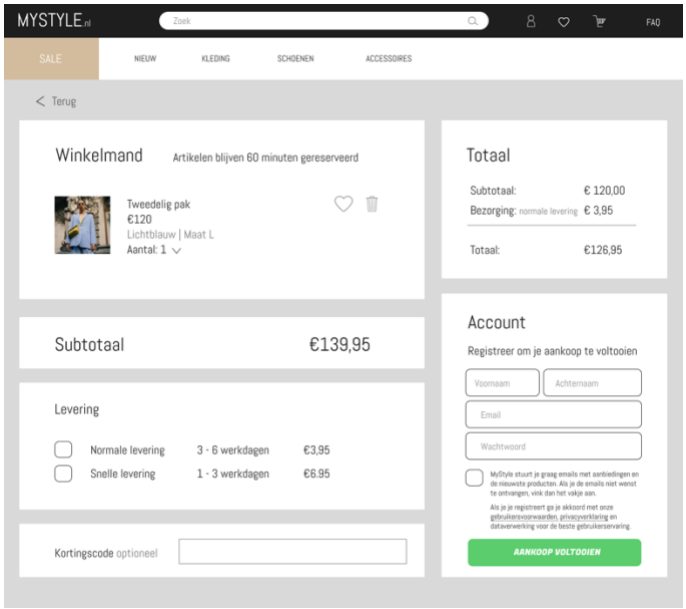
Shopping cart interfaces



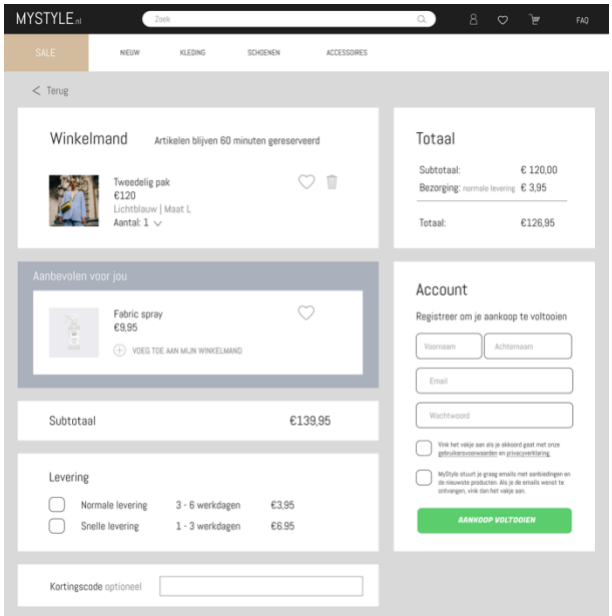
Interface 1: including Sneak into Basket, Preselection, Trick Questions



