Compendium of Persuasive User Experience Design Techniques

Master’s Thesis

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Declaration

Hereby I declare that this paper is my original authorial work, which I have worked out on my own. All sources, references, and literature used or excerpted during elaboration of this work are properly cited and listed in complete reference to the due source.

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Abstract

The theoretical part of the work deals with problematics of persuasion in user experience and its psychological background. The practical part of the work consists of creating model examples of persuasive patterns and persuasive patterns library available online.
Keywords

persuasion, trust, user experience, ux, user interface, ui, patterns, gamification, captology, design
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Introduction

Great usability has been in the center of interest of software products developers for past few years and as the usability of the product gets better and is becoming the industry standard, new ways are needed to differentiate, make product successful and gain competitive advantage. Great usability guarantees that user can accomplish the desired action but does not guarantee that he will. Here we can use the knowledge of psychology and persuasion to nudge him in the desired direction. Doing so, we have to take ethical aspects on the mind and not fall into techniques that might seem to be good for business, but are on the verge of illegality and morality and thus doing more harm than good.

In computer technologies, persuading users to take action is multidisciplinary task ranging from psychology, through marketing, law, design copywriting and technological implementation itself. In the theoretical part of this work, I am explaining the psychological background behind captology, gamification, persuasive techniques and looking ethical frame of such methods. Later, I explain the difference between persuasion and manipulation, analyze so-called “dark patterns” and point-out the most intriguing legal cases against these patterns.

In the practical part, I am researching currently used design patterns that help persuade the user to perform the desired action, explaining their psychological background and recreating them in the model examples. I am performing experimental testing of persuasion on these isolated model examples. The primary output of practical part of this works is an online available library of persuasive patterns with real-world examples elaborated on previously gained theoretical knowledge and created in Ruby on Rails framework.
1 Psychology and decision-making process in design

Apart from the functional or aesthetical dimension, web design, and design, in general, is tightly connected with psychology. Users of our creations are humans, and it is beyond argument that we are incredibly complex creatures, and often make decisions based on fast impulse, instinct or reflex. Also, it is impossible to create a good product without understanding how people think, interpret information and data, choose and make decisions. That is when psychology comes into the game.

What exactly makes the design of the product not only usable but captivating and engaging as well? I would like to take a closer look at different facts about the human mind, that may help us understand processes that lead users to one or another decision. Understanding of this psychological background behind decision-making will help us with the creation of the better user experiences and enable us to predict and explain the behavior of users in user interfaces.

1.1 Conscious and unconscious mind

When we think what does it mean to be a human, the main things we might consider are the attributes of our conscious mind. For example, our ability to remember certain facts and people faces, to solve problems, to create art and science. They create the sense of our personal identity. So talking about the decision-making process, people may be very sure they are making their decisions consciously and that they have carefully and logically weighed all the relevant factors before the decision is made. However, it has been proved by numerous cognitive neuroscientists that only 5% of our cognitive activities (decisions, emotions, actions, behavior) is conscious, whereas the remaining 95% is generated in a non-conscious manner. [1]

The theory itself traces its roots from Sigmund Freud’s work where he said that “the mind is like an iceberg; it floats with one-seventh of its bulk above the water”, he was referring the importance of unconscious in directing human behavior. Before Freud, people were not aware of
the ways in which their unconscious or subconscious minds affected their behavior. Unconscious decision making includes factors such as: what other people are deciding to buy, what they think about the certain thing, what is consistent with their persona (commitment), fear of loss, your particular drives, motivations, and fears. Some of them will be presented and explored more properly in the next part of this work called “Persuasive techniques”.

It is no coincidence that unconscious mind is responsible for that big amount of mental processing. In everyday life, people are facing an overwhelming amount of data (millions of pieces of data come into the brain every second), and our conscious mind cannot process all of it. [2]

However, nature found a way to decrease the amount of information we need to process. Instead of processing every bit of information, our unconscious mind looks mainly for specific signals such movement and patterns. We can say that it is decision making based on the heuristic. [3]

Also, our unconscious mind is much faster than his neighbor. Unconscious mind actually makes a decisions 6-7 seconds before [4] our conscious mind thinks it has made a decision.

1.2 Decision-making models

It is known that all people have some kind of decision-making model, a natural inclination to decision making based either on intuition or rational reasons. While some of us are more likely to rely on intuition, others will rather follow rational reasons. But all of us seems to be affected by current mood [3]. How can it be used by designers? Psychologist Marieke de Vries from Radboud University in the Netherlands unveiled in her studies that there is a correlation between people’s decision-making model and positive or negative evaluation of something. More intuition-based subjects will give more positive evaluations when they are given intuitive instructions, while rational reason preferring people will give more positive evaluations when they are given more rational-based instructions. [5]
1. Psychology and decision-making process in design

This information might help us to understand the decision-making models of our users, so we can deliver instructions that will be easier for them to follow.

1.3 Emotions and decision-making process

Decision-making process is not being influenced only by one of our minds (conscious/unconscious), but also by emotions. Antoine Bechara, professor of psychology, has studied and proven that people cannot make any decisions without emotions. [6] Also, knowing that our unconscious (subconscious) mind is much powerful than our conscious mind when creating an experience for users, we have to pay more attention to what emotion we are emitting and make sure it aligns with what the users are intuitively picking up. As a way to do so, we need to understand emotions and how they are triggered.

Our decision-making process can be affected by integral and incidental emotions. Incidental emotions are the emotions we carry with us to the decision that has nothing to do with the decision. For example, the way you feel because of a terrible day at work, or because you argued with your partner before leaving for work that morning. Even though incidental emotions come from other sources, they are brought to a decision-making scenario and are experienced as the decision is made. Sometimes important things like an investment can be influenced by incidental emotions. Why? Because these emotions put us in a particular kind of mental mindset, and when we are before the decision, we sometimes have a hard time separating incidental emotions from the feeling related to a particular decision. Does it mean that if we would get the ability to understand emotions and learn some practices from emotional intelligence, we will be able to prevent ourselves from being affected by incidental emotions? The answer would be probably yes, but people are still getting influenced by this type of emotions in a big way, and speaking about user experience design, it is impossible to predict those incidents and their effect on the decision-making process.

As opposed to incidental emotions, integral emotions are emotions that are caused by the decision itself. And if, for example, thinking through a decision causes you some anxiety, that is useful information:
it might be a sign that you need to be very cautious, and that you should potentially be more risk-averse rather than risk-seeking with the decision. Designers, when creating new products, should definitely bear in mind that it is possible to control that kind of emotions.

It is also worth mentioning that when we feel certain emotions, our mind and bodies intuitively react in a particular way. When we have a sense of fear or anxiety, we are less inclined to take risks, and when we feel angry, we are more likely to make bold decisions. In a state of sadness, we engage in riskier behavior than would if we were in a neutral state of mind. The fear of loss has a stronger and longer lasting hold on us than any possibility of gain. It is interesting that in the long term, we feel more regretful about missed opportunities or decisions that we did not make, while in the short term, we are more likely to regret decisions we have made. [7] As can be seen from the above, emotions play a significant role as concerns decision making. Therefore, to make the user experience more supportive and efficient, we as designers must pay regard to them.

1.4 Colors and decision making process

Sometimes colors in design are improperly ignored, or designers do not pay big attention to the fact that particular color can affect users mood and even change their mind. Colors, of course, have associations and meanings. We can say, that red often means warning, danger or alarm. “This can be activated without a person’s awareness, and then influence what they are thinking about or doing”, said John A.Bargh, a psychology professor at Yale University. “Blue seems to have a weaker effect than red, but blue skies, blue water are calm and positive, and so that effect makes sense too”. [8]

Colors should be picked carefully since they have certain meanings. However, they also can mean different things to other subgroups. For example, in the U.S. and Europe white signifies purity and is used at weddings, but in other cultures, white is the color used for death and funerals. Happiness is associated with white, green, yellow or red, depending on the part of the world. So when creating the design, we should take into account the culture our target group is coming from. [2]
1.5 Construal level theory

Anything that’s not a part of our direct experience involves a mental representation – construal. In other words, this is anything we do not experience here, now, and ourselves. But not all our mental construals are created equal. We can represent the same event with different levels of abstraction. The theory was formulated by Nira Liberman and Yaacov Trope and explains that levels of construal vary with psychological distance, with greater distance leading to higher-level of construal. [9, p. 15] *Psychological distance has three main aspects: conceptual distance, time distance, and desirability versus feasibility.* Each of these aspects may be used to affect the online interaction by influencing the visitor’s state of mind.

*Psychological distance* shapes representation of objects or events in our minds and represents abstraction level of those thoughts. This distance may be either “High-level construal” (referring to thinking abstractly, or looking at the big picture and not focusing on details) or “Low-level construal” (referring to thinking concretely, or focusing on the “here and now” in great detail).

Our *conceptual distance* from an object refers to the way we cognitively construct the object. Low-level construal is mainly related to specific features: function, color, size. Moreover, the high-level construal relates to the experience a user has with a particular object. If a user describes a link as unclickable, that is low-level construal. However, if he describes that the interaction leads to frustration, that is high-level construal. [10]

*Time distance* is another factor influencing human’s perception. It relates to the length of time between the particular event and present. For instance, planning a vacation. People tend to perceive differently a vacation that is going to happen in the near future than in the distant future. In the first case, we would focus on the practical implications, in the second, we focus on the experience.

*Desirability vs. feasibility.* Construal level also refers to the desirability and feasibility of a product. People might put more importance on the end result when they desire certain object or event. And this is a high-level construal. Alternately, feasibility is more focused on how to get to the end result, which is a low-level construal. [10]
1. Psychology and decision-making process in design

Construal level theory considers that users would feel a lot more satisfied and make right decisions when their problem and their psychological distance are matching. So taking all the aforesaid into consideration, one might see that the theory is understandably essential and that online businesses and designers in the first place should make their presentation of products to match with the way the products are perceived by consumers.

1.6 Three levels of processing design

The human mind is in an almost constant decision-making process which, naturally, also affects how we think and interact with the design. According to Donald Norman, professor of Cognitive Science, there are three levels of processing design – Visceral, Behavioral, and Reflective, which also refer to a concrete type of processing perceived design.

1.6.1 Visceral level

On the visceral level, we are talking about first fast subconscious emotional reaction based on appearance. This level works on instinct. That would mean, that all our values can make a difference to the way we perceive something. Reactions to the visceral level of design are immediate and powerful. We tend to like smiling faces, symmetrical, rounded and smooth objects. Things we like are usually used in an advertisement to create the positive emotional bond with product or service. [11, pp. 29] And it takes only a second to determine if the “look and feel” of a product appeals you. Good visceral design can make us feel happy and excited.

