

KIDS ON THE NET. „MANIPULATIVE PATTERNS” OF DIGITAL MEDIA DESIGN

Jan Kreft

 0000-0003-4129-8424

Head of the Department of Algorithmic Management Gdańsk University of Technology

Monika Boguszewicz-Kreft

 0000-0002-9294-7175

WSB Merito University in Gdańsk

ABSTRACT

When owners and designers of mobile applications and websites compete for the attention of users, persuasive design becomes a common practice. In its preparation, the user's perspective is adopted in order to better understand and optimise their experience when in contact with the offered media service. However, projects created in this way may be unethical and use so-called „manipulative patterns” depriving the user of (or limiting) the possibility of choice. Manipulative patterns are a relatively new phenomenon in the media and are rarely noticed by media users. By definition, they lead to addictions, for example, to games. The aim of the undertaken research is to identify a common set of design practices within these so-called manipulative patterns in media products addressed to users, in particular children. The article points out a consensus in the design of manipulative patterns, as well as their common foundation: „dependence asymmetry”. Common features of attitudes towards manipulative patterns were also identified: users' helplessness towards these practices and users getting used to them.

Keywords: manipulative patterns, addiction, dependence asymmetry, persuasion, user experience.

Introduction

Advanced user experience management on the web may be characterised by unethical solutions recognised by the English term *dark patterns*, which in the further part of the article will be referred to, given the stigmatising context of direct translation, as manipulative patterns. The term *dark patterns* was proposed by Harry Brignull (2010) to describe activities on websites and applications that make the user do something he did not intend (Zingales 2021). Generally, it refers to deceptive functionality that exploits human weaknesses and is designed to promote choices that are not in the user's best interest (Gray *et al.* 2018). The prevalence of manipulative patterns – research shows that 95% of applications contain them and, on average, there are seven in the interfaces of the most popular applications (Di Geronimo *et al.* 2020) – which goes hand in hand with the awareness of their presence by users who are increasingly aware of the manipulative nature of the interface. However, the increase in this awareness does not mean a readiness to oppose it (Bongard-Blanchy *et al.* 2021). Even if users are aware of manipulative patterns, they are convinced that they have never been deceived, although at the same time, they are unable to identify them. In such complex conditions, it is important to identify the pattern (consensus) of design practices.

The purpose of this article is to identify a common set of design practices within the so-called manipulative patterns in media products addressed to users, especially children, and in particular, answer the following questions: 1. Are there common schemes for applying single and/or sequential manipulative patterns? 2. Have manipulative patterns addressed primarily toward children been identified?

Identifying the project consensus and collating manipulative patterns into separate categories can make it easier to codify them and identify the entities that manage them, and thus develop solutions aimed at eliminating/reducing such manipulative patterns, and educational solutions regarding them. This can also contribute to knowing the aims of such practices, and can also help to pinpoint specific contractors working for different developers (e.g., games).

In order to achieve the assumed goals, a systematic review of the literature was carried out (Mazur and Orłowska 2018). As part of this three-stage method (Tranfield, Denye and Smart 2003), first, journal databases were selected (from Elsevier, EBSCO, Scopus, Wiley and WoS databases). Subsequently, significant publishers were identified, and in the next step, keywords were selected (dark pattern, manipulation, game) to characterise publications, and the „snowball” procedure was used. In the last phase, criteria for exclusion and the removal of duplicate items were applied. The bibliometric analysis was of an auxiliary nature in this process. The validation of data quality was based on the criterion of originality and the identification of more than one pattern in the article. Finally, 17 articles were qualified for analysis (Bongard-Blanchy *et al.* 2021; Burr, Cristianini and Ladyman 2018; Cara 2018; Conti and Sobiesk 2010; Di Geronimo *et al.* 2020; Graßl *et al.* 2021; Gray *et al.* 2018; Gunawan *et al.* 2021; van der Hof *et al.* 2020; Kelly and Rubin 2022; Kight and Gram-Hansen 2019; Maier and Harr 2020; Mathur, Kshirsagar

and Mayer 2021; Radetzky 2022; Schöber and Stadtmann 2020; Soe *et al.* 2020; Zagal, Björk and Lewis 2013).