Interface 2: including Trick Questions, Preselection and Privacy Zuckering

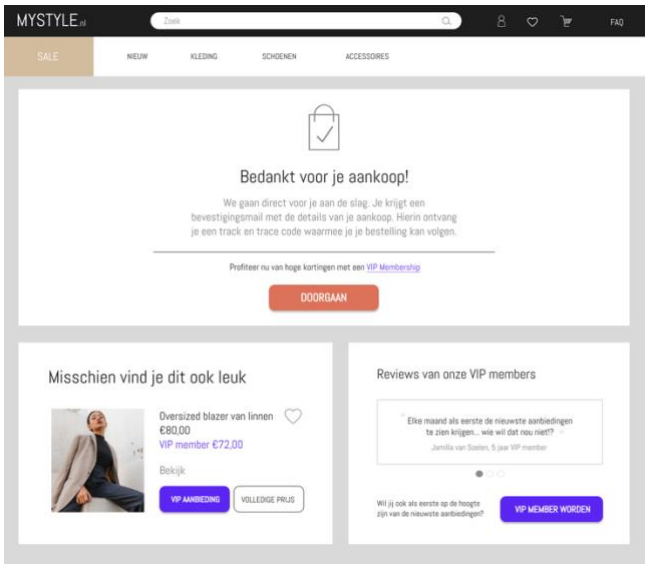


Interface 3: including Privacy Zuckering

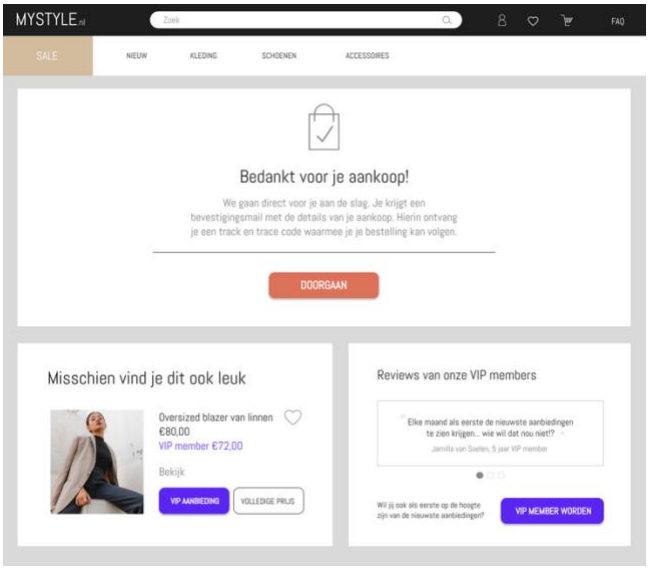


Interface 4: “Bright”, no dark patterns

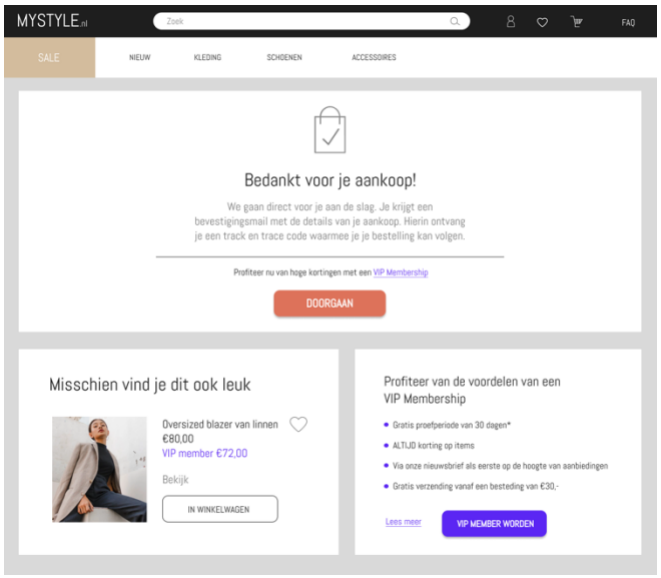
Confirmation page interfaces



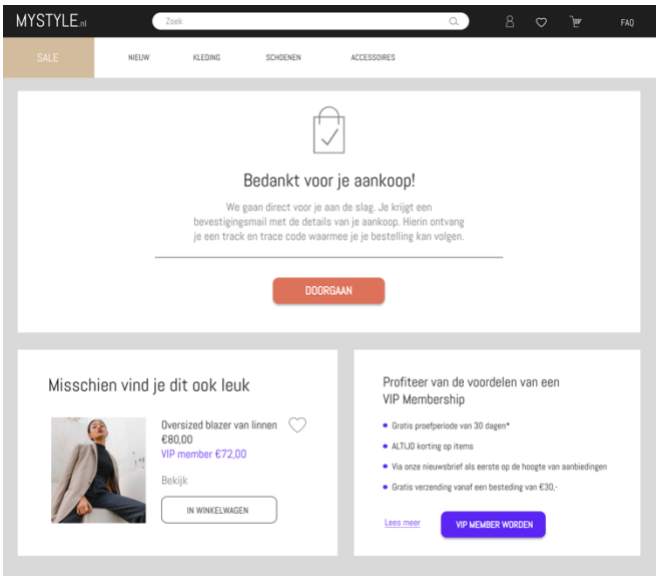
Interface 1: including Bait and Switch, Testimonials and Confirmshaming



