

Research Article

Emotionally Intelligent User Interfaces of Social Media: The Role of Emotional Intelligence in User Interface Design and UX Pattern on Social Media on Human Behaviour

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Abstract

Social Media platforms are increasing user engagements with their attractive User Interfaces (UI) design playing a crucial role in maintaining user involvement. Use of Emotional Intelligence (EI) into the UI transforming user interaction and engagement pattern significantly. With an emphasis on how design decisions affect user behaviour, this study explores the nuanced function of EIUIs (Emotionally Intelligent User Interfaces) in the context of social media. It specifically draws attention to the dangers of manipulative techniques like "dark patterns"-purposeful interface strategies intended to influence users to take actions they might not have otherwise taken-as well as the possibility of constructive involvement. By investigating these practices, the paper hopes to clarify the wider ethical consequences of interface design as well as the duty of platforms and designers to promote transparency, autonomy, and confidence in digital interactions. This paper aims to contribute to the discourse on user interface design by providing a comprehensive understanding of EIUIs' potential and pitfalls in the context of social media interactions. Additionally, this study focusses on finding information of the pattern of Emotionally Intelligent User Interfaces (EIUI) design to enhance user engagements emotionally and tend to take decisions and the impact of the design pattern in user experience.

Keywords

Emotional Intelligence (EI), User Interface (UI), User Experience (UX), User Experience Pattern, Social Media User Experience, Human Behavior

1. Introduction

User interfaces (UI) on social media platforms have a big impact on how people behave and interact with the site. Emotional Intelligence User Interfaces (EIUI), which adjust according to users' emotional states, have recently been included into these platforms. User interface design in social media applications plays a crucial role in enhancing user experience and engagement. It involves strategically designing interfaces to be comfortable, consistent, and user-friendly,

however often particularly in user interface design using 'dark patterns'-design strategies that can manipulate user decisions [1] that enhance user engagements and duration of interactions psychologically engage user cohering with application media. Successful user interface design involves creating engaging and efficient apps by incorporating key UI/UX design principles [2]. Elements of UI like appropriate colours, typography, spacing, content sequence also plays vital rules to

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Received: 26 March 2025; **Accepted:** 9 April 2025; **Published:** 2 September 2025



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enhance user engagements. Personalizing the UI of social media platforms can enhance user engagement, making it easier to learn and use, thus increasing the adoption of social media technologies [2].

Emotions in social media are also significantly impacted by social networks and interactions. Research indicates that emotions like happiness and depression have the ability to spread dynamically within these networks, showcasing the powerful influence of social connections on emotional experiences and well-being in online communities. Online users tend to establish relationships through dual entrainment and sustain them through single entrainment. This indicates that emotions in social media have the ability to synchronize and converge among users, fostering shared emotional experiences and connections within online communities.

The user interfaces (UIs) design according to the user's emotion and pattern of design plays also influence user to keep engaged and use in a loop and lead to make decision [3]. This study discusses about how user engage emotionally in social media through the user interface design and the design pattern of the interfaces and the impact of the design pattern in the human behaviour.

2. Literature Review

The literature on Emotional Intelligence User Interface (EIUI) design in social media platforms highlights the significant impact of emotional design elements on user behaviour and engagement. Previous Research has shown that emotional intelligence plays a crucial role in optimizing user interfaces, particularly in the context of media consumption and social media interactions and the entertaining, engaging pattern of EIUI model, but the gap is impact of the EI pattern in the user experience and how EIUI drive user through negative emotions and push to the social media addiction. Moreover, Technologies such as sentiment analysis tools, machine learning algorithms, and emotion detection technologies are utilized to detect user emotions and conduct sentiment analysis effectively in social media platforms. While emotional design patterns can enhance user engagement and experience, they also have the potential to influence in user behaviour. Dark patterns of emotional intelligence, such as manipulative design strategies, can lead to adverse outcomes like addiction, anxiety, and decreasing creativity. Previous Research has shown that emotional intelligence plays a crucial role in optimizing user interfaces, particularly in the context of media consumption and social media interactions.