Manipulative patterns (dark patterns)

Manipulative patterns are deliberately created to influence users to take previously unintentional actions that further the interests of other parties. These are most often interface designs that lead users to results that benefit the platform rather than the user or that distract them from what they intended to do (Gunawan *et al.* 2021). Manipulative patterns are used by online service providers for various purposes, for example, to discourage the user from deactivating their account (Gray *et al.* 2018). Users may be encouraged to buy unnecessary goods or disclose their personal information (Luguri and Strahilevitz 2021). Manipulative patterns have also been identified, where they should not have been, following European Union interventions – in numerous cases of cookie consent notifications that followed the adoption of the General Data Protection Regulation (GDPR) (Soe *et al.* 2020). These notifications have become ubiquitous, but most of them (one major study identified 297 out of 300 cases analysed (Utz *et al.* 2019)) are designed to deprive users of the opportunity to make an informed decision about data collection.

Among the effects of using manipulative patterns, one can point to emotional and economic damage, favouring the interests of entities other than users, frustration and impact on the ability to understand (Radesky *et al.* 2022).

Manipulative patterns in the case of emotion recognition technology are becoming an essential part of the functioning of social media and offer new opportunities to tailor content to user profiles (Andalibi and Buss 2020). They are primarily found in websites, mobile applications, elements of website architecture and games. Research by Jelena Petrovskaya and David Zendle, for example, lists more than thirty patterns that encourage people to spend money in games (Petrovskaya and Zendle 2022).

Manipulative patterns are harmful not only to adults, but above all, to children, who are characterised by a less developed understanding of persuasive intentions, which can make them more susceptible to manipulative projects (Meyer *et al.* 2021). This also applies to apps used by preschool children (Zhao *et al.* 2020).

According to a recent study, only 20% of mobile apps used by children aged 3 to 5 lack manipulative design features, with lower socioeconomic children whose parents were less educated using more manipulative apps (Radesky *et al.* 2022).

User experience and „manipulative patterns”

In practice and in theory, in the context of customer experience management, it was assumed that we are referring to the customer’s total experience in interacting with the interface (Kacprzak 2017; Samson, Granath and Alger 2017; Delińska 2019; Märtin, Bissinger and Asta 2021) as well as their emotions and the resulting consumer involvement (Boguszewicz-Kreft 2006; Kacprzak, Dziewanowska 2019). For this reason, this concept is a useful tool for analysing manipulative patterns.

Experience management, including personalisation, is used to create advertisements that encourage children to buy or test further commercial application solutions (van der Hof *et al.* 2020). Profiling is used here, which enables, in addition to automated decision-making, the provision of targeted advertising and personalised products and services (Verdoodt and Lievens 2022), contributing to building consumer relationships from an early age. At the heart of profiling is the collection of data from the moment of birth (or even earlier, thanks to the provision of data as part of, for example, shopping for a child before their birth) (Lupton and Williamson 2017).

Thanks to the analysis of data obtained as part of tracking the youngest users, it became possible to provide an individualised, optimised offer as part of their interaction with digital services, such as a social network or games. Such shaping of the user experience (UX) is aimed at influencing their reactions while overcoming the entire so-called purchase path (Kreft and Karwat 2017). This path applies not only to games but often includes websites and social media – all within the currently dominant multi-channel trend and the use of immersive technologies (Strojny and Strojny 2014) providing a sense of “immersion” in virtual and augmented reality and AR (assisted reality), a technology that overlays real-world information onto the user’s view without blocking their vision.

Extreme traps

The use of manipulative patterns in relation to the youngest recipients can result in dramatic results.

Arriani Arroyo received a smartphone when she was seven years old, and using TikTok multiple times a day, she gradually became addicted to the app. Lalani Erika Renee Walton from Texas was given a smartphone for her eighth birthday in 2021. Both girls often posted videos of themselves singing and dancing. They were convinced that if they published a video in which they achieved the Blackout Challenge, they would become famous. The Blackout Challenge is a feat of self-suffocation, which neither girl survived (Paul 2022).

The lawsuit against ByteDane, the owner of TikTok, alleges that TikTok has invested billions of dollars in intentionally designing an algorithm that promotes dangerous content that it knows is dangerous and could kill users (Paul 2022).

TikTok, although most popular among children, is not the only medium incriminated. In a lawsuit filed at the end of 2022 in a court in Montreal, Epic Games, the

owner of one of the most popular games in the world – Fortnite, was indicted. Its creators purposely designed it to be addictive. It is a Massive Multiplayer Online Game (MMOG) allowing children and teens to participate simultaneously in a game that consists of multiple activities, processes and content, some of which are positive and pro-social, while others are negative and anti-social (Shoshani and Krauskopf 2021).