To make things more transparent, several main characteristics of the visceral level can be distinguished:

- **Visceral level is about attraction.** That means the more attractive a particular product (or a website) is, the more users’ immediate attention you can get.

- **Visceral level is about immediate emotional impact.** By only looking at the product or touching it users can feel the immediate need of the product.
1.6.2 Behavioral level

The behavioral level of design is mainly about the pleasure and effectiveness of using the product or interface. According to Norman, appearance does not matter, but performance does. He also states that visceral design is the domain of graphic artists and behavioral design is bread and butter of usability engineers.

Professor Norman himself explains the process of working on the design on a behavioral level in that way: to ensure a good behavioral design, we have to know well our users’ needs and expectations. It can be reached by observing how users interact with the design in the field. Then the design team produces quick, rapid prototypes to test them on prospective users. As the design process continues, it incorporates the information from the tests. Soon the prototypes are more complete, sometimes fully or partially working, sometimes simply simulating working devices. By the time the product is finished, it has been thoroughly vetted through usage: final testing is necessary only to catch minor mistakes in implementation. This iterative design process is the heart of effective, user-centered design. [11, pp. 83]

Main characteristics of the behavioral level of design:

- **Behavioral level is about user experience.** If the user experience is bad, they would not probably be using the product, even if it’s good.

- **Behavioral level is about understanding how users use your product.** It’s not just about building the user experience, it is also about understanding how users use the product, getting the right feedback so we can improve our product’s user experience.

- **Behavioral level is about expectations.** It is about what users expect from the product. Otherwise stated, we need the product to deliver what it promises to the users. Put concisely, behavioral design needs to be understandable and usable. Sometimes understanding comes after the function.

1.6.3 Reflective level

Third, Reflective level, takes memories, culture, previous personal satisfaction and self-presentation into account. [11, pp. 22, 84, 39] It
1. Psychology and decision-making process in design

is all about the message, about culture, and about the meaning of a product or its use. [11, pp. 83] The reflective design defines our overall impression of a product since we reflect on all aspects of it: messages sent, cultural aspects, the meaning of the product and whether it is worth remembering.

Whether we wish to admit it or not, all of us worry about the image we present to others, or, for that matter, about the self-image that we present to ourselves. Do you sometimes avoid a purchase “because it would not be right” or buy something to support a cause you prefer? These are reflective decisions. In fact, even people who claim a complete lack of interest in how they are perceived, dressing in whatever is easiest or most comfortable, refraining from purchasing new items until the ones they are using completely stop working, make statements about themselves and the things they care about. [11, pp. 84] These are all properties of reflective processing.

To put things shortly:

- **The reflective level is about memories.** Users are enjoying using the product, and this memory lasts forever.

- **The reflective level is about the relationship with the product.** Users want to be more attached to the product in case they liked it. In other words, they build a relationship with it, and they are proud to use it.

- **The reflective level is about the overall impression of the product.** If users like the product, they keep using it and might recommend it to others.

All of these three levels of design influence final decision and this knowledge can be used to make interfaces more enjoyable for users. We can improve user experience on each of these levels. The study performed by Japanese researchers Masaaki Kurosu and Kaori Kashimura, focusing on the Visceral level of the product shows that making an item, in case of the study the ATM machine, look more attractive to user made the test subject perceived to be more comfortable to use compared to less attractive version. [11, 12] Generally it can be said that if visual design is aesthetically pleasing, users tend to be more tolerant of usability errors. The reflective value outweighs
the behavioral difficulties. However, while successful design should provide positive emotion on all three levels, conflicts between them can also happen. For example, if shopping process of e-shop creates positive emotion on the Visceral level, e.g., is aesthetically pleasing but is confusing/unusable on the Behavioral level, overall response of the user will be negative.

It is possible to create successful design by combining these three levels in the right way to make it appealing (get users’ attention and influence their perception), effective (guide their attention and make sure that users find what they are looking for), pleasurable (allow users to appreciate the product and enjoy it), and memorable (build a relationship with users and make sure the product leaves a positive memory of itself).
2 Captology

Captology is a relatively new discipline that has increased in prominence as we continue to replace human roles with computers. The term was proposed by B.J. Fogg at Stanford University in 1996 and derives from “Computers As Persuasive Technology”. Captology includes the design, research, ethics, and analysis of interactive computing products (computers, mobile phones, websites, etc.) created for the purpose of changing people’s attitudes or behaviors resulting from the human-computer interaction. [13] [14]

Dr. Fogg distinguishes two levels of persuasion in computer technology. On the macro level, the sole purpose of the product is to persuade – an excellent example of this category would be mobile trainer application which has the primary persuasive purpose – to get it clients exercising. [14] On the other hand, micro level, persuasion is not the primary concern of the product, but it can be used almost everywhere – applications can persuade users to complete action by removing obstacles (simplifying process), by rewarding and motiva-
ing users or allowing users to track progress. Individual persuasive techniques are described in the next part of this work.

In his book Persuasive Technology: Using Computers to Change What We Think and Do, Dr. Fogg defines seven types of persuasive technology tools:

- Reduction – simplifying the path to the desired outcome
- Tunneling – directing and guiding a user to desired output by series of steps
- Tailoring – or personalization of the experience based on the needs of the user
- Suggestion – presenting right information to the user just at the right time
- Self Monitoring – allowing users to track information about themselves
- Surveillance – allowing one party to monitor the behavior of another
- Conditioning – using rewards to help shape desired behavior

Usually, the combination of more than one of these tools is used to create a persuasive experience. Even though we now live surrounded by persuasive technology ranging from smartphones, through sports equipment and applied in fields like marketing, health, e-commerce or learning. It is hard to imagine that just a little more than 20 years ago, people were skeptical about the fact that computers can persuade humans. First results of Dr. Fogg research were not accepted very well at first – people either didn’t believe the data, or they thought that technology like this is evil. [15]

Now, many modern technologies have been identified by psychologists as addictive – because of use of persuasive technologies, which confirms the concerns of the first observers of Dr. Fogg’s experimental studies. Today, for example, instant messaging or social media websites. Many users would like to see likes on their social media profiles
to know how popular they are, or like to hear the sound of new messages delivered. All these are known as “triggers” which sparks a microdose of endorphin in our brains. It is also evident that long-term exposure to media can affect the way of how one sees the world. In other words, every media people consume shapes our view of reality.

All of this is based on use Fogg’s theory of behavior change, and according to it, three criteria must be fulfilled to make people do something:

- they must want to do it,
- they must be able to do it,
- there must be a trigger that would make them do it.

The trigger would be effective only when people are highly motivated or when the task is easy.

Figure 2.2: BJ Fogg’s Behavior Model [16]

However, before examining how we want to change peoples’ behavior, we must, first of all, choose the target behavior and then apply
the three elements, which are Motivation, Ability, and Trigger. In the first place, a person must have motivations to perform the target behavior. Secondly, a person must be able to perform the target behavior. In practice, we often tend to overlook this, assuming our customers are more capable than they really are. Then there is a trigger – the element that tells someone “do it now”. When motivation is high enough, or a task easy enough, people become responsive to triggers. The trigger, if it is well designed, finds a user at exactly the moment he is most eager to take action. The most important nine words in behavior design, says Fogg, are, “Put hot triggers in the path of motivated people”. However, if a user is triggered to do something he does not like, he probably won’t return.
3 Persuasive techniques

Persuasion, or the process of guiding people toward the desired action has been here and described at least since Aristotle’s, who defined three persuasive appeals

1. Logos, or appealing to logic
2. Pathos, or appealing to emotion
3. Ethos, or appealing to ethics, morals, and character

Even though Aristotle’s principles were originally meant for public speaking, they can be used even today, in digital user experience. We are appealing to Logos when we are using numbers, statistics of the success of our product. When we are using emotions to describe benefits of the product, we are appealing to Pathos and last, but not least, when we are using testimonials from respected authorities in the field, we are appealing to Ethos.

In technology, persuasion lies on the foundations of functionality and usability. Fundamentals of sound usability in product guarantee that user can quickly do some desired action – buy a product or create an account. However, does not guarantee that they will do so. Here comes the process of motivating and persuading the customer to act. Persuasion has been used for years in the commercial sector and seems to be next battleground online, as these techniques can help with company growth or gaining competitive advantage. [17] Usage of the persuasive techniques increase the chance that we will influence customers to act in the way we want them to, and we, humans are susceptible to them even after learning that these tactics exist. [18] Persuasion should not be confused with manipulation, and in the end, it should lead to mutual satisfaction of business and client. Persuasion should be transparent and upfront about intent in contrast with manipulation, which is deceptive and disregards users interest.

In this chapter, various psychological persuasive tactics are described and applied to the model and examined on real-world examples. For the model examples, basic, plain layout of an e-commerce site is used to isolate the persuasive pattern as much as possible. Used layout can be seen in figure 3.1 and 3.2
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Figure 3.1: Base layout – list of products
3. Cognitive Biases

As described in The Handbook of Evolutionary Psychology by M. G.; Nettle, D. & Andrews, cognitive bias is a deviation from the rationality in judgment that may create an illogical interpretation or perceptual distortion. There are more than 170 discovered cognitive biases and new are still being discovered even today. In user experience and persuasion, cognitive biases are widely used to create the desired perception of product or service in customers’ mind. [19]

3.1.1 The Anchoring Effect

One of the most common biases is to rely too much on the first information offered when making the decision. When comparing the products, we are susceptible to use the first available price as an anchor. Restaurants, for example, use this technique by putting more expensive, premium meals first, which creates the anchor for the rest of the menu. All other meals then seem reasonably priced compared
3. Persuasive techniques
to the anchor, even if they are objectively expensive in comparison with another restaurant. This method is called “high-end anchor”, another approach is called “low-end anchor” which in contrast shows the lowest price first. [20] It is also possible to create an anchor for the range of products as in the example in figure B.1, where anchor for the whole range of products is created on the top of the product category page.

Figure 3.3: Creating an anchor for three different price groups of the products

3.1.2 The Framing Effect

The framing effect is one of the biases, which affect decision making. People react to option depending on the form in which it is presented. Objectively same numbers can be presented in positive or negative wording, which can influence one’s choice, e.g., saving 90 lives out of 100 vs. risk of losing ten lives out of 100. [21] In the figure A.3 from MacBook Pro product page, we can see the framing effect in use. The display is not the brightest and most colorful in the world, not even in all Macs just Mac notebooks, but used words “brightest” and “most colorful” evoke otherwise. In the example seen in figure 3.4, by changing the wording from plain statement to describing why the process takes so long we can make the waiting time more acceptable
3. Persuasive techniques

and also minimize the impact of the negativity bias described later in this chapter.

