

# *The Impact of Smartphone Dependence on Student Personality in Malang*

**Irzan Tri Saputra<sup>a,1,\*</sup>, Jordan Abdul Aziz<sup>a,2</sup>, M. Iqbal Fathurrozi<sup>a,3</sup>, Septian Putra Priambodo<sup>a,4</sup>,  
Hasanah Nur<sup>b,5</sup>**

<sup>a</sup> Department of Electrical Engineering, State University of Malang, Malang, Indonesia

<sup>b</sup> Faculty of Engineering, Universitas Negeri Makasar, Makassar, Indonesia

<sup>1</sup> saputrainzan@gmail.com; <sup>2</sup> ajordaabdul@gmail.com; <sup>3</sup> iqbal.ftz@gmail.com; <sup>4</sup> septian\_artup@yahoo.com;

<sup>5</sup> hasanah@unm.ac.id

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## ABSTRACT

Cellphones are the most popular communication devices perceived today. Students use smartphones as communication and entertainment to avoid stress. Excessive use of smartphones with high intensity can cause dependence. Smartphone dependence has a negative influence on quality of life and health such as anxiety. Indication of anxiety disorders can be physical, psychological, and behavioral.

## I. INTRODUCTION

In the past few years the use of various types of media has influenced people's communication habits. Nowadays smartphones have been widely used ranging from adolescence to adulthood. According to a survey targeting middle school students, those who are highly dependent on smartphones tend to have a bad bond in communication. Problems related to inappropriate smartphone use among young people have attracted a lot of attention. Internet dependence, or internet addiction, is defined as the loss of control over internet usage. Previous research has shown that internet addiction and cell phone dependency are related to problems such as academic failure depression [1], anxiety and stress [2], sleeplessness [3], loneliness [4], and so on. In this article explained that loneliness is one of the most serious symptoms. Loneliness is a potential pandemic "on par with obesity and drug abuse," and many researchers have determined that loneliness is associated with serious health risks from children to adolescents and adults [5], [6]. The study in this article examines the relationship between smartphone dependence and loneliness and the factors that influence it, to identify both consistency and inconsistency compared to the results reported, while our research is only comparing one's nature to the level of dependence on smartphones.

## II. LITERATURE REVIEW

### A. Definition of Smartphone

The smartphone consists of lots of interesting hardware and software. The function of a smartphone is not only as a cellphone but also as a computer, mp3 or video player. Smartphone hardware and software are dramatically increasing, various applications being developed will be available to meet the human lifestyle. Humans can easily get access to the desired information at any time or in the conditions desired by smartphone users. Smartphones have many advantages, but not only for entertainment.

### B. Dependency of Smartphone

Dependence is a chronic disease that occurs mainly on the brain reward path / reward system, motivation, memory. Disfunction in this pathway causes distinctive biological, psychological, social and spiritual manifestations. Dependence is characterized by an inability to do things that are consistently abstinent, decreased behavioral control, desires, and interpersonal relationships, and dysfunctional emotional responses. Dependence can affect both the mental state that is felt internally, such as mood, and activities that can be observed externally, such as behavior. The cause of

dependence can cause neuropsychiatric symptoms that cannot be distinguished by symptoms of undesirable general psychiatric disorders that are known (for example, schizophrenia with mood disorders) therefore, primary psychiatric disorders and disorders using substances may be related. Like other chronic diseases, dependence often involves a cycle of relapse and remission. Without treatment or involvement in recovery activities, dependence is progressive and can lead to disability or premature death [7].