The uniqueness of Fortnite lies in the integration of elements of pop culture with esports (Schöber and Stadtmann 2020). The game allows players to self-present and consolidate their social position (Li, Freeman and Wohn 2020). It is free, but users can purchase its „currency” by paying with real money. The children named in the lawsuit spent hundreds of dollars, sometimes without their parents’ knowledge. For two years, they participated in 7 to 8 thousand games and spent all their free time in the virtual world, almost „not eating” and not socialising (Banerjee 2022). When the popularity of Fortnite increased – already in 2020 the game had amassed 350 million people – some parents decided their children should undergo therapy to free them from addiction (Feeley and Palmeri 2018).

Ariani and Lalani faced constant algorithmic incentives to be active, as well as having their visibility to other users managed and their social status disclosed as part of algorithmic management (Kreft 2019). A modern internet product is expected to provide not only a few simple functions, but also more complex experiences (Kreft 2022).

Types of manipulative patterns

A review of manipulative patterns, abundant in examples, was made by Corina Cara (Cara 2019), who listed primarily:

- “privacy cheating” – when an internet product collects more data than consented by the user, who is not aware of this state
- making it difficult to compare offer prices
- hidden costs – when the user learns about additional costs only when they are deeply involved in the purchase process
- “bait and switch” – when the user thinks that they will do one thing, but in fact they are doing something else
- “guilt tripping”, also known as “confirm shaming” – when a website uses language to make the user feel fear (guilt) about their choice. For example, feeling guilty (worse) if one chooses to decline
- “disguised ads” – when ads look like interface elements, such as buttons or forms
- “misdirection” – consists of diverting attention
- forced continuity – when the user is forced to continue with an internet product, usually a paid subscription
- “friend spam” (also known as fake friend request, deceiving lists or social pyramid) – a technique used in social media that exploits the user to spam their friends (the user is not aware that they are a spammer)

- gamification – applying the logic of competition and forcing the user to perform certain actions in order to get something
- playing with emotions (also known as selective biased examples) – this is a situation in which internet products use solutions that affect the emotions of users in order to manipulate them (for example, in the context of some important information)
- false urgency – when websites create a false impression of scarcity with the intention of luring the user to purchase faster
- fake notifications – a pattern used by social networking sites that use the power of notifications to force the user to check them more often
- content sharing – when continuing to read/watch is hindered by sharing only through certain services

According to previous research, manipulative patterns are more effective when they are accompanied by other things, for example „bad defaults”, i.e., default settings of an application or service enabled without asking for the user’s consent (Bösch *et al.* 2016).

These patterns are elements of complex user experience (UX) design practices. Their goal is to confuse the user so that they unconsciously or not fully consciously make decisions unfavourable for themselves, but beneficial for those managing their experience in the media (Gray *et al.* 2018). It is worth adding in this context that although the performers/designers of manipulative patterns may be guided by the real needs of users, they often tacitly follow the recommendations of other stakeholders, for example, managers and owners of games and platforms (Chivukula, Gray and Brier 2019).

Categories of manipulative patterns

In the current research tradition, several important categorisations of manipulative patterns have been created. Pointing to manipulative applications, a team of researchers led by Colin M. Gray identified the following categories of manipulative patterns: harassment, obstruction, stalking, interface disruption, and coercion (Gray *et al.* 2018). Another important attempt to taxonomise patterns in mobile applications (Conti and Sobiesk 2010) included:

- coercion – threatening or ordering the user to comply
- confusion – asking the user questions or providing details which are incomprehensible to them
- distraction – distracting the user’s attention from their current tasks
- exploitation of errors – exploiting user errors to facilitate the goals of the interface designer
- forcing work – intentionally increasing the amount of work for the user
- interrupting – interrupting the user’s task flow

- navigation manipulation – creating information architecture and navigation mechanisms that lead the user towards the interface designer’s tasks
- obfuscation (usually understood as ‘code obfuscation’ – JK’s note) – hiding desired information and interface elements
- limiting functionality – limiting or omitting controls that would make it easier for the user to perform a task
- shocking – presenting disturbing content to the user
- trick – misleading the user or other attempts to deceive

The catalogue of patterns that capture the users’ attention (Lukoff *et al.* 2021) includes: distracting attention from the original purpose of the user and thus undermining the autonomy of the individual (Mathur, Kshirsagar and Mayer 2021), causing a loss of the sense of time and control (Lukoff *et al.* 2021) and making the user feel regret for having spent too much time using the service suggested by the pattern.

