Factors Causing Gadget Addiction in Perspective Psychology: A Comprehensive Literature Review

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ABSTRACT

The development of technology is considered to improve performance and enable various activities to be carried out quickly, precisely and accurately, so that it will ultimately increase community productivity, including in the process of social interaction in society. One of the products of information technology applications related to the fulfilment of the most developed needs at this time is gadgets. The purpose of this paper is to explain systematically the results of previous research related to this aspect. The aspect is the dynamics of psychological factors of addictive behaviour and how psychology has responded to the topic with interventions that have been carried out. The research material is taken from various scientific publications that discuss the topic. From the findings of several articles, the author found several factors that have a significant correlation to gadget addiction such as; loneliness, self-control, anxiety, boredom and peer influence. The author highlights critical concerns regarding the lack of attention given to the potential impact of gadget addiction. This issue became a topic of research after a global pandemic, where for almost three years worldwide activities including work and education have largely shifted to the virtual or online world. As gadget dependency is inevitable for approximately twelve hours per day, there has been an urgent need for a deeper understanding of the consequences of such dependency.

INTRODUCTION

The development of technology is getting faster in accordance with the times. Technology appears with various types and features Technology is always new from day to day. The need for technology is one of the important needs today, this is because technology is needed to fulfil the various needs of human life.

The development of technology is considered to improve performance and enable various activities to be carried out quickly, precisely and accurately, so that it will ultimately increase community productivity, including in the process of social interaction in society. The development of communication technology has an impact on the emergence of various types of technology-based activities, such as *e-government, e-commerce, e-education, e-medicine, e-laboratory,* and others, all of which are based on electronics. Now people can communicate interactively, by utilising technology in terms of form, communication can be from one person to many people (groups), and vice versa, from many people (groups) to one person or from groups to groups.

One of the products of information technology applications related to the fulfilment of the most developed needs at this time is *gadgets*. In the current era of globalisation, the need for someone to carry out social interactions, especially to communicate with each other, is not difficult or can be said to be easy. Only by using a *gadget* will a person be able to interact with one another. *Gadgets* themselves can be computers or *laptops*, tablet PCs, and also mobile phones or *smartphones*. *Gadgets* in the era of globalisation are very easy to find, because almost all people have *gadgets*. The reason is that *gadgets are not* only circulating among adolescents (aged 12-21 years) and adults or the elderly (aged 60 years and over), but also circulating among children (aged 7-11 years) and ironically *gadgets are* not foreign goods for children (aged 3-6) years who should not be eligible to use *gadgets*. *Smartphone* is a new innovation in communication technology that has developed in the

community, where a *smartphone* is a communication device or mobile phone (the development of a cellular phone) equipped with a digital *organiser*. The device can function as a *data organiser, web, browser, e-mail client,* music player, movie player, digital camera, *GPS,* send documents and other functions.

Before the existence of *smartphones* or *gadgets* and other electronic devices, people easily greeted and interacted with each other when they met or when they gathered. Nowadays, people are more preoccupied with their *gadgets*. People today tend to forget that there are real friends beside them, humans are only considered objects, no longer human as they should be when they meet.

We know that the use of *gadgets* for children is like two blades. On the one hand, it provides many benefits for children's development, but on the other hand, it also has a harmful impact on their character development. In a review submitted by the founder of *New Parent Academy*, explained that *gadgets* have several benefits, namely they can support knowledge and prepare children for the digital world. It is explained that knowledge can be obtained through various educational applications that can be downloaded by the *gadget*. Applications such as colour guessing can train children's ability to recognise the types of colours around them. In addition, *gadgets* can also train children's foreign language skills because usually applications and programmes listed on *gadgets* use foreign languages.

According to a survey conducted by Yahoo and Taylor Nelson Sofres (TNS) Indonesia, the largest age group using smartphones in Indonesia are those in the 13-19 age range. No less than 53% of teenagers from this group access the internet without parental supervision using smartphones [1]. The focus of device usage in this study is primarily on *smartphones* and tablets. Data from a 2014 survey in the United States showed that *smartphone* ownership among 13- to 15-year-olds had increased from 35% to 55%, while tablet ownership doubled from 18% to 37% [2]. In Indonesia, around 48.19% of the devices used to access the internet are gadgets, with the highest composition of users being in the age range of 13-18 years, reaching 75.50% [3]. Based on a preliminary study conducted by one of the researchers at a public junior high school in Denpasar, it shows that 100% of students have *smartphones*. The intensity of using the device for two to three hours was around 39.7%, using the device for four to five hours was 35.9%, around 16.4% of adolescents used the device for more than six hours [4].