Interface 2: including Testimonials and Confirmshaming

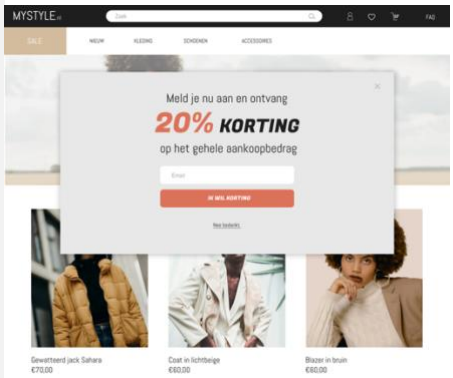
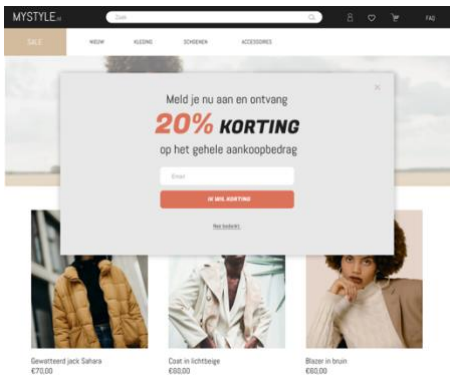
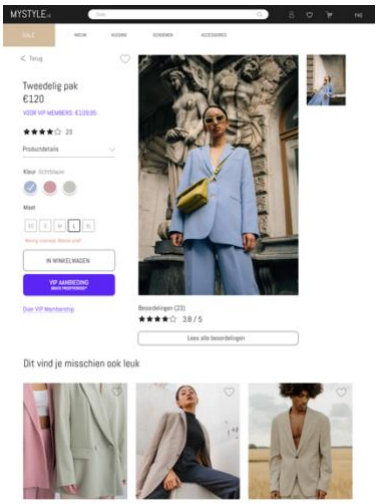
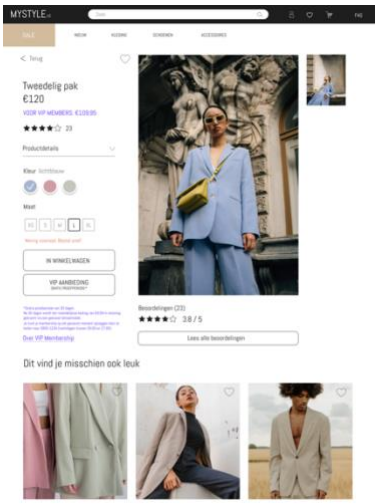