![Figure 3.4: The framing effect – delivery time wording](image)

3.1.3 Negativity bias

Things of negative nature have a more significant effect on a person than things of equal intensity but of positive nature. Evolution has made humans inclined to negativity, which was vital for our survival in the past, but people still tend to give more weight to negative experience than those that are neutral or positive. One bad experience can overweight many positive even in the online environment. Although we should aim to design our products as seamless and intuitive as possible, in some cases we should anticipate user’s concerns and provide meaningful messages or even attempt to use humor in some situations. [22] It is never pleasant to see error messages, but as I mentioned before, we should strive to make massages explainable, polite and written in the proper tone of voice. See figure 3.5 for the example of error page – turning plain error message to humorous experience, thus minimizing the impact of negativity bias. Of course, this method
3. Persuasive techniques

should be used only in the appropriate environment, as there is a massive difference between error 404 (page not found) and error in aviation or nuclear powerplant operation system. In the figure A.4, we can see the desktop version of the Slack application using skeleton screen and good day wishes to minimize the negative impact of loading time. In another example, figure A.5, Asana, the team management software uses positive, rewarding message and graphic element in the empty state of the application, when there are no notifications to display. A reward for accomplishment in the form of positive message or picture can be used after series of complicated steps in application.

Figure 3.5: Negativity bias – error messages

3.1.4 The IKEA effect

The name of this cognitive bias comes from the famous Swedish furniture retailer whose products often require customers’ assembly. The IKEA effect means that people tend to value the product more if they created the product partially or fully on their own. Customization or assembly can create a stronger bond between the product and the user, which means, that the shortest path to accomplish the goal is not necessarily always the best as it would seem to be. [23] When designing user interfaces, we can use the advantage of this bias and create a stronger bond between user and the product. [23] For example, when creating a new account on Apple Music, the user is asked,
3. Persuasive techniques

in the attractive and interesting way, which music genres he likes to listen. Although those steps are not necessary to run the application and to listen to the music, after just a few more clicks, the customer is provided with relevant content from the beginning. Another way to use this bias is to let the user customize the product itself through configurator/product builder. Even if the amount of possible outcome is very limited customer will have a possibility to develop the attachment to the product. See figure A.6 A.7 A.8

3.1.5 Scarcity

When we are under the specific amount of stress, our mind is able to make only unconscious, habit-based decisions (the type of decisions that is so habitual, that we might not even realize we are doing it). Also, the scarcity bias is closely associated with stress. People tend to think of the scarce items as more valuable. When we combine users desire to own a thing with stress by creating time pressure or unveiling competitors, a powerful persuasive pattern is created. This approach is widely used on e-commerce websites to create pressure on customers and persuade them to buy an item. From ethical aspect, like any other persuasive pattern, it should be honest – in the long term, fake and overused scarcity patterns will be exposed. [20, pp. 114] The patterns used to evoke the scarcity bias will be described in the following lines.

Infrequency

One of the possible ways to use scarcity bias is Infrequency pattern. Displaying item as on sale evokes specialty or irregularity of current situation and stimulates the user to act. Usage can be seen in Appendix A.1.

Time-sensitive deal

The time-sensitive deal pattern often used with countdown timer can be used to invoke stress and nudge users to take action immediately.
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Figure 3.6: Scarcity – time-sensitive deal with countdown timer

Short supply

Emphasizing shortage of product is another way of working with scarcity bias, as seen in the figure A.2 where website shows warning about the last piece of an item for this price.

Competition

The model example of displaying how many customers are watching an item right now can be seen in figure 3.7, as an alternation, how many customers bought this item last day/week/month or any given period of time can be shown.

Periodic events

Recurring events will build up anticipation and sustained interest, and the user will have something to look forward to. Either typical seasonal events like Christmas or Black Friday can be used, or it is possible to create own event that suits the product perfectly by timing. Basically,
3. Persuasive techniques

Figure 3.7: Scarcity – Competition

it is a combination of previously mentioned patterns – Infrequency – events usually happen once a year, Time-sensitive deal – event occurs for a limited amount of time and Short supply – limited amount of items is on sale/competition from other users.

3.2 Social Biases

While cognitive biases come from our physiology and mainly brain biology, some things are influenced by society, our customs and culture. Specifically said, social biases are a subgroup of cognitive biases that relate to how we perceive other human beings. They result from errors of attribution when we try to explain others’ or our behavior, based on faulty or unfounded preconceptions and prejudices. Moreover, they also can help to improve user experience by turning some of our social patterns into persuasive techniques.
3. Persuasive techniques

3.2.1 Reciprocation

Referring to social psychology, Reciprocity is a social rule, which says people should repay what another person has provided for them. Said differently, it is a feeling of being obliged to return the favor. For example, if someone invites us to his or her party, we start to feel obliged to invite that someone to a future party that we are hosting. Alternatively, when a neighbor or a colleague at work do you a favor, then you owe them a favor, too. And in the context of a social obligation, people are more likely to say yes to those whom they owe, to those who made something for them. Let’s look at another example: we are in a restaurant waiting for a bill, a waiter has given us the bill with a small gift (a mint, a cookie, a liqueur). Does the giving of this gift have any influence over how much tip we are going to leave them? We might think, that it would not change anything. However, that gift can make a surprising difference. In the study, giving diners a single mint at the end of their meal typically increased tips by around 3%. And if the gift is doubled and two mints are provided, tips do not double. If the waiter provides one mint and starts to walk away from the table, but pauses, turns back and says, “For you, nice people, here is an extra mint”, tips increase even more. A 23% increase influenced not by what was given, but how it was given. So the key to using the Principle of Reciprocity is to be the first to give and to ensure that what you give is personalized and unexpected. [24]

Talking about design, we can replace another person with designs, and it takes us to the persuasive user experience. How can it be used and how will it work? Will that lead to better business outcomes and work to our user’s advantage?

Reciprocity may be used online too to help accelerate users’ behavior toward a particular goal. Online favors may be done in many different ways: you can offer useful information to users (it should also be easily accessible), you can teach users something new while they are interacting with the website, you can give them free trials, e-books or access to software. According to psychologist David Straker, “The inner tension created in the gap between receiving and giving is often so powerful, that we will give anything in return just to reduce this discomfort”. [25]
3. Persuasive techniques

It does not have to be a purchase that users may give in return. We might need to contact prospective customers on several occasions before they become actual customers. In return, they may only ask for a referral, or a link to a website, or a comment on a blog, for example. And it is ok to ask people a favor they owe us. We often see websites giving us information or useful content for free in the form of blog posts, newsletters, and PDFs. And users of the websites are likely to reciprocate some sort of favor to the website if they found the content informative.

How it can be used in user experience design?

1. **By teaching something**

   Thinking about the users’ needs, we can write content that will teach them something valuable and useful. People tend to want and like new information, and this natural desire motivates exploratory behaviors. The acquisition of new information is a reward that makes users feel good. Therefore sharing valuable content is always a good idea. However, it would work only in case the content is not focused on the promotion of company’s products, but teaches them something valuable. For example, articles containing useful advice from someone who is a professional in their field – prototyping tool Marvel has a blog about user experience, prototyping, and web design. See figure A.10.

2. **By sharing information about the company itself**

   We can also share information about the company itself, telling customers (users) about the team, culture, and procedures behind the product. It would make them feel more familiarized with the company. This approach will increase trust and chances that the user will become a customer.

3. **By giving a take-away**

   One of the easiest ways of turning users into customers is giving them some kind of take-aways. It can be step-by-step manuals, materials, free trials. To intensify the effect of free trials, for example, the special feature can be added to it – only the time a user actually uses the software counts as a trial. As in the previous example, prototyping tool Marvel offers a free limited version of their application. See figure A.9.

4. **By minimizing their interaction cost**
3. Persuasive techniques

The reciprocity principle says that people respond in kind to nice behavior. It can be used by minimizing users’ interaction cost (which is the sum of efforts that users must deploy in interaction with the site to reach their goals). The interaction cost may be decreased by paying attention to following parts of user experience: reading, scrolling, finding relevant information, clicking or touching, typing, page loads and waiting time, attention switches, etc.) This principle is not for every case. Sometimes, the quickest path does not have to be the best. As I wrote in The IKEA effect subsection, people tend to value the product more if they created the product partially or fully on their own. However, it is never that simple. That is what user researches are created for. [23]

3.2.2 Authority

People have a tendency to agree with authority – real or imaginary. They tend to follow the lead of credible, knowledgeable experts. But how does it work exactly? Every day we might meet the need confirmation that we are making a good choice. In today’s world, there is practically no monopoly and in almost every area we have plenty of choices. Although several prominent companies have such attempts, we cannot say they are the only ones. This is why we need evidence that we are making the right call. Listening to the authorities in particular field and trust them when making decisions seems to be a very rational thing.

We always see examples of authorities in our everyday life: doctors are able to persuade more of their clients to follow their recommendations if they display their medical diplomas and certifications on the walls of their rooms. People are more likely to give change for a parking meter to a complete stranger if that requester wears a uniform rather than casual clothes, or when we see a policeman in a blue uniform, we instinctively think that it is a person, who should be obeyed. Cialdini found three significant symbols of authority that will reliably trigger our compliance in the absence of the genuine substance of authority: titles, clothes, and trappings (jewelry, cars, etc.). [24] Often even the appearance of authority is quite enough, and we do not always need to provide real authority. People who identify themselves with authority figures, trust their taste and often believe that it fits their own.
Authority also helps to define the role we take upon ourselves and the role we put on others. If an authority seen as a doctor, we put on the patient role, or the learner or student, in case of a teacher.

It is possible to use the influence of authority in website design by adding a photo, an article, or a review from authority in the specific area. A Head of the company may also be an authority. It is important to signal to others what makes one a credible, knowledgeable authority before making influence attempt.

**How can it be used in user experience design?**

1. **First of all, we have to communicate authority.** Communicate a sense of authority to users by displaying appropriate credentials: list certifications, awards, or prominent customer testimonials. We can associate ourselves with authority figures by connecting their well-known face with our product.

2. **Post a photo with a note or a longer article** from our specialists, directors or sellers. Authority figure must be chosen depending on our business, whom we want to influence, and how we want to influence them. In my model example, bike e-shop, a photo of the famous cyclist is used as authority. Figure 3.8.