Gadget dependence will make individuals forget to socialise with their surroundings, which has a psychological impact, especially a crisis of confidence in them, eliminating interest in playing or doing other activities. This will make them more aloof. Many teenagers prefer to play *gadgets* instead of playing or socialising with peers.In DSM IV *(diagnostic and statistical manual of mental disorders)* addiction is defined as a dependence or addiction to something or a substance that can harm the body. This dependence is also more often used in everyday life. This dependence describes the pathological or excessive use of a stimulus [5]. Based on this understanding, addiction can also occur with *gadgets*. *Gadget* addiction is a dependence or addiction experienced by individuals to electronic devices or devices that have special functions in each device.

When individuals are addicted to *gadgets,* it makes them feel anxious if they are separated from them. Most of their time is spent playing *gadgets*. The result is not only a lack of closeness between parents and children, children also tend to become *introverted*. It can also affect the child's brain development. The PFC (*Pre Frontal Cortex*) is the part of the brain that controls emotions, self-control, responsibility and other moral values. Teenagers who are addicted to technology, their brains will overproduce the hormone *dopamine* which results in impaired PFC function.

Several previous studies have mentioned variables associated with gadget addiction behaviour and its effects. The level of achievement decreases when individuals are addicted to gadgets because they cannot divide their time between playing gadgets and being responsible [6]–[8]. The occurrence of disturbances in motor and emotional development in adolescents [9]. Apathetic or indifferent behaviour towards the surrounding environment due to adolescents who start to lose time to socialise because they are more interested in the applications available in the gadget [10]. When disconnected from the internet or gadgets, individuals will experience discomfort, anxiety and sadness [11] and loneliness that causes an adolescent to look for an escape, one of which is playing gadgets [12].

The existing writings have not systematically explained the dynamics of psychological factors of addictive behaviour and interventions that can be done, so this paper will explain systematically from the results of previous research related to this aspect. This aspect is the dynamics of psychological factors of addictive behaviour and how psychology has responded to this topic with interventions that have been carried out.

METHODS

This paper is a comprehensive literature review that involves a thorough analysis and synthesis of findings from a comprehensive range of relevant literature to gain a more thorough understanding of the topic under study. On the other hand, a literature review generally provides a summary of analysed data from the relevant literature but in a more limited scope. In this paper, the author aims to explore the scope and coverage of existing literature on *gadget* addiction from a psychological perspective. It also aims to provide an overview of the type of literature that is widely available on the topic.

A. Materials

The data sources for this study consist of various types of literature that discuss *gadget* addiction and at least one of the authors has a background in psychology. The types of literature used are journal articles, *proceedings* papers, research reports. Data sources did not include articles from mass media or *websites*. Articles were included if they were empirical studies published between 2016-2024. The author found 23 publications met the inclusion criteria on gadget addiction. Of these, 18 publications were published in journals, 3 publications in the form of *proceedings* and 2 publications in the form of research articles. From these publications, all findings are the result of empirical research written by at least one author with a background in psychology and published in peer-reviewed journals. Exclusion criteria included non-empirical article, opinion pieces and studies not related to psychology.

B. Procedures

The researcher conducted a random search for literature articles through *online* sources. *Online* searches were conducted through search engines such as *google*, *google schoolar, wiley, scopus, springer* and several other *websites*. The search strategy included keywords like 'gadget addiction', 'psychological factors', 'loneliness', 'self-control', 'anxiety', 'boredom' and 'peer influence'. The author used various keywords to get relevant topics for this paper. On several occasions, the author also checked the reference list contained in each publication article that had been found. Furthermore, the author traces the literature sources found to add relevant references. Each study was reviewed for relevance based on its abstract, methodology and findings. The exclusion criteria were non-peer-reviewed articels, opinion pieces and articles from mass media or websites. This rigorous selection process ensures that the findings are based on hight-quality and relevant literature.