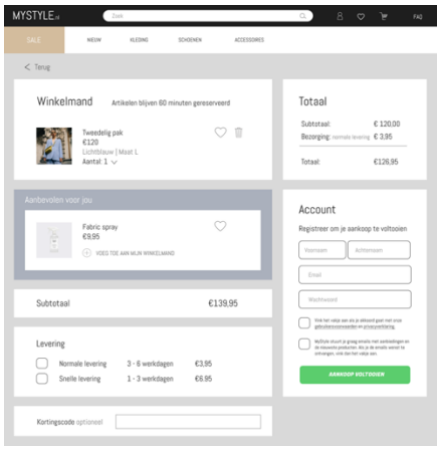
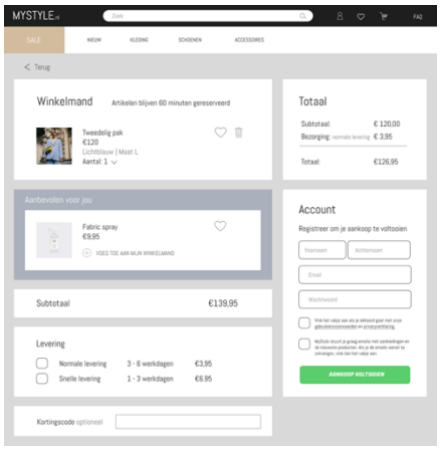
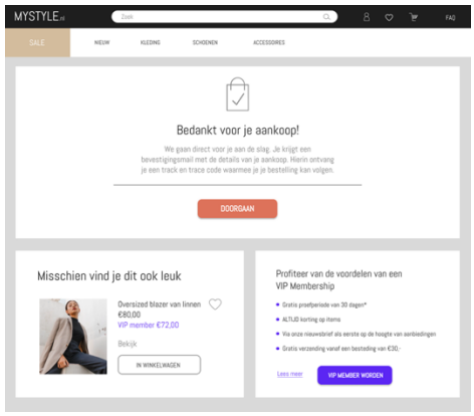
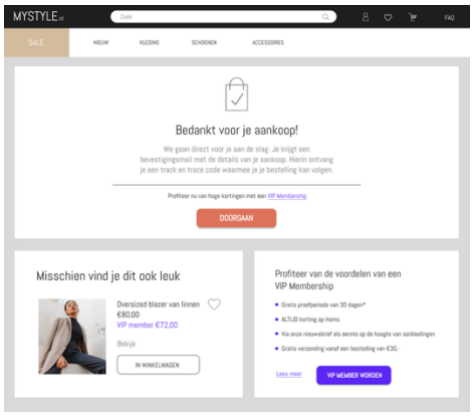
Interface 3: including Bait and Switch



Interface 4: “Bright”, no dark patterns

D. Selected principles and interfaces

	Session 1	Session 2
Selected principles *IP = Interaction Principle* *PP = Persuasion Principle*	1. Esthetic & Minimalistic Design (IP) 2. Match between system and real world (IP) 3. Reduction (PP) 4. Tailoring (PP) 5. Suggestion (PP) 6. Conditioning (PP)	1. Flexibility and efficiency of use (IP) 2. Suggestion (PP) 3. Match between system and real world (IP) 4. User Control and Freedom (IP) 5. Help and documentation (IP) 6. Tailoring (PP)
Selected interface **Homepage**	Interface nr. 4 (bright, no dark patterns) 	Interface nr. 4 (bright, no dark patterns) 
Selected interface **Product page**	Interface nr. 3 (2 dark patterns) 	Interface nr. 1 (3 dark patterns) 
Selected interface **Shopping cart**	Interface nr. 4 (bright, no dark patterns)	Interface nr. 4 (bright, no dark patterns)

		
Selected interface **Confirmation page**	Interface nr. 4 (bright, no dark patterns) 	Interface nr. 3 (1 dark pattern) 

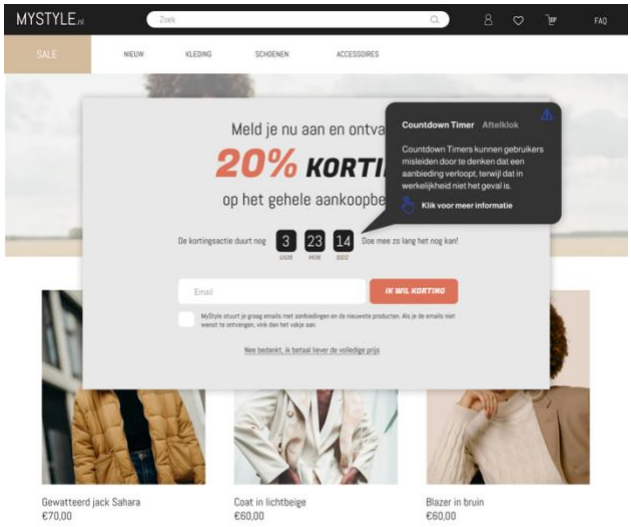
E. Interaction with dark pattern effects

By hovering over the homepage interface, text boxes appear highlighting the dark pattern strategy. When clicking on the dark pattern in the interface, the user is directed to the dark pattern page where the harmful effects are explained.