3. New Research Contribution

This study delves into the multifaceted role of Emotional Intelligence User Interface (EIUI) design patterns in social media platforms, focusing on their impact on user behaviour

and the ethical implications of their use. By exploring the influence of emotional design elements on user engagement and decision-making processes, this research aims to provide a comprehensive understanding of the potential and pitfalls of EIUIs in the context of social media. Additionally, the study investigates the patterns of emotional user interface design to enhance user engagement emotionally and facilitate decision-making, shedding light on the implications of these design patterns on human behaviour in digital environments.

4. Emotional Intelligence User Interface

The field of emotion theory faces a challenge due to the absence of a definitive definition for the term "Emotion," with numerous proposed definitions. In this context, "Emotion" is referred to as the reactive processes stemming from the loosely defined phenomenon labelled as an "Emotion," encompassing the experiences resulting from these reactions. Emotional intelligence matters the same amount of as intellectual ability. Also, in the world of the internet, emotional intelligence plays a significant role [4]. In this study Emotional Intelligence User Interface (EIUI) refers to those designs that simulated emotional responses and state dynamics to future systems, they provide a more life-like, engaging and interactive experience to their users, and provide a more effective and efficient user interaction [5].

5. Emotional Intelligence User Interface in Media Consumption

Emotional intelligence in user interfaces involves simulating emotional responses and personality dynamics to create engaging interactions by using design elements and pattern [6]. Emotional intelligence user interface in social media involves designing interfaces that consider users' emotional responses and behaviours. Emotional intelligence (EI) can be defined as the ability to monitor one's own and other people's emotions, to discriminate between different emotions and label them appropriately and to use emotional information to guide thinking and behaviour. [7].

Emotional intelligence is a critical factor in the design and optimization of user interfaces, especially in the context of media consumption and social media interaction. By integrating emotional intelligence into interface design, users can achieve higher satisfaction, comfort, and success, ultimately leading to enhanced user engagement and brand reputation [8]. This is particularly significant in social media, where leveraging emotional intelligence can result in interfaces that appropriately respond to users' emotional states, thereby improving user experience and fostering relationship-building [9].

Moreover, the incorporation of emotional intelligence in social media platforms can assist in identifying and managing users' emotional states during news consumption, potentially

helping to prevent negative emotional outcomes such as mental illness [10]. Understanding emotional intelligence within the realm of social media discourse is crucial for analysing user behaviour and interactions on these platforms [11]. By utilizing emotional intelligence, social media interfaces can be tailored to help users manage their emotional responses, interact with information efficiently, and combat misinformation [12]. Social media platforms are including techniques like content moderation to flag negativity, personalized interfaces to avoid overwhelming users, and promoting positive interactions.

Additionally, intelligent user interfaces that integrate emotional intelligence can offer adaptive feedback to users based on their emotional states, thereby enhancing user experience, and mitigating the negative impacts of emotions [13].

6. Technologies of EIUI

A combination of sentiment analysis tools, machine learning algorithms, lexicon-based approaches, and emotion detection technologies are used in social media to detect user emotions and conduct sentiment analysis effectively. These technologies include sentiment analysis tools, machine learning algorithms, natural language processing (NLP) techniques, and lexicon-based approaches. Sentiment analysis tools, such as VADER, are utilized for general sentiment analysis of social media text, providing a parsimonious rule-based model for sentiment analysis [14].

7. Use of Emotional Intelligence in Social Media UI

To enhance user engagement and satisfaction, social media platforms utilize emotional intelligence to analyse users' emotional states and behaviours, customizing the user experience [15]. By incorporating emotional expression, regulation, and utilization, platforms cater to users' emotional needs and preferences, leading to a more personalized interaction [16]. These technologies help platforms gauge user sentiment and adjust displayed content based on emotional responses, ensuring relevance and appeal to users' emotional state [17].

As of 2024, the average daily social media usage of internet users worldwide amounted to 143 minutes per day, down from 151 minutes in the previous year. Currently, the global social network penetration rate is 62.3 percent. Northern Europe had an 81.7 percent social media penetration rate, topping the ranking of global social media usage by region. Eastern and Middle Africa closed the ranking with 10.1 and 9.6 percent usage reach, respectively. During a global online user survey in February 2019, a significant share of respondents stated that social media had increased their access to information, ease of communication, and freedom of expression. On the flip side, respondents also felt that social media had worsened their personal privacy, increased a polarization in politics and

heightened everyday distractions [18]. By encouraging emotional content sharing and fostering connections, platforms enhance engagement and a sense of community [19].