Other attention-grabbing patterns also include:

- recommendation systems – tools that can improve the overall user experience and aim to maximise usability for the user (Burr, Cristianini and Ladyman 2018)
- automatic playback – the mechanism eliminates the need to make independent decisions and undermines the sense of agency (Lukoff *et al.* 2021)
- swipe to refresh functionality – offers a variable reward to its users and uses the psychological mechanisms that are present in gambling addiction (Nontasil and Payne 2019)
- endless scrolling – negatively affects the digital well-being of users, as it creates the illusion that new interesting content will “flow” indefinitely, while its “quality” cannot be predicted
- social metrics – comments and follower information can “bind” users to the platform, instilling the idea that they should continue using it so as not to lose the progress they have made. They are designed to encourage use, e.g., notifications can be delayed to maximise reward (Nontasil and Payne 2019)

The attention-grabbing patterns above are different from patterns where the user’s choices are driven by deceptive UX design.

Another breakdown includes basic practices such as: total obstruction (preventing the user from disabling the account), temporary obstruction (burdening the user during account disabling by requiring unnecessary actions), obfuscation (confusing or misleading the user before or during account disabling), incentives to reconsider (strategies that try to convince the user to reconsider their decision) and consequences (strategies that encourage the user to return to the site by helping the user to change their mind by sending unsolicited messages to the user persuading them to return) (Kelly and Rubin 2022).

Manipulative patterns in games

Research studies directly related to manipulative design solutions in games are rare. As far back as 2013, it was found that game designers may not actually have the best interests of gamers in mind when designing. Over time, manipulative gaming patterns have been identified as “a pattern used intentionally by a game developer to cause negative experiences for players that go against their best interests and possibly happen without their consent” (Zagal, Björk and Lewis 2013). These include:

1. Temporal Dark Patterns (e.g., Grinding and Playing by Appointment) – relate to the user’s awareness of the time they spend playing games.
2. Monetary Dark Patterns (e.g., Pay to Skip, Pre-Delivered Content and Monetise Rivalry) – relate to how much money the user is willing to spend.
3. Patterns based on social capital (e.g., Social Pyramid Schemes and Impersonation) – relate to the user’s awareness of their own motives for gaming (Zagal, Björk and Lewis 2013).

Manipulative patterns directed at children

The patterns described above are probably used in offers addressed to children, but this problem has not been explored in depth in the literature on the subject. Pioneering research on patterns in games aimed at children by the team of Jenny Radetzky (2022) includes the following typology of manipulation (Radesky *et al.* 2022):

1. Parasocial pressure – in-app characters or behaviour influencers (e.g., a narrator) put pressure on players to prolong the game or make purchases.
2. Time pressure is used to prolong the game and promote purchases. Apps display countdown clocks and other visual indications of running out of time, which are known to interfere with decision-making.
3. Navigation restrictions block the user’s ability to manoeuvre within the interface.
4. Baits (paying attention to an attractive object – including stickers, trophies and leaderboards – while the player is trying to make a decision). Baits encourage players to use the app multiple times or are offered as „achievements”.

Such manipulative designs most often include features intended to prolong gameplay or re-engage with the game; in fact, the market success of an app is usually measured by metrics such as game duration and frequency (Yoon *et al.* 2018).

The above typology of Radetzky intertwines, but to a limited extent, with the patterns placed in the catalogues of manipulative patterns addressed to general users. It can therefore be assumed that in UX practice, a set of manipulation standards is developed that are partly different for different segments of users. Such a target segment may be the youngest users.

Conclusions

The analysis of research on manipulative patterns shows that a consensus has developed regarding the practice of using such patterns. Since previous research shows that several patterns are used simultaneously in individual digital products, it should be assumed that their principals and contractors (UX designers), having at their disposal recommendations from data analysis, choose solutions that we have called a mix of manipulative patterns (dark pattern mix) most appropriate for specific digital products (including games aimed at children).