### 3.2.3 Commitment/Consistency

By this principle, we feel obliged to fulfill our promises (written or spoken). It may look similar to the one described above – the Reciprocation principle. However, this time it should not be a favor, what makes people feel obliged. People also like to be consistent with the things they have previously said or done. When we made a choice, we tend to stick to it. It is a mental shortcut, and it takes less thinking.

**How can it be used in user experience design?**

One way user experience design is to lead users to commitments by getting users to show a small gesture or declare their intentions. They will, in general, act consistently with these small requests, even if later they will be asked to make significant commitment consistent with previous small one. Signing up for a newsletter or liking page on Facebook will make users more likely to purchase in the future.

The principle of commitment and consistency can be used in two different ways. Foot-in-the-door – first gain commitment to a small thing in order to convince about a big thing, and Door-in-the-face –
3. Persuasive techniques

first ask for a big thing, expecting to be turned down. Then ask for a small thing immediately afterward. Guilt from refusing the first offer makes users more likely to agree to the small thing. [20]

In the model example – buying a gift card, if the customer has already chosen the amount of money he wants to spend on a gift card, he has already made the commitment, and it will feel intuitive for him to finish the process. See figure 3.9. Generally, the same principle is often used on charitable or donation based organizations – for example, Greenpeace. See figure 3.10.

3.2.4 Liking

The principle of liking tells us that people prefer to say “yes” to those they like. However, what makes one person like another? Persuasion science tells us that there are three important factors:

- we tend to like people who are similar to us,
- we like people who pay us compliments
- we like people, who cooperate with us towards mutual goals.

Liking principle applies not only to other people but interfaces, websites or company as a whole. Liking operates on the visceral level (defined in the first chapter of this work), and its effect was proven by Masaaki Kurosu and Kaori Kashimura in their in case of the study the ATM machine [12]. To strengthen the effect, Liking principle is often used together with the Authority principle and thus combining someone we respect with something or someone we like.

In “Influence: The Psychology of Persuasion”, Dr. Cialdini lists five factors that power the principle of Liking[24, pp. 129]:

Physical attractiveness. When it comes to the physical attractiveness, on the visceral level, people tend to like smiling faces, symmetrical, rounded and smooth objects and reactions to these patterns are intense and immediate. The more attractive a particular interface is, the more users’ immediate attention it can get.

Similarity. We like people who are similar to us regarding interests, opinions, personality, background, etc. We might prefer to purchase from a brand that interacts with their customers, is empathetic and
3. Persuasive techniques

more human. That is why branding is of such importance. To earn customer loyalty, you cannot behave like a brand; you have to be their friend. One aspect of making your customers think of you as a friend is relatability and similarity. If your customers feel that you can relate to them, and understand the problems they are facing, they can begin to think of you as a friend. E-commerce site from the model example could contain About us page showing the history of company, employees and their passion for cycling, See figure 3.11.

Compliments. We love to receive compliments and tend to like those who give it. Another aspect of making a brand more human is to have a voice. It would feel good if after we shared our opinion about a brand on social media, they replied to us. Social media platforms are not broadcasting sites; they are platforms to establish more intimate conversations and relationships with the customers.

Contact and Cooperation. We feel a sense of accordance when working with others to fulfill a common goal. Sometimes, we like someone not because of their personality, but because of what they stand for. We respect and like them when we know that they are working towards the same ideals as we are.

Interesting usage of this pattern can be seen on mozilla.org. When deciding which browser to use, the approach of the company can be essential, and Mozilla clearly communicates its ideals and engagement in the community.

Conditioning and Association. Let’s take James Bond, for example, he drives his Aston Martin, which is no longer just a car after it. Elements of the man of mystery rub off onto it, turning it into a “sexy”, “masculine” and “cool” ride. For a brand to be immortalized, it has to evolve from being a maker of products into a creator and enforcer of an ideal.

How can it be used in user experience design?

So to work with this principle of liking, we have to be sure to look for areas of similarity that we share with users and genuine compliments we can give before we get down to business. Liking the company, website or interface, in contrast with scarcity or social proof patterns can have long-term benefits.
3. Persuasive techniques

3.2.5 Benefits over Features

When we are designing a product, we know everything we need about how it works from the inside, to be good at selling it. However, designers and developers mainly focus on the features, attributes, and technical problems more than on benefits the product brings to users. While a feature is something a product or service offers, benefits are the outcomes or results that users will (hopefully) experience by using product or service, the very reason why a prospective customer becomes an actual customer. But not always benefits of the product are so obvious even for creators. Moreover, even though we know why our product will make users’ life better doesn’t mean they do. Most people do not care about the company or how many late nights engineering team pulled to ship a product – all they care about is themselves. So instead of asking “what our product can do”, we must ask ourselves “what customers can do with this product”. People do not buy products, they buy better versions of themselves, accomplished by using the product. Probably the most iconic example of this pushing benefits over features is Apple advertisement for iPod. While its competitors sold 5GB mp3 players, Apple sold “1000 songs in your pocket”. Both, benefits and features are important to persuade. Features add credibility and substance, while benefits give customers reason to buy. In our model e-commerce example, we can use this idea and try to sell adventure and exploration of beautiful nature on the bike, instead of plainly stating that we sell mountain bikes. See figure 3.12.

Needless to say, that benefits come from offering the right features. So to understand them, we have to understand customers.

3.2.6 Social Proof

When it comes to user experience, the principle of social proof means, that in case we are unsure, we tend to look at the proof, that particular product or service is being used by a similar group of people. Also, if we can see that many people do something, we tend to view it as the correct behavior.

Social proof principle can be used for two reasons: to deliver credibility – if other people find a source useful and credible, we are more likely to believe that it may be as much use for ourselves and to pro-
mote adoption and/or acceptance – amount of people subscribing to a Facebook page feed can encourage others to do the same.

How can it be used in user experience design?

Validation logos. By adding this, we can establish our trustworthiness by highlighting our affiliations with well-known organizations.

Subscriber count. Shows users how many other people have followed our brand on social media or subscribed to our list.

Social Shares. Shows users how many times other people have shared our content on their social media profiles.

Reviews. By getting high ratings and a large number of reviews, we can show users that a lot of people use and enjoy our product. Even if it might seem that it would be best to hide negative reviews, opposite is true – for many users, it seems unnatural that reviews are 100% positive and think they are being manipulated. Cherry-picked reviews are used for example on booking.com, where every review displayed on property detail page is positive. Listing of all (negative) reviews is hidden on the separate page. Tactics like this are no longer persuasive, they are manipulative, misleading and considered as dark patterns. Probably, there is no product that suits everyone perfectly, so an occasional imperfect review is actually beneficial. See figure 3.14.

Customers also viewed... We can show our customers the other kinds of products that people similar to them have shown interest in. See figure 3.14.

Testimonials. When testimonials are done right, they build trust by showing prospects that organization has gotten results for other people like them. To make testimonials as authentic as possible, it is possible to use tweets directly from users of the product, or combine testimonials with case studies detail describing benefits of the product for the customer. See figure 3.13.

Vote to promote. Crowd-sourced content curation was popularized by Digg and Reddit and now, the majority of content focused platforms provide some kind of way to let users filter out bad and good content. Engaging users in promoting content they like can be combined with gamification by using points, badges, and levels for high-quality content. Gamification is further described in next chapter of this work.
3. Persuasive techniques

3.2.7 Tailoring

Tailoring is another way to provide relevant content for the user based on our knowledge of his past interactions and preferences. Providing content that user is interested in, will lead to higher engagement rate. This approach is applicable not only to content serving websites, but any software in general – functions used often could be moved to a more visible place, while unused could be pushed out of sight. Tailoring of the content is used for example by YouTube – showing relevant recommendation based on previous activity right on the homepage, of Facebook news feed algorithm, showing content that user is interested in.

3.3 Gamification

Thinking of games, for many, brings back some of the best memories. Let it be childhood games in the outdoors, sport or computer games. Joy and desire to win, the cornerstones of all the games have been there for millennia. In computer games, for example, players can focus for long hours on improving their fictional characters or cities, while in the real world many struggles to achieve the same level of concentration on things that actually matter. Gamification, while relatively new term, aims to bring game mechanics elements to non-game problems. Bringing game mechanics to solving the real world problems can make them more enjoyable and fun. Gamification can help build loyalty in customer and can significantly help with building persuasive user interfaces. In the next chapter, I will describe the most basic elements of game mechanics that can be used in the non-game environment.

Before diving into game-mechanics, let’s look at why computer gamers and games, in general, can motivate people so much. According to psychologists, our motivations are divided into two groups: intrinsic and extrinsic. While intrinsic motivations are those that derive from within and are not dependent on the world around us. On the other hand, extrinsic motivations are driven by the surrounding world – like rewards, punishments or money. While both are useful, in user experience design, we can only influence the extrinsic motivation. For the best results of implementing game mechanic, intrinsic and extrinsic motivations should be balanced. Mixing this two different
kinds of motivation can cause extrinsic motivation (like competition pressure) to override more powerful intrinsic motivation [27].

3.3.1 Points

We can look at the points as an absolute requirement for probably any kind of game system, as a way to keep track of players actions whether it is “likes” count on Facebook, “retweets on Twitter”, kilometers cycled in the Endomondo challenge or just points for completing action as buying an item.[26]

To nudge users to the desired behavior, appropriate points weighting should be present. For example, in case the objective is to provide high-quality answers on the Q&A site, then it is more important to direct a user to write higher quality answers by awarding more points for correct or chosen answer than for asking the question. [28]

3.3.2 Levels

Another fundamental element of the game mechanics, levels, serves as an indicator of progress and current status in the game system. Levels can be described in many different ways – by plain numbering, by percentage, using metaphor relevant for given business. [26]

3.3.3 Achievements & Badges

Achievements and Badges are used to create a sense of progress and incremental encouragement for users. Badges can be awarded for special quests or after acquiring the defined amount of points or reaching milestones. Badges can symbolize status inside the community. On eBay (auction portal), sellers, after meeting certain conditions like the number of sales, uploading shipping tracking number within the time limit, low late shipment rate, etc. can receive a top-seller badge (See figure A.11). Buyers look for this badge as a sign of verification or trust. Moreover, last but not least, if well designed, badges can be collected purely for visual appeal as collecting things is one of the most powerful instincts. People collect almost anything from stamps through beer glass to cars. [26]
3. Persuasive techniques

3.3.4 Leaderboards

The primary purpose of the leaderboards is to compare with other users and bring the social aspect of points. Leaderboards can create a competitive environment and motivate users to spend more time using the application or the service. Leaderboards have to be designed and optimized to encourage this behavior for all participants. A brief look at the leaderboard in Endomondo sports tracker might be pretty discouraging for the new user, as seen in the figure A.12, there are lots of professional sportsmen using this application, and for the average person, it is almost impossible to even appear in the first few pages of the leaderboard. Endomondo solved the problem by creating more than one leaderboard making it easy to compare with friends for example.