C. Data Analysis

In this paper, each manuscript found is treated with meticulous methods. For each publication found, the author conducted a brief review of the manuscript. The author reads the title, abstract, key sections in the body of the paper, and the conclusion to evaluate the relevance of the paper to the study of psychology. Irrelevant papers were eliminated at this stage, while selected papers were analysed further. The author then conducted a thorough review of the content of the selected manuscripts. The researcher's arguments, methodology, findings and approach were well understood by the authors. Information on the researcher's background, year and place of publication, type of publication, themes studied and results found were also collected and summarised by the author. This process assisted the author in identifying relevant themes to answer this research question. Furthermore, the author conducted comparative analysis, criticism and correlation between the manuscripts found. The findings were arranged chronologically and thematically to maintain understanding.

RESULTS

This paper describes the factors of gadget addiction from a comprehensive psychological perspective. Based on the findings from several articles, the author found several factors that have a significant correlation to gadget addiction such as; loneliness, self-control, anxiety, boredom and peer influence.

D. Loneliness

There is a significant positive correlation between loneliness and gadget addiction because individuals who experience feelings of isolation and social disconnection may turn to technology as a means to find friends and connections. Gadgets offer a convenient and accessible way to interact with others through social media, messaging applications or online communities. However, relying on gadgets for social interaction can lead to overuse and dependence that contributes to a cycle of addiction [13]–[15]. The superficial and ephemeral nature of *online* connections can exacerbate feelings of loneliness and inadequacy thus establishing a need for constant validation and engagement with technology. As individuals become increasingly isolated in their digital worlds, they may experience a decline in real-life social connections and a deepening sense of loneliness [12], [16], [17]. Recognising the link between loneliness and screen addiction highlights the importance of fostering meaningful relationships and striking a balance between *online* and *offline* interactions to improve overall well-being.

E. Self-control

Low self-control has been identified as an important factor in the occurrence of gadget addiction [18]. Individuals with low levels of self-control may struggle to resist the immediate gratification offered by gadgets such as *smartphones* and tablets leading to excessive use and dependence. This lack of self-control may contribute to the compulsive behaviours associated with gadget addiction, including spending excessive time using gadgets, neglecting responsibilities and experiencing negative consequences as a result [19]. Research has shown a strong correlation between low self- control and gadget addiction emphasising the importance of developing healthy self-control strategies to prevent and overcome this growing problem [20], [21].

F. Anxiety

There are numerous studies that show a positive correlation between anxiety and screen addiction. Individuals who experience high levels of anxiety may turn to gadgets as a way to cope with their stress and discomfort, seeking distraction and temporary relief through excessive use of technology. This dependence on gadgets can escalate into addictive behaviour as individuals become increasingly reliant on their devices to reduce their anxiety and provide a sense of security [22]–[24]. Conversely, prolonged and excessive gadget use can also contribute to the development or exacerbation of anxiety symptoms, creating a cyclical pattern of dependence and distress. Recognising the link between anxiety and screen addiction underscores the importance of addressing underlying emotional issues and developing healthier *coping* mechanisms to improve mental health and reduce dependence on technology [25]–[28].

G. Boredom

The correlation between leisure or boredom and gadget addiction is due to individuals turning to technology as a source of entertainment and distraction during evening or boring moments. Gadgets provide a convenient and readily available means of filling leisure time or alleviating boredom, offering a wide variety of activities and content to engage with [29]. However, overuse of gadgets in these situations can lead to dependence and addiction, as individuals may rely on technology to escape from boredom or to seek constant stimulation. This pattern of seeking instant gratification and distraction through gadgets can disrupt natural rhythms of rest and relaxation, hindering the development of healthier leisure habits and coping mechanisms [20], [24]. As individuals become increasingly dependent on gadgets for leisure, they may experience reduced enjoyment of other activities, reduced attention span and loss of creativity [21]. It is important to set limits on the use of technology and find alternative ways to engage in meaningful leisure activities [30].