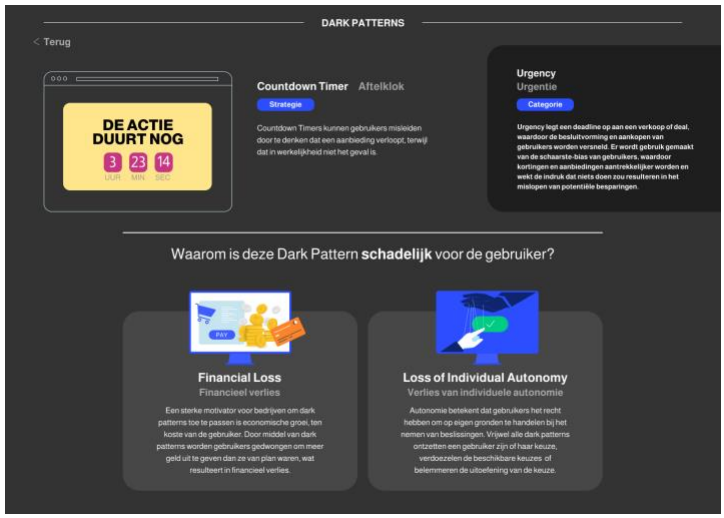
Click here for the Figma board containing all interfaces.