3.3.5 Challenges

With points, badges, and leaderboards we can create the base game-like experience, but in the world of games, quests and challenges are almost always present. Our nature makes us take the challenges and prove that we can handle them. How to use challenges in the non-game environment? Endomondo sports tracker, for example, uses challenges literally – there are hundreds of different challenges available for each sport, and you can even create your own and invite your friends. Each challenge has mission description, statistics, and own leaderboard. However, challenges can be implemented in many other ways. Challenges can be used to make the task that might seem boring more appealing. For example, answering ten questions on Q&A site or filling all information in the user profile can be implemented in the form of challenge.

3.3.6 Rewards

Rewards can be used to encourage users to continue with wanted behavior. When adequately thought and designed, reward programs can be very useful in supporting engagement. Rewards can have the form of Completion – often used on training websites to reward a user’s completion of a goal, the form of awarded points Points, Level
3. Persuasive techniques

progress, Feature unlock, Prolonged play or Achievements and Badges. [26]

When and how often the reward is given can have a dramatic impact on the response from the user. When users do not know when to expect a reward, they tend to expect it anytime soon. This leads to a higher level of activity than when linking rewards to specific actions or specific times. [30]

Rewarding methods

Fixed rewards
The most straightforward method – the users exactly knows what they must do to get the reward. Examples include any kind of loyalty programs – points for purchases, or megabytes of free space on Dropbox for inviting a friend.

Variable or random Rewards
Similar to the concept of “loot”, or random rewards that appear once the player defeats an enemy in the game. The participant gets a random reward based on completing some kind of required action. Not knowing the reward in advance does not matter and can even enhance their engagement.

3.3.7 Progress bar

Feeling of making progress is really important – this fact is proven by the existence of progress bars as a UI element in almost any kind of system. We can see them in operating systems, on the web, or mobile apps were usually indicating progress towards data transfer. In gamification, progress bars can be used to indicate advancement towards gaining new badge, completing a challenge or progressing to next level. LinkedIn, for example, uses progress bar indicator to motivate users to complete relatively dull tasks, as filling profile information.

3.4 Trust

Visitors who come to our websites are usually already acquainted with good examples of trustworthy and reliable websites, and they have
reasonable expectations for how a business should portray itself on the web. Even if we see ourselves as an honest business, but our content or design does not go well with their expectations, then they will feel we are either untrustworthy or don’t care much about our visitors to create the excellent user experience. To grow trust through user experience design means to implement many small patterns, which together provide a sense of stability and professionalism, but it is better to emphasize a list of these patterns more specifically. Human Factors International [31], a company specializing in user-centered design, has brought into use the term “PET design” (Design for Persuasion, Emotion, and Trust) and has made a list of these guidelines:

3. Persuasive techniques

3.4.1 Trust factors

- **Credible Organization.** Users should clearly see who stands behind the website, is it a real organization or just some fake temporary company. It is hard to prove to visitors that business is real and they can take it seriously when all other factors like domain name, design quality, good current content or even physical address are missing. They also don’t want to feel like making money is the only reason a company exists. Customers want to get to know a business from the inside out and find reasons to feel good about supporting the brand. [32] It is a good way to gain trust by creating an “About Us” page with staff biographies, and also by using real images instead of stock photographs. It can be extended by telling a story of the brand, explaining the mission and core values. In other words, the more honest information is given to visitors, the more likely they are to develop a valuable relationship with the brand or company.

- **Domain Name.** In addition to other trustworthy elements of the website domain name plays an important role, too. The name of the website should not just be related to the business the company does, but it also has to correspond with requirements for a good domain name: it should be short (12 characters or less), guessable, easy to spell, easy to type, easy to say and pronounce, memorable, meaningful to customers, meaningful
to website partners, meaningful in the intended language and run together without punctuation (if compound words). It is better to test domain name before production. It can be tested through online surveys, phone surveys, focus groups or one-on-one usability studies. [33]

- **Design Quality.** Bad design is the worst helper in gaining trust. We all judge a book by its cover. Also, the very first impressions are the most powerful. All the elements on the website including content should be related to the business. However, nowadays having good content and “right” design is not everything, the design should correlate with trends and new technologies. There is also a phenomenon called ”Aesthetic Usability” which means that beautiful things are generally perceived to be easier to use and are regarded as more valuable than ugly ones. Isn’t that one of the important things in user experience design? Of course, it is, and users also can be more tolerant of little usability issues when they find an interface visually appealing.

- **Citations.** Added citations should prove your intellectual integrity and show customers your expertise in the particular area. It is also third-party support that verifies the accuracy of information.

- **Current Content.** Content marketing may be one of the best marketing tools that would help to increase the trustworthiness of the website. As I already mentioned before, it is not enough to produce good content every once and a while, it should be consistent and current. The content marketing strategy should have a publishing plan, has to aim to fulfill user expectations, fill customers’ needs and keep consumers engaged with the brand. So the more the content is up-to-date, the more trustworthy the company will appear.

- **Extensive Content.** This factor is related to the previous one. Content should be useful, extensive and up to date. If there is not enough content on the website, it may seem not finished, under construction. Poor and outdated content gives visitors the impression of a badly maintained and little-visited site.
3. Persuasive techniques

- **Links.** This trust factor means that you are adding links to other resources, not to your own website pages. Also, it gives visitors the opportunity to find answers to their questions if they did not find them on your website. It means that you still want to be helpful and useful to your customers and that you care about them and their needs.

- **Physical Address.** This factor of trust adds credibility to a company’s reputation because there must be a physical address of the company if you want to be taken seriously by your customers.

- **Policies That Show Trust.** Policies should not be too customer-centric and undermine your business model, but they should show you care about your customers and their needs.

- **Certifications & Awards.** If a business owns some certifications, such are academic qualifications, trade, ISO, and safety certifications; it should definitely show it to visitors. It also concerns different awards in particular areas.

- **Testimonials.** It is another factor of trust, that shows visitors that really trustworthy organizations care about these things and are able to get, select and publish testimonials on their websites. More about testimonials can be found in the chapter called Social Proof of this work.

- **Famous People & Common People.** Adding recommendations from famous people might increase the trustworthiness of a website because it means these famous people already trust the company. And even if they were paid to show their trust, it proves that company is not just some one-day business, but has money to invest in marketing. Trusting authority is one of the social biases described in the third chapter, “Persuasive techniques” of this work and adding images of common people is also a factor of trust coming from previously described “Liking” cognitive bias.

- **Peer Advice and Service Comments.** Users expect to see other customers’ ratings and reviews on the website. People tend to trust
or recommend you even if they have not heard of the product before, but saw other customers’ recommendations. And if customers are recommending the product to their circle of the network, that means they really trust you. Adding comments and recommendations to a website can help users find answers to their questions if they are not presented by the company itself through website content. [33]

3.4.2 Mistakes undermining the trust

We all have a mental image of a trustworthy website, even if it might vary to some degree from person to person. The problem is that apart from the personal discussion we have almost no ways to find if and why users think of a website as untrustworthy. However, in general, besides respecting previously mentioned trust patterns, we should be aware of following mistakes.

• **Outdated information.** Just like current content is indispensable, the opposite case is harmful. Old the information that hasn’t been updated for a long period of time decreases our chances to gain users’ trust.

• **Misleading data.** The data that is wrong and doesn’t correspond with facts is even worse than outdated information. This can include not just simple inaccuracy in providing clear, honest and confirmed data about the company and the field the website is referring to, but also lying and giving users wrong information in published surveys and blog posts. One mistake like this can overlay other good things on the website like consistency, testimonials or useful information.

• **Inconsistency.** We could look at being inconsistent as not being professional in particular area. Consistency should be maintained on all levels because it is closely related to reliability – company vision should be consistent with actions, customers expectations with provided products and of course, the design itself should be consistent as well.
3. Persuasive techniques

- **Dark patterns.** Category of itself, dark patterns, are thoroughly described in next chapter. Dark patterns are primarily used because of the power they provide in fulfilling simple KPIs as more clicks, more signups or lower unsubscription rate. Even if it might look good on the paper, and fulfill short-term goals, any business that values its customers should not incline to dark patterns.

Trust is one of the most critical factors in online product success; the customer wants to be sure, that he is not going to lose money or that his personal information will be sold. So keeping in mind all the described above aspects is essential for providing our visitors with the excellent user experience.
3. Persuasive techniques

Figure 3.8: Authority
3. Persuasive techniques

Figure 3.9: Commitment and consistency
3. Persuasive techniques

Figure 3.10: Commitment and consistency pattern on Greenpeace website
3. Persuasive techniques

Figure 3.11: Liking
Figure 3.12: Benefits over features
3. Persuasive techniques

Figure 3.13: Social proof
3. Persuasive techniques

**Figure 3.14: Social proof**
Figure 3.15: Trust
4 Ethical aspects of using persuasive UX techniques

4.1 Dark patterns

Techniques exploiting weaknesses of the human mind were around long before they were translated to the digital experience. The common definition of the term describes "dark pattern" as a user interface that has been carefully crafted to trick users into doing things such as buying insurance with their purchase or signing up for recurring bills. [34], or more generally as deceiving the visitors into providing websites owners with a value that they have neither earned nor deserve. Description of the dark pattern partially match with the definition of persuasive pattern, so what is the difference? Aren’t all persuasive patterns dark patterns? On the first look, it might seem so, but the main difference is, that dark patterns are manipulative, not persuasive. When persuading someone, you are leading him in the certain direction and in the end, accepting your arguments and logic should be mutually beneficial. On the other hand, when we are manipulating someone, we are taking advantage of him and deceiving them to accept our point of view which is beneficial only to the manipulator. Dark patterns can be recognized by the fact they incorporate following practices:

- There was a way to improve the interaction, but intentionally wasn’t used.
- There was an option to provide generally expected format, but intentionally wasn’t used.
- Warning about consequences of action should be provided, but intentionally wasn’t.
- It was possible to create a more transparent experience, but intentionally wasn’t

Dr. Harry Brignull, a website user experience design consultant with a Ph.D. in cognitive science, is precisely the man who introduced
us to the term. This is his story that made a start to darkpatterns.org website [35] which now is an online library consisting all the main "dark" techniques.