8. Application of EIUI Pattern in User Engagements

In the realm of social media, developers often leverage dark patterns of emotional intelligence to engage users and keep them interacting with the platform for extended periods. Dark patterns are user interface design choices that manipulate or deceive users into making unintended decisions that benefit the platform [20]. By utilizing these dark patterns, developers can steer users towards specific actions or content, ultimately influencing user behaviour and engagement [21].

One common approach is to use emotional design elements that trigger specific emotional responses in users, such as excitement or curiosity, to keep them engaged with the platform [8]. By incorporating emotionally evocative design components, developers can create an interface that appeals to users' emotions, encouraging prolonged interaction and content consumption [22]. Additionally, the use of emotional evocative user interface design can enhance user engagement in lifestyle interventions for non-communicable diseases [22].

Moreover, the application of dark patterns in cookie consent notices on online news outlets can influence user behaviour and perceptions [23]. By designing interfaces that nudge users towards specific actions, developers can shape user decisions and interactions with the platform [24]. These manipulative design elements can exploit users' cognitive biases and emotions to drive engagement and interaction [24].

9. Impact of EIUI Design Pattern in Human Behaviour

To investigate the influence of emotionally intelligent user interface design patterns on human behaviour and user experience, it is crucial to analyse how these design elements can impact various aspects of user engagement and interaction. By exploring the potential effects of emotional design patterns, we can gain insights into how they might shape user behaviour and experiences in digital environments.

Emotionally intelligent user interface design patterns have the potential to significantly impact human behaviour and user experience in several ways. These design patterns are intentionally created to evoke specific emotional responses in users, such as excitement, curiosity, or trust, which can influence how users engage with a platform and the decisions they make [25]. By integrating elements that appeal to users' emotions, such as emotive visuals or empathetic messages, designers can develop interfaces that resonate with users on a deeper level, leading to increased engagement and positive user experiences [26].

Moreover, emotional design patterns can contribute to

maintaining users' engagement for extended periods by establishing a more immersive and emotionally resonant user experience. By utilizing emotional design elements like colour schemes, typography, and imagery, designers can craft interfaces that capture users' attention and motivate them to explore content for longer durations [27]. Additionally, emotional design patterns can be utilized to establish a sense of harmony and coherence in the interface, which can enhance a more pleasant and engaging user experience [28].

Nevertheless, it is essential to acknowledge that while emotional design patterns can enhance user engagement and experience, they also have the potential to influence user behaviour negatively. For instance, if design elements are employed to exploit users' emotions or create addictive experiences, they may result in increased anxiety, negativity, or decreased creativity [29]. By employing dark patterns of emotional intelligence, designers can manipulate user be-

haviour and promote prolonged interaction with the platform, potentially leading to adverse outcomes such as addiction or decreased productivity.

A sizeable portion of participants in a global internet user survey conducted in February 2019 stated that social media has improved their access to information, ease of communication, and information availability. Conversely, the respondents thought that social media had exacerbated their personal privacy, deepened political polarization, and increased daily distractions. As of 2024, the average daily social media usage of internet users worldwide amounted to 143 minutes per day [18]. According to the statistic of Statista, by 2024 daily usage of social media has increased from 104 min(s) per day to 143 min(s) per day which is 37.5% increment in a decade (2014-2024). This statis says that by 2024 a user uses social media networking platform 869.9 hours (36.24 days) in a year.