Click here for an example of the digital prototype

Example – Homepage

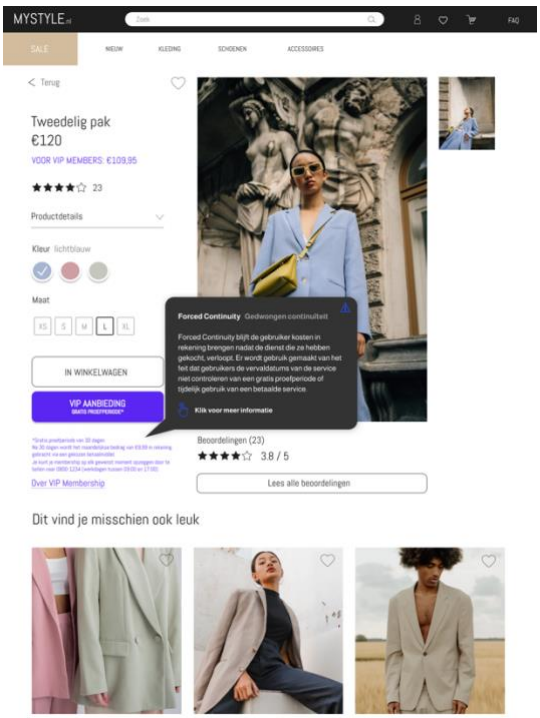


1. Homepage interface with text box highlighting dark pattern

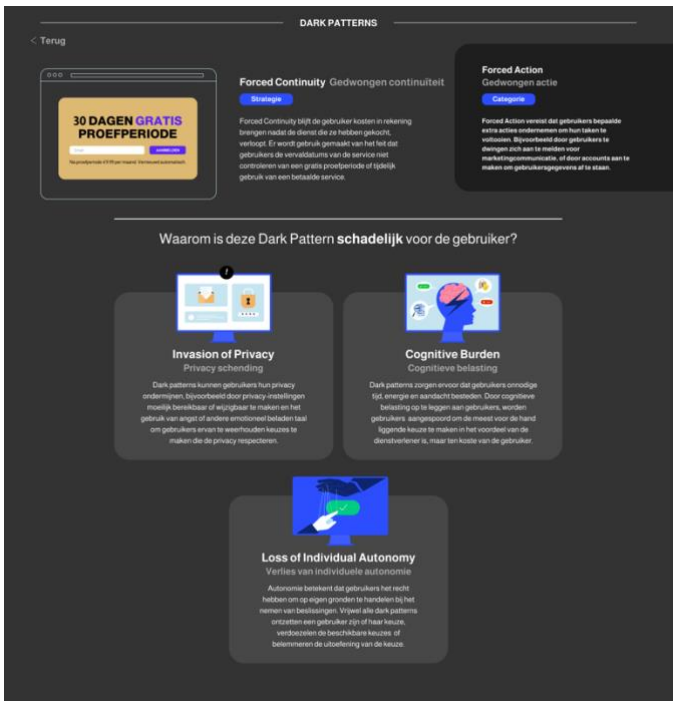


2. Dark pattern page explaining harmful effects

Example – Product page

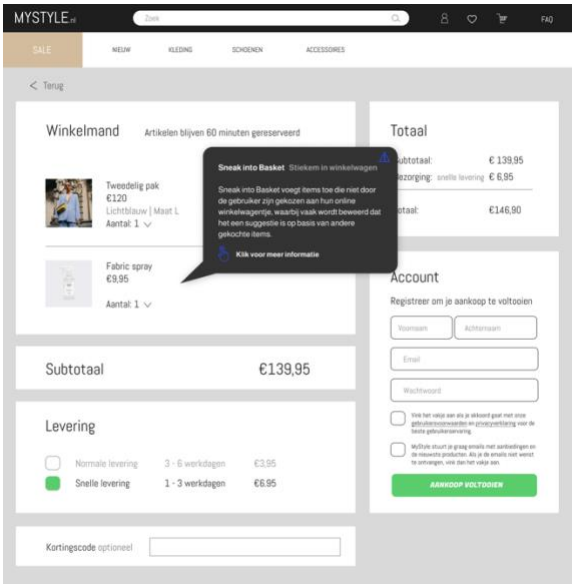


1. Homepage interface with text box highlighting dark pattern



2. Dark pattern page explaining harmful effects

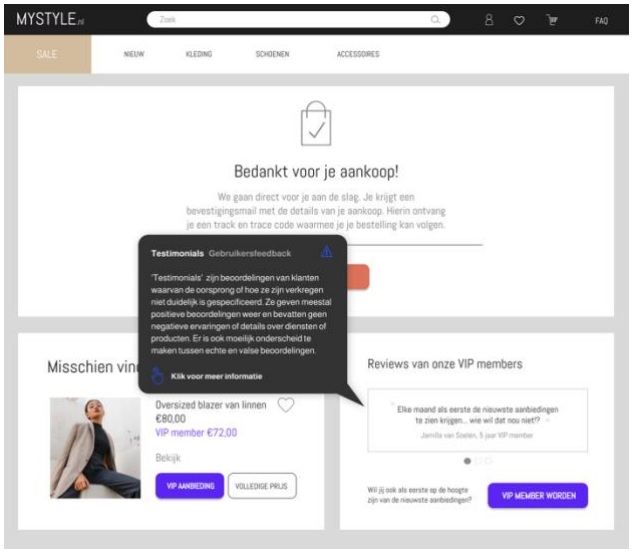
Example – Shopping cart



1. Homepage interface with text box highlighting dark pattern

2. Dark pattern page explaining harmful effects

Example – Confirmation page



1. Homepage interface with text box highlighting dark pattern

2. Dark pattern page explaining harmful effects

F. Discussion questions

Dutch

1. Kon je dark patterns in de set interfaces herkennen?
2. Heb je dark patterns gebruikt in je uiteindelijke ontwerp en waarom?
3. Gebruik je in het dagelijks leven wel eens dark patterns en waarom?
4. In hoeverre voel je je verantwoordelijk voor de gevolgen van je ontwerpkeuzes?
5. Was je je bewust van de schadelijke effecten van het gebruik van dark patterns in je ontwerp?
6. In hoeverre voel je je verantwoordelijk voor de schadelijke effecten van dark patterns?