“One Friday night a few years ago I was pickpocketed on the way home from a bar. The way they did it was really clever – right in front of my face. When I got home I spent hours on the web reading about all the techniques that pickpockets use. I found out they’d used what’s called the ‘drunk dancer’ technique on me, which basically involves the thief pretending to be drunk, hooking onto you and putting pressure somewhere on your body to distract you from what they were doing in your pocket. As I read about this, I realized that if I’d known the name of this technique beforehand, I’d never have let it happen. Scams don’t work if the victim knows in advance how the scam works. Around that time, I was invited to give a presentation at a design industry conference about some of the tricks that low-cost airlines often use to get you to buy insurance or other add-ons. In doing the research, I realized these tricks were far more widespread than I expected. I got the feeling that everyone in the design industry sort of knew these tricks existed, but nobody had ever taken the trouble to identify and document them properly. This is where the term ‘dark patterns’ was born. I wanted to pin a name on them and get people talking about them more.” [36]

If customers or users feel abused and robbed, why are dark patterns used even by the world’s biggest brands, such as Microsoft, Facebook, or LinkedIn? Primarily because of the power they provide in fulfilling simple KPIs as more clicks, more signups or lower unsubscription rate. Executives in charge, driven by these metrics orders designers and developers (whose personal ethics might be challenged) to use patterns like this. Even if it might look good on the paper, as the Hoa Loranger, vice president of the Nielsen Norman Group say “Any short-term gains a company gets from a dark pattern are lost in the long term”, Widespread awareness about dark patterns, between designers, developers, executives, legal authorities and spreading advantages of persuasive techniques might help with rooting out the dark patterns.

Meanwhile, some companies seem to care more about rapid income than gaining users’ trust and loyalty, and start using so-called “dark patterns.” In a data-driven environment, this decision is often supported by A/B testing, where patterns perform great [37], but
4. Ethical aspects of using persuasive UX techniques

one thing that should not be forgotten about is, that A/B testing tells us what happened after inducing change, but not why. Just because something works, it does not mean it is a good thing to do in long-term.

In general, we see two main strategies where we find dark patterns: *crafting tricky interactions* and *hiding important information*. Sometimes users tend to make wrong assumptions about deceitful conditions or do not unsubscribe, because the whole interaction way is excessive and unclear. That helps dark pattern to succeed. Moreover, even a small percentage of users succumbing to a dark pattern can translate into a considerable increase in revenue.

4.1.1 Intentional or bad design?

There are patterns, which are mistakenly annoying (so-called anti-patterns) and intentionally misleading. Moreover, it is essential to see the difference between them. Anti-patterns are not precisely deceptive, but they can disrupt users’ experience and result in widespread abandonment. In most cases, they are just caused by laziness and unprofessionalism. So they may be as follows: crowded content that clutters all the space above the fold; seemingly clickable elements that are unclickable (and vice versa); automatically erasing form info due to an error upon submission. Anti-patterns can usually be identified and avoided by following conventional design practices, but what about patterns that are intentional? It is well known that good user interface prioritizes users needs, makes tasks predictable and easy to complete, while dark techniques are pushing user into action that is in most cases in the financial interest of the company, not user. So it can be hardly lousy design. These tricks are created to lead somebody up the path intentionally. Although all of the persuasion is a psychological trick to make the user interface as captivating as possible (in the case with commerce sites the reason for this is to get customers to spend more money), it does not mean there is no ethical boundary. Even though it is quite hard to define it. Regarding the intentionality of the disguised ads pattern, for example, it is the owners of the products who have all the control over where advertisements are placed on the page and how precisely they are marked as advertisements. The site owner also chooses to use a third-party advertisement service, which takes the types of ads shown on the page out of his control.
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4.1.2 Sneak into basket

One of the most popular dark patterns is this one called sneak into basket. Sometimes businesses try to sneak some things past users that are annoying but cost nothing – such as automatically subscribing to newsletters. However, there are also times when not so friendly tactics are used to get users to buy things they do not want to buy. For instance, when you are booking a flight from the Dutch Royal Airlines web page, a charitable donation on your behalf is made to compensate for your carbon footprint. Although this can be considered as a responsible step to take, they do not ask customers explicitly and try to trick them into accepting it, which makes it a dark pattern. They go even as far as not accepting zero euros when a user attempts to adjust the amount to pay. [38]

As governments acknowledged the danger of this dark pattern, it became outlawed by European Commission under the consumer rights directive. “The Directive on Consumer Rights aims at achieving a real business-to-consumer (B2C) internal market, striking the right balance between a high level of consumer protection and the competitiveness of enterprises”. – The European Commission. [39] Thanks to this novel companies can no longer add additional products to a shopping basket when additional fees apply. It involves all cases in which a user would have to take action (like unchecking a box) to avoid paying these extra costs.

Instead of sneaking hidden fees into the basket, the more fair approach would be to roll them into the initial price or display them at the beginning of the checkout process. This way would be a lot more honest and a lot less irritating. We can also give people an opportunity to make a choice by giving them suggestions. These suggestions can be based on the products that other customers often buy together, or based on what company thinks would make a sensible combination (for example, when buying a video camera it is reasonable to order few memory cards with it). So by making suggestions, we might create a positive user experience and can expect returning customers.
4. Ethical aspects of using persuasive UX techniques

4.1.3 Disguised ads

One of the most visible types of dark patterns is known as Disguised ads. Although advertisement is an unavoidable facet of our society, that does not make it less irritating. They are annoying and disruptive while browsing, and many users refuse to interact with ads and intentionally avoid anything that looks like an advertisement. However, disguised ads are explicitly designed to fool users into clicking them. They might be camouflaged with other elements of a webpage. Yahoo, for example, has used this tactic by intentionally designing the advertisement to look same like articles. Also, the typical components of an ad are hidden, and the “sponsored” text is colored in the faded gray font, and the ability to close the ad is only available on hover. Very similar tactics are used by other huge online players, like Facebook, Twitter or Instagram where ads blend with content or even appears in personal messages. Disguised ads can also imitate important call-to-actions. Users would probably click on ads if they were looking like parts of a website. We can often see those confusing “Download” buttons on different websites with free software. Suddenly, a simple task becomes confusing. Only a skilled user can differ these tricks, but not everyone pays attention when they clearly see a call-to-action button.

4.1.4 Forced continuity

This dark pattern consists in requiring credit card information when users download a trial version of the service, and then, after the trial period is over, silently starting to charge. Even if it might be understandable in some cases as a method of filtering out spammers and providing a smooth transition to the paid product, but still it can alienate users. In any case, the client should be aware upfront about company’s intention to charge money and should get the notification with the clear option to cancel before the first payment.

4.1.5 Forced Disclosure

The forced disclosure dark pattern is not less unethical than those described above. It is a commitment that requires users to disclose their private information, which has little or nothing to do with the
4. Ethical aspects of using persuasive UX techniques

matter at hand. It can be easily spotted on websites, as long, overly complicated and invasive form that user has to fill out to get access to locked content. The more recent version of forced disclosure pattern is used in mobile applications, where an app might ask for permissions that have nothing to do with its purpose – like torchlight applications asking for location or even phone call history.

4.1.6 Privacy Zuckering

This pattern is named after Facebook’s founder Mark Zuckerberg and occurs when a website or an app intentionally confuse users via excessively complicated language and user interface in order to convince them to give up their personal data. Transparency in privacy policies and Terms of Service agreements is paramount to building user trust. Some companies, for example, post two different versions of their Terms of Service: one that is written in plain English, so anyone can understand it, and another that is filled with legal jargon that users always sign without reading. It demonstrates how some companies go the extra mile in order to make users feel comfortable.

4.1.7 Friend spam

The Friend spam dark pattern is a highly controversial one. It sends e-mails to friends under user’s name, while asking for permission on something else. Whenever we sign up for a service using our Facebook or Twitter profiles for authentication, we are basically opening our private data to a third party. Moreover, these third parties are not always very faithful. They can then use our accounts to publish content or send out messages to all of our friends. It acts like a virus, emailing, tweeting or updating Facebook status without permission. The main benefit for the company that does it comes from the promotional value. However, cons outweigh the benefits. We can use a good version of this pattern by changing the trick to user-centered just by adding preselected questions like “Would you like to tell your friends and family about us?”. Just said, anything that provides choice is helpful in this situation.
4. Ethical aspects of using persuasive UX techniques

4.1.8 The Road Block

This particular dark pattern occurs when interaction with a website is interrupted by an element that appears instead of the content a user is trying to view (for example, popups). The user can also be redirected to different screens entirely. Sometimes we might see a paywall on different journalism sites since many of them have decided to make this pattern an official part of their business model. The study by Lesley Chiou and Catherine Tucker asserts that online news outlets often see a 51% decrease in overall visits after introducing a paywall. [40] Decreasing happens mainly because it can be irritating and it also disrupts the user experience.

4.1.9 Roach Motel

The Roach Motel dark pattern is not the pleasant one. It consists of an easy way to sign up for a newsletter or even service and unexpectedly more difficult path to leave. The reasons companies may implement this is to reduce abandonment and keep figures high. These companies are basically trapping us into staying with them for as long as possible and hold users against their own free will. When creating newsletter subscription process, we as designers have to allow users to cancel and unsubscribe easily. Moreover, even when unsubscribing really isn’t a simple process, we must let users know before they sign up what the cancellation process will be like. From famous companies, Adobe is an exemplary case with its effortless way to sign-up for Creative Cloud which can be done online in a few clicks. Unfortunately, leaving the service is much more complicated – apart from the faraway bill, cancel button is missing from the dashboard for some users and you have to contact tech support to cancel your account. [41]

4.1.10 Trick Question

The Trick Question dark pattern stands for a gray practice of making users respond to a question (typically in the checkout process), which, when glanced upon quickly appears to ask one thing, but if read carefully, asks another thing entirely. This one is most common with newsletter sign-ups where companies use double negatives to trick users into signing up for their newsletter. This pattern is apparently
less productive than genuinely persuasive techniques, which do not result in the user feeling a sense of resentment.

4.1.11 Opt-in

And, finally, the Opt-in dark pattern is very similar to one described above. It helps to drive conversion and consists in prechecking a checkbox with answers such as: “Would you like to receive news from us?” Sometimes the wording is reversed, then instead of unchecking, as users typically would, they now have to check in order to opt-out. Smart, because users cannot rely on what they have learned in the past, they’d actually have to read, but who is reading on the web these days?

4.1.12 Dirt on screen

A fairly new pattern used by advertising companies to increase the number of clicks. Ads are usually designed to imitate the look of dirt/dust/hair on the screen of the mobile device, which might lead to the unintentional click on the advertisement while trying to wipe the screen.