H. Peer Influence

Peer influence plays an important role in the occurrence of screen addiction with social pressure and peer behaviour influencing an individual's relationship with technology. Peer groups can have a strong impact on normalising excessive gadget use as individuals may feel compelled to follow their friends' *online* trends or habits [31], [32]. This pressure to conform can lead to increased gadget use and dependence as individuals seek

validation and social acceptance through their *online* social interactions. Peer groups that promote and support excessive gadget use can reinforce addictive behaviours, creating a culture of constant connectivity and dependence on technology [33]. As individuals become increasingly influenced by their peers' attitudes and behaviours towards gadgets, they may find it difficult to set limits and moderation in their own technology use [34], [35]. The correlation between healthy and supportive social influences fosters digital literacy and builds awareness around the impact of peer pressure on technology habits.

DISCUSSION

Understanding the various factors that influence screen addiction is crucial in developing effective strategies to address this issue. By addressing the variables and their correlation with screen addiction, individuals can take proactive steps to manage their technology use, develop healthier coping mechanisms and build resilience to addictive behaviours. Awareness, self-reflection and seeking support from professionals or support groups can be beneficial to overcome screen addiction and foster a more balanced relationship with technology.

The interactions between loneliness, self-control, anxiety, boredom and peer influence can be understood throught the Bio-Psycho-Social Model. This model explains how biological, psychological and social factors interconnect to influence addiction behavior. Loneliness and anxiety, both psychological factors, can heighten sensitivity to social stimuli, making peer influence a significant factor. Conversely, low self-control, a psychological trait, can exacerbate the compulsive use of gadgets in response to boredom or peer pressure, creating a cycle of dependency that futher isolates the indiviual and reinforces feelings on loneliness and anxiety.

I. Loneliness

Feelings of loneliness and isolation can contribute to smartphone addiction. This is shown by the many related studies conducted during the pandemic that occurred around 2019 to 2021 that state the ripple effect of quarantine and *lockdowns* around the world made the world move *online to* minimise the spread of the virus. This has caused panic, anxiety, obsessive behaviour, paranoia and also led to gadget addiction [36]–[38].

Loneliness plays an important role in driving individuals to overuse gadgets as a means to fill the void in their social relationships and seek comfort in the digital world [39]. The absence of meaningful social connections and feelings of isolation can lead individuals to rely on technology for companionship, entertainment and a sense of connection [15]. Technology provides a means of connection and distraction for individuals experiencing loneliness but excessive gadget use can further isolate them from meaningful social interactions [16] .

When experiencing loneliness, individuals may turn to gadgets as a source of solace and distraction from their emotional distress. Social media, *online* forums and virtual interactions provide instant gratification and a sense of belonging, offering temporary relief from feelings of isolation [40]. However, reliance on technology for social engagement can gradually deepen feelings of loneliness by replacing real-life connections with superficial online interactions.

In addition, gadget addiction triggered by loneliness can create a vicious cycle where individuals become increasingly dependent on technology for social fulfilment which further isolates them from *offline* experiences [9]. Constant engagement with gadgets can preclude opportunities for meaningful social interactions, exacerbate feelings of loneliness and reinforce the cycle of dependence on technology for emotional support [12].

Building strong social relationships, engaging in *offline* activities and fostering a sense of belonging can help overcome feelings of loneliness and reduce reliance on gadgets for companionship. Overcoming loneliness as a contributing factor to gadget addiction involves fostering social connections, building mutually supportive relationships and engaging in *offline* activities that promote human-to-human interaction [41]. By addressing the root causes of loneliness and developing healthy *coping* mechanisms to manage feelings of isolation, individuals can reduce their reliance on technology as a *coping* mechanism and strengthen their social resilience [14].

Recognising the impact of loneliness on screen addiction is critical in developing holistic interventions that meet individuals' emotional needs and encourage a balanced approach to technology use. By addressing loneliness through social support, self-care strategies and meaningful *offline* connections, individuals can foster a sense of belonging and fulfilment that reduces the risk of screen addiction and improves overall well-being [42], [43].

J. Self-control

Research has shown that self-control plays an important role in determining one's susceptibility to gadget addiction. Individuals with low self-control may struggle to regulate their technology use, leading to excessive and compulsive gadget use [21]. Strengthening self-control through strategies such as *mindfulness* practices, self- monitoring and setting boundaries can help individuals better manage their technology habits and reduce the risk of addiction [44], [45].