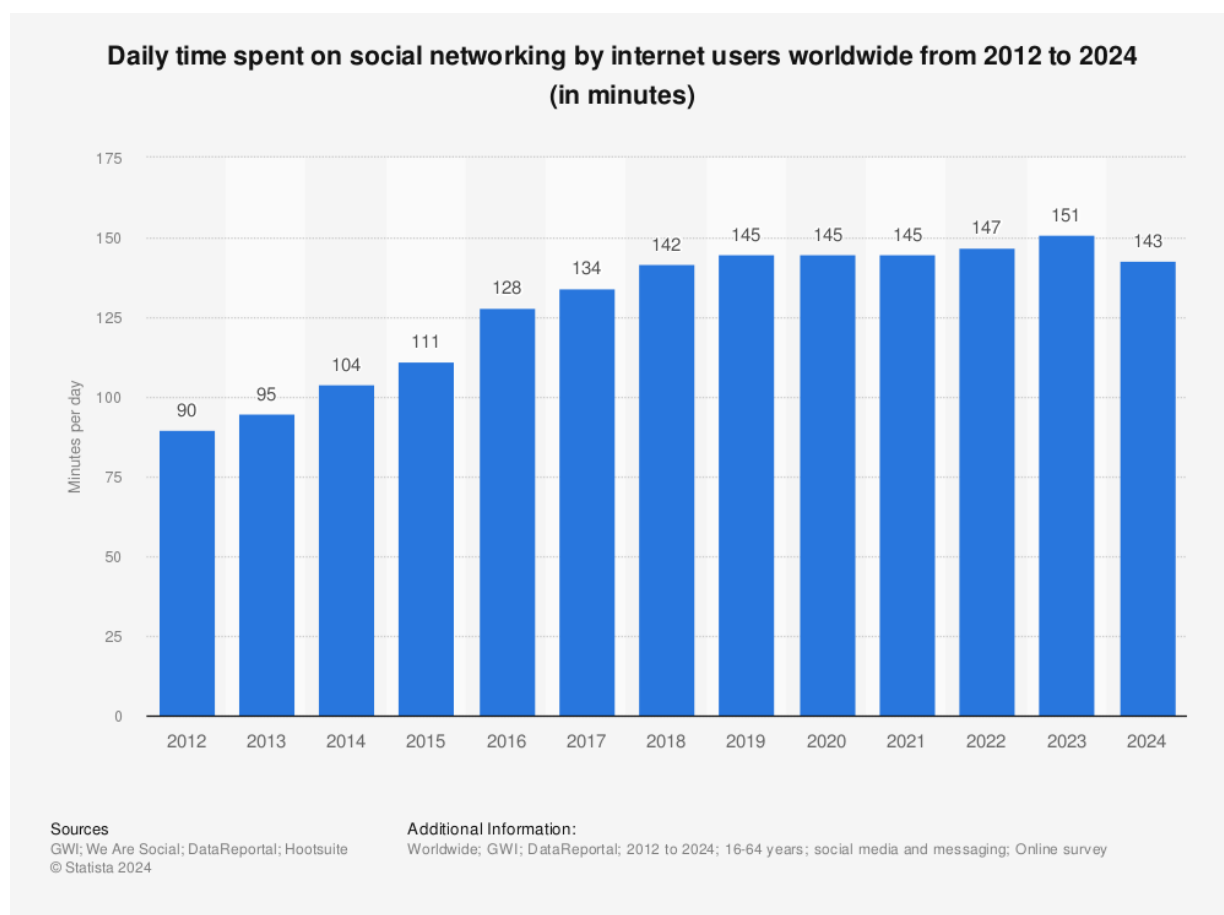


Figure 1. Worldwide; GWI; DataReportal; 2012 to 2024; 16-64 years; social media and messaging; Online survey Data - Statista.

10. Conclusion

In conclusion, the integration of Emotional Intelligence User Interface (EIUI) design patterns in social media platforms has a profound impact on user behavior, engagement,

and overall user experience. By incorporating emotional design elements and leveraging emotional intelligence, developers can create interfaces that resonate with users on an emotional level, leading to increased engagement and satisfaction. The use of emotional design patterns can enhance user interactions, encourage prolonged engagement, and fos-

ter positive emotional experiences within online communities. However, it is essential to consider the ethical implications of using dark patterns and manipulative design strategies that may lead to negative outcomes such as addiction, anxiety, and decreased creativity.

Lastly, in future research in this area could focus on exploring the long-term effects of emotionally intelligent user interface design patterns on user behavior and well-being. Investigating the ethical considerations of implementing emotional design elements in social media platforms and the potential impact on user trust and privacy could provide valuable insights for designers and developers. Additionally, studying the effectiveness of interventions aimed at mitigating the negative effects of dark patterns and promoting positive user experiences in digital environments could contribute to the development of more user-centric and ethical design practices.

Abbreviations

EIUI	Emotional Intelligence User Interface
EI	Emotional Intelligent
UI	User Interface
UX	User Experiences
UI/UX	User Interface / User Experience
VADER	Valence Aware Dictionary and sEntiment Reasoner

Author Contributions

Munim Ahsan Chowdhury Primon is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The author declares no conflicts of interest.

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