Summarizing the above, I would like to say that even when some of the dark patterns may seem very attractive and successful, we as designers must practice empathy. We are not only the builders of the Web, but we also use it as its visitors. We know exactly how dark patterns make us feel, so when building a website, we have to take a moment to think about how we would feel if we were the visitors of this website.

Chris Nodder, author of the book ”Evil by Design”, believes that morality depends on the designer’s intention. He says that “it is ok to deceive people if it is in their best interests”, and considers persuasive design a kind of “white lie”, as opposed to the evil intent of dark patterns. [20]

“Design is applied ethics”, said Cennydd Bowles, the author of the ”Undercover User Experience Design” book in his talk Ethics for the AI Age. Cennydd offered four ethical tests as a way to examine the moral impact of our work:
4. Ethical aspects of using persuasive UX techniques

1. What if everyone did what I am about to do? Would the world be better or worse with it?
2. Am I treating people as ends or as means? For designers, this is about considering the role of users in a system. Are we treating them as individuals with goals more important than our own?
3. Am I maximizing happiness for the highest number of people? What are the consequences, the impacts of our choices? How do we assess or measure happiness? This is a perspective that helps ground us in the impact of our work.
4. Would I be happy for this to be published in tomorrow’s papers? This test emphasizes accountability, the sort of persons we are and want to be. [42]

4.2 Lawsuits against dark patterns

Most of the dark patterns are not illegal, it is up to every company to decide what’s right or wrong, and whether they would risk reputation for these not so ethical techniques. However, there are few examples when using some dark patterns has led to law courts.

The best-known case was the LinkedIn’s. LinkedIn is a popular professional network that helps make connections and find new opportunities in your job field. Many of those, who were ever signed up, or even knew who has signed up for this service, have probably been on the receiving dozens of emails, inviting them to ”expand their professional network”. The thing is that during the user sign-up process LinkedIn claims that it ”will not store your password or email anyone without your permission”. Despite this, LinkedIn sends automated follow-up email reminders on a new user’s behalf to any contacts harvested from his or her webmail accounts, which are presented in such a way as to appear as if they came directly from the user. Now the company has to pay $13 million to all those affected by their tricks. [43]

Another known case belongs to Microsoft company. Since the launch of Windows 10 in July 2015, Microsoft is constantly forcing users to upgrade their PCs running older versions of the operating system. One of the Windows users named Goldstein said that update, which she never asked for, was so problematic that it left her PC crash-
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...ing and unusable for days at a time. Goldstein sued Microsoft for lost wages and the cost of a new computer. Microsoft dropped its appeal in May this year to avoid further legal expenses, and Goldstein won the court case last month, awarded $10,000 from Microsoft. [44] Another Microsoft’s case belongs to multiple Illinois residents who have also sued Microsoft over its Windows 10 upgrade program. They allege the company’s invasive upgrade practices cost them time, money, and substantial inconvenience by forcing them to deal with various unhelpful Microsoft tech support options, upgrades that were installed without the user understanding that they had an option to avoid it, and in some cases, loss of data or hardware functionality resulting from compatibility issues that Microsoft’s Windows 10 upgrade wizard failed to detect. [45]

Vistaprint – is a Dutch e-commerce brand that produces physical and digital marketing products for small and micro businesses and which also had a few cases with dark patterns. In the US, Vistaprint has been accused of enrolling customers into Vertrue’s paid-membership reward plan without the customer’s agreement. Credit card details are passed on to Vertrue by Vistaprint, and charges are then made on those credit cards by Vertrue without the owner’s consent. Numerous complaints have been received by ConsumerAffairs.com. [46]

JustFab (ShoeDazzle/Fabletics) – $1.88 million fine to settle allegations of deceptive marketing when advertised discounts were not available unless a monthly subscription fee was paid.

Stamps.com – $2.5 million payout in a lawsuit relating to misleading advertising in connection with a “no risk” trial that saw users being automatically charged a monthly service fee.

Also, there is also one a bit funny and absurd case from Russia: A men was grocery shopping in the virtual model of an e-shop and accidentally broke few bottles of expensive wine and olive oil. And it is even impossible to imagine that you would have to pay for the damage in a situation like this. However, the e-shop charged the customer with 100 000 rubles (about $1 700). Is it a new way to create awareness for your business or just a bad joke? [47]

There are not a lot of lawsuits cases concerning using dark patterns yet, but the law is changing as new techniques affect user’s rights. For example, according to the Consumer Rights Directive 2011/83/EU, no additional payments unless the consumer expressly agrees to them

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(which means that boxes authorizing additional payments should not already be ticked for you) can be made. [48] It regards the Sneak into basket dark pattern, for example.
5 Experimental testing of persuasive techniques

Evaluation of the effectiveness of persuasive patterns can be a tough and tricky thing to do. The behavior of the users can be affected by many circumstances, personal preferences and this is why I have chosen the testing in the form of the interview. Qualitative testing performed on groups presented with different variations of e-commerce site selling bikes, simulating first-time visitors on the pages. For qualitative user testing, a basic layout of an e-commerce site (product listing, product detail) with sample data [49] was used. To simulate the real experience, designs were presented in internet browser in the form of interactive prototype. Presented designs did not differ in the essential layout of products, font sizes, color contrast, prices shown or amount of products. The only difference between tested variants was in the form of implemented persuasive patterns. As I have written before, in the chapter about dark patterns, A/B testing can tell us what happens when we introduce change, but not why and this is the reason why I have decided to do in person qualitative testing – to see users reactions, emotions and let them explain their thoughts.

5.1 Test subjects

- Kate, 25, Translator
- Tom, 45, DTP operator, bike enthusiast
- Vladimir, 24, Graphic designer, bike enthusiast
- Radek, 35, Sales manager
- Michal, 42, COO
- Dina, 28, Photographer, bike enthusiast
- Anton, 30, Economist
- Polina, 21, Marketing expert
- Pavel, 33, Programmer
5. Experimental testing of persuasive techniques

5.2 The anchoring effect

**Scenario:** You are a passionate cyclist, and your old bike recently broke down. You are looking for a mid-range priced bike on the internet and found this website.

**Task:** Choose bicycle which do you consider to be most reasonably priced.

**Group A – Low-end anchor**

- The first row presents price anchor for 3 groups (Low-end, Mid-range, and High-end bike), lower prices presented first
- Presented design – Group A: See figure B.1, prototype. 

**Results**

- Kate: Silva Juliet, $2399
- Tom: Delta, $1090
- Vladimir: Alpha, $1489
- Radek: Alpha, $1489
- Michal: Charlie, $1060

On average, test subjects of Group A spent: $1505.4

**Group B – High-end anchor**

- The first row presents price anchor for three groups (Low-end, Mid-range, and High-end bike), higher prices presented first
- Presented design – Group B: See figure B.2, prototype. 

**Results**

- Dina: Alpha, $1489

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5. Experimental testing of persuasive techniques

- Polina: Charlie, $1090
- Pavel: Iris, $3490
- Anton: Silva Juliet, $2399

On average, test subjects of Group B spent: $2177

Based on results of the anchoring effect testings, average spending of all users was $1777.2, while in the group with low-end anchor, on average people spent $1505.4 and people in high-end anchor spent $2177.

5.3 The framing effect

In this test, users are presented with two versions of e-commerce product detail prototype. Each of them contains information about fairly long, six weeks delivery time. One of the versions contains a plain statement, another shows customized message, which is meant to alleviate long waiting period.

Scenario: You are a passionate cyclist, and your old bike recently broke down. You have found the bike you really like, and you are considering the purchase.

Task 1: How would delivery time affect your purchase?
Task 2: Describe your first thoughts about delivery time?

Group A – Plain statement

- The website states that delivery time is 6 weeks
- Presented design – Group A: See figure B.3, prototype.

Results

- Dina: Delivery time is really important. I am cyclist enthusiast, and I would need the bike much sooner, not in almost two months. I will better take a look at a more expensive bike, but I want it immediately. Waiting time is too long for an e-shop, it is a probably better idea to find it in some store.

5. Experimental testing of persuasive techniques

- Kate: Delivery time is too long for me, I would try to find the same bicycle elsewhere.
- Tom: This is a deal breaker for me, I would try to find another e-shop.
- Vladimir: I would not buy it, I would look elsewhere
- Michal: Too long. I would try to find some equivalent.

**Group B – Customized message**

- The website states: Our specialist will handcraft your custom made bike in 6 weeks
- Presented design – Group B: See figure B.4, prototype.  

Results

- Anton: I can wait. Quite long enough to wait, but if I really want it, I will wait.
- Polina: There are a lot of other options where to buy on the internet, I would look elsewhere.
- Pavel: I have no problem with waiting time if the bike is worth it, I will wait.
- Radek: No problem, I would buy it.

The strength of the framing effect seems to be very unexpected – considering how small the difference between two versions was. All of the participants that have seen the plain message (Delivery time: 6 weeks) decided not to buy it and look elsewhere – either in-store or another e-shop. Participants of the group B with the customized message (Our specialist will handcraft your custom made bike in 6 weeks) were more likely to wait – 3 of 4 decided to buy the bicycle regardless.

5. Experimental testing of persuasive techniques

5.4 Social proof

Scenario: You are a passionate cyclist, and you are researching new bikes on the internet. You have found the bike that caught your interest.

Task: Shortly describe your first thoughts about the presented bicycle.

Group A – No reviews
- Presented design – Group A: See figure B.7, prototype.  
Results
- Vladimir: If technical parameters would fit my needs, I would buy it
- Kate: I would need additional information that is not provided on this website, but generally I would consider buying it.

Group B – Mixed reviews
- Presented design – Group B: See figure B.8, prototype.
Results
- Dina: I would decide not to buy this bicycle because the majority of the reviews is of a negative character and the only positive is from the inexperienced client.
- Michal: Seems average to me, I would pay attention to reviews.
- Tom: Reviews are kinda confusing, I would try to search other websites or forums

Group C – Good reviews
- Presented design – Group C: See figure B.9, prototype.
Results

5. https://marvelapp.com/44jggeg/screen/41033351
7. https://marvelapp.com/44jggeg/screen/41032537
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- Polina: Seems great, there is a lot of reviews, and not all reviews are five stars, so probably they are not fake.

- Anton: This one has very good reviews.

- Pavel: Looks like a high-quality bicycle, there is a lot of reviews, I would like to go through them, but overall it seems to be very good.