K. Anxiety

Anxiety is closely related to gadget addiction as individuals may use technology as a way to escape or cope with anxious thoughts and feelings [23], [26]. This reliance on gadgets to relieve anxiety can develop into a behavioural pattern of addiction[25], [27], [28]. Addressing underlying anxiety through therapeutic stress management techniques and developing healthy *coping* mechanisms is essential to prevent technology from becoming a crutch for managing anxiety [46].

L. Boredom

Boredom in leisure time or a lack of interesting activities during leisure time may encourage individuals to overuse gadgets as a source of entertainment and stimulation [21], [29]. This can lead to a dependence on technology for constant engagement and a reduced capacity to enjoy leisure activities *offline* [20], [24]. Encouraging a healthy balance between digital and *offline* activities, developing hobbies and exploring new prompts can help individuals to break the cycle of gadget addiction caused by boredom.

M. Peer Influence

Peer pressure and social norms can influence a person's gadget use behaviour either by encouraging excessive technology consumption or setting acceptable standards of use [31], [34]. Friends and social circles that encourage constant connectivity and engagement with gadgets can reinforce addictive patterns of behaviour [32]. Building awareness of the impact of peer influence, setting personal boundaries and seeking supportive social networks can help individuals cope with peer pressure and build healthier technology habits.

To better understand the psychological factors associated with gadget addiction, it's crucial to map their interactions using established theoretical frameworks. The Social Cognitive Theory by Bandura [47] and The Uses and Gratifications Theory [48] provide valuable insights into how these factors interconnect and influence each other. Social cognitive theory posits that behavior, personal factors and environmental influences interact dynamically. In the context of gadget addiction, loneliness can increase gadget use as coping mechanism, which in turn, reduces opportunities for real-life social interactions, thereby increasing feelings of loneliness. Low self-control exacerbates this cycle, making it harger for individuals to regulate their gadget use. Uses and gratifications theory suggests that individuals use technology to fulfill specific needs such as escapism, social interaction and entertainment. Anxiety and boredom drive individuals towrds gadgets as means to alleviate discomfort and fill time, respectively. Peer influence futher reinforces these behaviors by normalizing excessive gadgt use within social groups.

By synthesizing exsting research within frameworks, a coherent narrative emerges, demonstrating how these psychological factors are interconnected and contribute to gadget addiction. This approach not only enhances the depth of literature analysis but also provides a structured method to examine interventions aimed at mitigating gadget addiction.

Empirical studies from various culcural context reveal differing impact of gadget addiction. For instance in

South Korea indicates a strong correlation between academic pressure and gadget addiction among adolescents [49], emphasizing the role of cultural expectations in addiction behaviors. Studies from East Asia, where high academic and social expectations prevail [50], [51], show a different pattern of gadget use compared to Western cultures, where individualism and leisure activities are more emphasiszed. In contrast, studies from Western countries often highlight peer influence and social media as primary factors these cultural differences suggest the need for tailored interventions that consider the societal norms and pressure unique to each region. Developing culturally sensitive interventions can enhance their effectiveness and ensure they resonate with the target population. In collectivist societies, interventions might focus on strengthening family and community support systems, whereas in individuals cultures, strategies might prioritize personal responsibility and self-regulation. Including a diverse range of studies enhances the generalizability of the findings and provides a comprehensive understanding of gadget addiction across different cultural settings. This approach underscores the importance of tailoring interventions to adress cultural nuances, thereby improving their effectiviness.

CONCLUSION

The author highlights critical concerns about the lack of attention given to the potential impact of gadget addiction. This issue became a research topic after a global pandemic, where for almost three years worldwide activities including work and education have largely shifted to the virtual or *online world. As* gadget dependency is inevitable for approximately twelve hours per day, there has been an urgent need for a deeper understanding of the consequences of such dependency.

RECOMMENDATION

Researchers have conducted various studies on the topic of addictive behaviour, especially the one discussed in this paper, which takes the topic of addictive behaviour towards gadget use or can be abbreviated as gadget addiction. However, it is important for researchers who are interested in the topic to expand the scope of their research such as investigating or exploring the impact in terms of physical health. This could improve the quality of the research as well as broaden the practical implications of the results.

As a way forward, it is hoped that psychology researchers can continue their efforts by contributing more comprehensive and systematic reviews in portraying and discussing the study of addictive behaviour from a psychological perspective. In order to develop more effective interventions in the prevention of addictive behaviour

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