English

1. Were you able to recognize any dark patterns in the set of interfaces?
2. Have you used dark patterns in your final design and why?
3. In your everyday life, do you use dark patterns in your design and why?
4. To what extent do you feel responsible for the consequences of your design choices?
5. Were you aware of the harmful effects of using dark patterns in your design?
6. To what extent do you feel responsible for the harmful effects of dark patterns?

G. Coding examples

Codes used for Content Analysis	Quotation examples
Aware, positive attitude	P1: *"Yes, but it [Countdown Timer] does work. And that is precisely the intention."*
Aware, negative attitude	P5: *"It is someone's right to make their own choice about that [Preselection], and besides, it doesn't really have any value for the company."*
Unaware, positive attitude	P6: *"I think that sentence above [Bait and Switch], "Take advantage of high discounts with a VIP Membership," is fine, just a small disclaimer."*
Unaware, negative attitude	P2: "*[…] I do believe that someone else bought a jacket with a discount. I don't need personal reviews [Testimonials] for that."*
Stakeholder-oriented	P8: *"But then I wonder, what is the functional benefit of a company?"*
User-oriented	P1: *"[…] this is what you would want as a user."*
Principle	P3: *"This one meets our principles more."*

H. Discussion questions and answers per session

Q1	Kon je dark patterns in de set interfaces herkennen? *Were you able to recognize any dark patterns in the set of interfaces?*
Session 1	Session 2
All respondents indicated they recognized the majority of dark patterns. The term “dark patterns” was not recognized, but malicious strategies were.	The respondents indicated they recognized the dark patterns as persuasive strategies. The term “dark patterns” was not recognized, neither was the malicious intent.
Q2	Heb je dark patterns gebruikt in je uiteindelijke ontwerp en waarom? *Have you used dark patterns in your final design and why?*
Session 1	Session 2
One dark interface was considered ‘not dark enough’ (i.e. not harmful enough; ‘grey’) and was chosen by the respondents for commercial reasons in favor of the client.	All respondents indicated they did not recognize all dark patterns as deceiving. When they were recognized as deceiving, they were not considered unlawful or harmful. Some dark patterns were considered beneficial for the user.
Q3	Gebruik je in het dagelijks leven wel eens dark patterns en waarom? *In your everyday life, do you use dark patterns in your design and why?*
Session 1	Session 2
P1 indicated to use false friend testimonials for their start-up to gain trust of new customers. P1 has experience with a client asking to act unethical, without being able to reject the application. P2 indicated to have used the False Hierarchy dark pattern in order to influence behavior through the use of color. P2 indicated that when the client wants to apply dark patterns, it is justified. P3 indicated to avoid using dark patterns in their own work. P3 indicated that the justification of dark patterns depends on different point of view. P4 indicated to have filtered negative reviews out to show on a website.	P5 and P8 indicated not having designed in this detail yet in their work experience. P6 and P7 indicated that they cannot recall ever having used dark patterns.
Q4	In hoeverre voel je je verantwoordelijk voor de gevolgen van je ontwerpkeuzes? *To what extent do you feel responsible for the consequences of your design choices?*
Session 1	Session 2
The respondents indicate they feel moderately responsible. P1 indicates that they were questioning themselves during the study from which perspective they were designing: the user or the client? From a client perspective, it is seen as a clever way to attract customers. However, P1 says it depends on the context. P1 indicates they	All respondents indicate they feel responsible. According to P5, all clients have similar goals; more profit. This is often in contrast with sustainability or ethics. P5 indicates that they feel ethics are undereducated in design education, including the tension field between the client and the designer.

would approach the design differently in a health context. P3 adds that the client has different wishes than the user. However, a designer should always take shared norms and values in consideration.	P7 indicates that their work as product designer has detrimental effects when design consequences are not well considered. P8 indicates they feel very responsible for their design choices. "You have to be able to look at yourself in the mirror".