- Radek: Good bike, great reviews, seems real that not all of them are five stars as in this price range cannot be perfect

From the social proof test results, I find interesting, that people seem to have no problem with buying product they like if there is no response from the community, but starts to get suspicious when reviews are mixed and take it as a warning sign. In case of very positive reviews, 3 of 4 users would buy the bicycle, and only one seemed to be intrigued by very positive reviews. Overall, social proof in the form of reviews seems to play a huge role in persuading customers even if there is no way to check if reviewers are real people. To keep business and also user experience honest, tactics like cherry picking reviews (pushing good reviews forward and hiding bad ones) or even fake reviews should be avoided.

5.5 Scarcity

Scenario: You are a passionate cyclist, and you are researching new bikes on the internet, and you have found presented e-shop.

Task 1: You have the budget of $1100. Which bike would you consider buying and why?

Group A – No scarcity patterns

- Presented design – Group A: See figure B.5, prototype. 8

Results

- Polina: Without any additional information, I would consider Tango for $1090.

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5. Experimental testing of persuasive techniques

- Anton: Roosevelt for $1090 – without any other characteristic, the color and name decided.

- Kate: Tango, $1090 – I like the color, and the price is closest to the budget limit

- Radek: Siva Juliet, $690, I like the color

**Group B – Time sensitive deal and Limited supply**

- Presented design – Group B: See figure B.6, prototype.

Results

- Dina: I will choose the one that was originally $1290, and is on sale for $790. It is last piece and best discount.

- Pavel: Delta, seems to be a good deal, the bike was $1290 and now is $990

- Tom: Tango $1090, best price/value ratio

- Vladimir: Iris, $790, the best deal

- Michal: Iris $790, best value

Participants of the Group A really struggled with the lack of information about bicycles on the page, visual hierarchy of the products on the page (first two bicycles larger than other doesn’t seem to play any role in decision process). Most of these participants decided by the color of the bike. Participants of the Group B, on the other hand, were nudged to decide by scarcity patterns. The item that is shown as “on sale” highlights irregularity of this situation and stimulates the user to act, while supported by the time-sensitive deal and short supply pattern creating time pressure. Users from Group B decided by what they considered the best price/value ratio (in 4 of 5 occasions it was one of the bikes on sale).

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5. Experimental testing of persuasive techniques

5.6 Pattern overload

In this test, users are presented one of the three versions of e-commerce site homepage/product listing page. Group A was shown a version with the limited amount of persuasive patterns (...), Group B was presented with the version containing more patterns than Group A, and Group C was tested with the highest amount of persuasive patterns. Every product in this example was using scarcity bias pattern, reciprocity, liking, trust.

Task 1: Describe your initials thoughts about the presented e-shop (e.g., trustworthiness, professionalism, who do you think are people behind this e-shop)

Task 2: Do you consider e/shop like this to be trustworthy/ would you consider shopping on e-shop like this?

Task 3: Would you trust the professionalism of people running e-shop like this?

Group A – Limited amount persuasive patterns

• Presented design – Group A: See figure B.10, prototype.  

Results

• Dina: Task 1: I like the minimalistic design, and some sales are going on there. Price is clearly visible. Navigation is clear. I miss some connection to the world – links or reviews. If I REALLY need the bike, I would probably buy it here.

• Vladimir: Looks fine to me, kinda boring and I miss store address. Hard to tell anything more about them.

• Michal: I miss contact address, I would like to know if they have some kind of shop where I can take a look at e-shop personally

Group B – Moderate amount of persuasive patterns (1-2 patterns of scarcity bias, validation logos, social proof, authority)

• Presented design – Group B: See figure B.11, prototype.  

10. https://marvelapp.com/15a0aicg/screen/41040107
11. https://marvelapp.com/15a0aicg/screen/41039360
5. Experimental testing of persuasive techniques

Results

- Polina: Photos on the Instagram seem fake/unnatural. Also, I would check activity on other social networks, but on the first sight, they seem to like cycling a lot, and I would probably trust them to buy there.

- Pavel: I like the photos on the Instagram, and also there are some nice deals, seems professional and I would probably trust this e-shop.

- Tom: I would like to see some kind of stylish picture with people of someone riding the bike in nature, or something like that. It looks too sterile now. Also, I like when e-shop has some shop where I can have a look – address would be helpful.

Group C – Pattern overload (every product using scarcity bias, reciprocity, liking, trust).

- Presented design – Group C: See figure B.12, prototype.  

Results

- Anton: It is suspicious that there is a sale for each piece, but maybe they are specializing in cheaper bicycles. I do trust them, and I would probably consider buying here.

- Kate: There are many sales going on this e-shop, I really like the sales. I also like pictures on the Instagram; I would check their profile.

- Radek: I do not like it, why is every product on sale? I would look for another e-shop.

In general, based on results of pattern overload test, participants of the Group A were generally satisfied, but missed some kind of social interaction, while participants of Group C generally found suspicious that all of the products are on sale. Overall, there were participants satisfied in every tested group, from which it might be concluded that there is an excellent place for tailoring amount of persuasive patterns

12. https://marvelapp.com/15a0aicg/screen/41041545
5. Experimental testing of persuasive techniques

dependning on user preference. For example, with the known history of looking for cheaper variants of products could be served with more discounted products per page, than ones with the history of looking for premium solutions.

Overall, the concluded experimental user testing confirmed what information outlined in the theoretical part of this work assumed and what experiments performed outside of the user experience domain have confirmed. The only partial exception was the social proof test where according to results, missing reviews in the group A does not seem to play any role in the decision.
6 Online persuasive patterns library

The practical output of this work is comprehensive persuasive patterns library available online, as in the time of writing no such library specialized on persuasive techniques was available. The library can be found online, on https://persuasive-patterns.herokuapp.com/ and consists of more than 40 persuasive patterns complemented with more than 160 examples. All of the presented patterns are backed by theoretical knowledge and for better understanding, each of the patterns is explained in the real-world example. Library primary focuses on “white” or legal patterns, but one part is also dedicated to familiarization with unethical or event illegal dark patterns, which tends to be tempting as they perform very well in A/B testing on real sites.

6.1 Functionality

Online library provides two levels of access rights for registered users.

- Administrator
- Registered user

Administrator level user can create/edit/delete patterns and approve screenshots submitted by registered users. Editors interface can be seen in figure 6.1, figure 6.2 shows process of user-submitted screenshot approval.

Registered users can submit screenshots to existing pattern with the description of how respective pattern is used in this case. Each submitted screenshot has to be approved by site administration before being displayed on the website.

Example of submitting a screenshot as the registered user can be seen in figure 6.3

6.2 Technology

From the technical point of view, pattern library is built using Ruby on Rails framework deployed on Heroku with Amazon S3 as persistent storage for images, as Heroku does not provide any form for
6. Online Persuasive Patterns Library

Figure 6.1: Editing the pattern in online library

Figure 6.2: Approving screenshot as administrator

persistent storage for files. Amazon S3 is only used in the production environment; local storage is used in the development environment.
6. Online persuasive patterns library

Figure 6.3: Uploading screenshot as registered user

6.2.1 Requirements

- Ruby on Rails 5
- PostgreSQL
- Amazon S3 (for production environment)

6.2.2 How to run a library

- Set up Ruby environment with PostgreSQL and Bundler gem\(^1\).
- Unzip persuasive-patterns-master.zip and enter the folder
- Use `bundle install` to install dependencies
- Create database with `rake db:create` command
- Run migrations with `rake db:migrate` command
- Fill the database with data `rake db:seed` command
- Start Rails server with `rails s` command
- Visit http://localhost:3000/ in the browser

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\(^1\) See [https://gorails.com/setup/](https://gorails.com/setup/).
6. ONLINE PERSUASIVE PATTERNS LIBRARY

- Create user account using sign-up functionality
- Run rails console
- Add administrator rights to created user:
  ```ruby
  User.find(1).update_attributes(:role_id=>2) where "1" is ID of user
  ```
- Restart Rails server
7 Conclusion

The outcome of the practical part of this work is an online library of persuasive patterns, the compendium of theoretical knowledge enriched by instructions on how to apply particular patterns and collection of real-world usage examples. This library can be used in daily work by design or marketing teams to create captivating user interfaces of software products and also the education of users on how their decisions can/might be affected by usage of these patterns. The chapter about dark patterns can also be the source of enlightenment for the customers or designers whose clients/employers might demand to use patterns like this.

Main added value of this work lies in discovering, detecting, describing and summarizing persuasive patterns used in today’s user interfaces. Also, confirmation of usefulness of the persuasive patterns in conducted experimental qualitative testing can serve as a starting point for even more testing experiments. In the future, I can see the possibility of further quantitative testing of mentioned persuasive patterns in the real-world application, which would add another layer of value to prospective users of this library.
Bibliography


BIBLIOGRAPHY


A Persuasive patterns examples

Figure A.1: Scarcity – Infrequency (item on sale)

Figure A.2: Scarcity – Short supply – last piece for this price
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Figure A.3: The framing effect – Apple

Figure A.4: Negativity bias – Slack – waiting screen
Figure A.5: Negativity bias – Asana – reward for accomplishment

Figure A.6: Apple Music – Ikea effect example 1
A. Persuasive patterns examples

Figure A.7: Apple Music – Ikea effect example 2

Figure A.8: Apple Music – Ikea effect example 3
A. Persuasive patterns examples

Figure A.9: Reciprocation – offering free service

Figure A.10: Reciprocation – free useful information
A. Persuasive patterns examples

Figure A.11: Top-seller badge on the product listing on ebay.com

Figure A.12: Leaderboard of selected challenge on endomondo.com
B Screens used for user testing

Figure B.1: Low-end anchor
B. Screens used for user testing

Mountain bikes

- Iris: $3490
- Charlie: $1099
- Footset: $490
- Tango: $249
- Siva Juliet: $2399
- Delta: $1099
- Kennedy: $6749
- Roosevelt: $790
- Harding: $990
- Alpha: $1469
- Chicago: $149
- Bravo: $2999

Figure B.2: High-end anchor
B. Screens used for user testing

Figure B.3: The Framing effect – base version

Figure B.4: The Framing effect – customized message
B. Screens used for user testing

Figure B.5: Scarcity – base
Figure B.6: Scarcity – Short supply
B. Screens used for user testing

Figure B.7: Social proof – no-reviews
B. Screens used for user testing

Figure B.8: Social proof – mixed reviews
B. Screens used for user testing

Figure B.9: Social proof – good reviews
Figure B.10: Pattern overload – limited amount of patterns
Figure B.11: Pattern overload – moderate amount of patterns
Figure B.12: Pattern overoad