The study of patterns also leads to the conclusion that there is a common foundation for different segments of recipients. It is a relationship between the organisation and the user, identified as “dependence asymmetry” (Boguszewicz-Kreft 2020). In the media environment, it is the result of the recipients’/users’ lack of knowledge of the manipulative mechanisms used by the media and technological organisations, and their effects. Common aspects of manipulative patterns also include:

- limiting user autonomy
- causing a negative experience or design against the interests of the user
- users’ declared habituation to and acceptance of manipulative patterns as part of the online experience (Di Geronimo *et al.* 2020)
- declared dependence on websites using these practices, which makes it difficult to avoid them
- users adopting a resigned attitude towards manipulative patterns (Maier and Harr 2020)

The analysis of research on user attitudes also derived the conclusion that in the face of manipulative patterns, the user is guided by a compromise: they attempt to complete the task by accepting/tolerating a certain level of oppression. For example, by accepting prolonged unwanted advertisements, paying for access to so-called premium content, or the installation of applications without the user’s consent (e.g., Luguri and Strahilevitz 2021).

As can also be seen from the analysis of previous research, users admit that they are not only used to manipulation, but also accept it as part of the online experience (e.g., Di Geronimo *et al.* 2020).

Final remarks

Interactions with applications are to be supported by useful, satisfying, efficient and effective programming solutions. There are well known models and heuristics in this context, but in the competition for users’ attention, persuasive and manipulative solutions are used on a mass scale. Manipulative patterns are naturally not the only problem that users face in the gaming or social media environment. For example, TikTok has been accused in recent years of suppressing certain messages

(Biddle, Ribeiro and Dias 2020), censoring political terms (Baker-White 2022), and engaging in fraudulent data security practices (Lin 2021).

Guided by the belief that if users and other stakeholders have knowledge about manipulative patterns, they can detect them and oppose them, the study systematised manipulative practices by identifying key patterns with a particular emphasis on those addressed to young users, and then a proposal for their categorisation was presented. After recognising the basic categories, the repetitive features of manipulative patterns were indicated and their foundation – the dependence asymmetry between organisations managing UX projects using manipulative patterns and their users.

Although there is no shortage of suggestions for ethical solutions, for example, in the form of so-called clear patterns (Graßl *et al.* 2021), research on the circumstances of the emergence and management of manipulative patterns, for example, designers' freedom of expression on ethics in design, is insufficient (Kight and Gram-Hansen 2019). Judging by the analysis of discussions on professional forums, some such discussions „embarrass” other designers or companies that adopt unethical design practices on social media (Fansher and Gray 2018).

The previous proposals of methods and interpretations of design, emphasising its ethical side (e.g., Value Sensitive Design – VSD) have not been adopted in UX practice, and it is also not clear how to motivate key stakeholders to change design procedures and limit manipulative mechanisms. In these circumstances, it seems necessary to convince designers and technology companies to find an alternative to the attention economy and develop a „manipulation measure”. Moreover, it is important to develop and disseminate solutions that allow users to avoid or confront the persuasiveness of manipulative patterns.

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STRESZCZENIE

Dzieci w sieci. „Manipulacyjne wzorce” projektowania mediów cyfrowych

Gdy właściciele, projektanci i reklamodawcy aplikacji mobilnych oraz stron internetowych konkurują o uwagę użytkowników, powszechną praktyką staje się perswazyjny design. W jego przygotowaniu przyjmuje się perspektywę użytkownika, by lepiej zrozumieć i optymalizować jego doświadczenie w kontakcie z oferowaną usługą medialną. Tak powstałe projekty mogą być jednak nieetyczne i przyjmować postać „manipulacyjnych wzorców” pozbawiających (lub ograniczających) możliwości wyboru. Manipulacyjne wzorce są zjawiskiem stosunkowo nowym, ale powszechnym, choć rzadko uświadamianym przez użytkowników mediów. Z założenia prowadzą do uzależnień, na przykład od gier. Celem podjętych badań jest identyfikacja wspólnego zestawu praktyk projektowych w ramach tzw. wzorców manipulacyjnych w produktach medialnych adresowanych do użytkowników, w szczególności dzieci. W artykule wskazano na konsensus w projektowaniu manipulacyjnych wzorców, ponadto ich wspólny fundament: „asymetrię zależności”. Zidentyfikowano także wspólne

cechy postaw wobec manipulacyjnych wzorców: bezradność użytkowników wobec tych zabiegów i przyzwyczajenie do nich.

Słowa kluczowe: manipulacyjne wzorce, uzależnienie, asymetria zależności, perswazja, doświadczenie użytkownika.

First View