Q5	Was je je bewust van de schadelijke effecten van het gebruik van dark patterns in je ontwerp? *Were you aware of the harmful effects of using dark patterns in your design?*
Session 1	Session 2
The respondents indicated that they were not aware of the harmful effects of dark patterns. The harmful effect 'financial loss' is considered most dangerous by the respondents, as this effect was most easy to understand and relatable to the dark patterns.	All respondents indicated that they were not aware of the harmful effects of dark patterns.

Q6	In hoeverre voel je je verantwoordelijk voor de schadelijke effecten van dark patterns? *To what extent do you feel responsible for the harmful effects of dark patterns?*
Session 1	Session 2
P2 indicated not feeling very responsible. "*Nowadays, when you open a webshop, you have to use them. But I would do it subtle. As long as no one dies…*" P3 indicates that it depends on the user. When the user is poor, they are pushed into cheaper websites with dark patterns. It is a shared responsibility between designer, user and client. P1, 2, 4 agree. All respondents agree that the government do not have to draw up more rules on dark patterns, since there are already laws that protect the consumer and companies should not be restricted more. They agree that the government should inform consumers more on dark patterns, in order for them to recognize them. P3 notices that they, as designers, view the interfaces from a different perspective than the regular consumer and they should be informed.	All respondents indicate feeling very responsible as a designer, after being confronted with the harmful effects. P7 indicates that when a designer does not have the knowledge about dark patters, they would follow-up the wishes of the client, applying malicious strategies. P5 states: it is the designer's responsibility to go along with the application of dark patterns. P6 indicates that they think, most people have no malicious intents, but are rather ignorant. Additionally, all respondents indicate that the government also has responsibility in combatting against dark patterns. P8 indicates that the consumer is always the victim of what they are exposed to. The government should restrain and prevent companies in using dark patterns. P5 indicates that the consumer relies on the government, making government measures very important. All participants agree that especially consumers without sufficient knowledge or financial resources should be protected by law from dark patterns.

I. Results of recognition and (un)intentional (non-)use of dark patterns

Dark pattern interfaces	Session 1	Session 2
Homepage		
Countdown Timer	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user
Confirmshaming	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user
Trick Questions	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user	**Intentionally not used**; Not recognized as deceptive; Not used in benefit of client
Product page		
Forced Continuity	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user and in line with principle *Aesthetic & Minimalistic Design*	**Intentionally used;** Not recognized as deceptive; Used in benefit of user
False Hierarchy	**Intentionally used;** Not recognized as deceptive; Used in line with principle *Aesthetic & Minimalistic Design*	**Unintentionally not used;** Not recognized as deceptive; Suggested to add dark pattern in chosen design in benefit of client
Hard to Cancel	**Intentionally not used;** Not recognized as deceptive; Not used in line with principle *Aesthetic & Minimalistic Design*	**Intentionally used;** Not recognized as deceptive; Used in benefit of user
Low-stock Message	**Intentionally used;** Not recognized as deceptive; Used in line with principle *Suggestion + Conditioning* + user	**Intentionally used;** Not recognized as deceptive; Used in benefit of user and client
Shopping cart		
Sneak into Basket	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user
Trick Questions	**Unintentionally not used;** Not recognized as deceptive	**Unintentionally not used;** Not recognized as deceptive
Privacy Zuckering	**Unintentionally not used;** Not recognized as deceptive; Suggested to adjust to only 1 box in line with principle *Aesthetic & Minimalistic Design* + user	**Unintentionally not used;** Not recognized as deceptive
Preselection	**Intentionally not used;** Recognized as deceptive; Not used in benefit of user	**Intentionally not used**; Recognized as deceptive; Not used in benefit of user
Confirmation page		
Testimonials	**Unintentionally not used;** Not recognized as deceptive	**Unintentionally not used;** Not recognized as deceptive
Bait and Switch	**Intentionally not used;** Recognized as deceptive Not used in benefit of user	**Intentionally used;** Not recognized as deceptive; Used in benefit of client
Confirmshaming	**Unintentionally not used;** Not recognized as deceptive	**Intentionally not used;** Recognized as deceptive; Not used in benefit of user