### C. Etiology of Smartphone Dependency

#### 1) Biological Factors

Based on the neurobiological model, internet dependence is associated with changes in dopamine neurotransmitters. In the brain there is a system that functions to regulate memory, behavior and emotional processes, this system is commonly called the limbic system, where the limbic system consists of many components including the hippocampus as the center of learning, amygdala as emotional control, and also the striatum in where does this striatum regulate the process of behavioral control. There is also the Ventral Tegmental Area, which when there are receptors from the outside, this VTA activates the nucleus accumbens as a center of pleasure. It is in the nucleus accumbens that dopamine is widely produced, studies write that excessive smartphone access causes a decrease in dopamine transfer resulting in dopamine buildup in the synapse gap. Decreased dopamine transfer is also seen in substance use disorders and other addictive behaviors. It is also known that dependence or addiction activates the rewards system. Dopamine release occurs in the nucleus accumbens, which is a rewards system associated with addiction. When activated, there is an increase in the release of dopamine, opiates, and other neurochemicals that affect the receptors, causing changes in behavior patterns. In addition to neurotransmitters Genetic factors also have a big influence. The promoter of the serotonin transporter gene (5HTTLPR) plays a role in the regulation of serotonergic neurotransmitters. The homozygous (L) long allele variant is associated with a higher concentration of serotonin mRNA and an increase in serotonin reuptake than the variant containing the short allele (S) variant. In individuals with internet addiction there is a shorter allelic variant of the serotonin transporter gene (SS-5HTTLPR) so that serotonin reuptake will decrease. Increased serotonin can increase pleasure and individuals will feel better in their activities [8].

#### 2) Psychology Factors

There are four important factors related to smartphone dependence, in between [9]: (1) Internal Factors that describe individual characteristics, such as high levels of sensation seeking, low self-esteem, and low self control. The level of sensation seeking is because individuals are more likely to get bored quickly. Low self-esteem causes individuals to feel insecure when interacting directly and prefer to use media. Low self-control and high smartphone habits make it easier for individuals to experience smartphone addiction. (2) Situational factor, include factors that lead to smartphone use as a means of transferring stress when facing uncomfortable situations, such as when experiencing sadness, no activities at leisure, anxiety and experiencing learning saturation. (3) Social

Factors, consist of causal factors as a means of interaction with others. These factors, including the mandatory behavior, are behaviors to satisfy the interacting needs simulated by others, while the connected presence is an interaction behavior with others originating from within. (4) External factors that come from outside the individual, including the high media exposure about smartphones and facilities owned by the smartphone [10].

### D. Factors that affect the use of smartphones

#### 1) Age

Age is related to a person's ability to use a smartphone. Based on the Pew Research Center statistical data, the highest smartphone users are in the age group of 18 to 29 years old and are at the age of 65 years. In another study conducted by International Data Cooperation (ICD) respondents aged 18-24 years spent a lot of time using smartphones both to just play games and check social networks to always connect with other users.

#### 2) Gender

Studies show that men have a higher adoption rate of new technology than women. Leung in his research suggested that the number of women who use social networking sites is higher than men automatically, which is directly correlated with smartphone usage. Previous research conducted by Park and Lee explained that women have a higher risk of smartphone addiction behavior compared to men. This is because women more often use the features that are inside the smartphone.

#### 3) Achievement

A student's achievement is measured by an achievement index (GPA). A student who has good achievements has good time management, for example in managing the number of hours of study and the number of hours of relaxation or refreshing. Instant relaxation or refreshing can be done using a smartphone. Based on the research of Stollak and Junco, students who have a high GPA spend less time in using a smartphone.

#### 4) Social Economy

As a media for technology, information and communication, smartphone use requires a fee. Sharma's research shows that 61% of students have to refill internet services once a month, 28% twice a month, while 11% of students have to refill more than three times a month. Though not all people have the ability and awareness to meet the information and communication needs that can be obtained through a smartphone.

#### 5) Association

Research by Greenhow and Burton, respondents reported the use of smartphones which contained features that deepened friendships with existing close friends, started, built, and maintained relationships with other groups.

#### 6) Personality

According to Carl Jung, there are three types of personality, namely the personality of introverts, ambieverts, and extroverts. These personalities contribute a large share of smartphone use. Most people with introverted personalities

spend more time accessing features on smartphones, because features on smartphones can provide a means of socializing and communicating without the need for face-to-face communication that makes people with introverted personalities uncomfortable. This is inversely proportional to people who have extroverted personalities where they tend to like face to face direct communication.

### 7) The Intended Use

This is directly proportional to the length of time someone uses a smartphone. The purpose of use, in between relaxation and free time, use in public places, use related to stress, use related to academics, and communication.

## III. METHOD

This research covers the social field that conducted in the State University of Malang Campus environment, with the time the research data was carried out in the period of September. A questionnaire survey was conducted in Malang targeting active students. The questionnaire has four parts with content in each section as follows. Part 1 collects demographic data, such as gender, age, and the institution underway. Part 2 measures emotional reactions, namely how they react to how they deal with a situation in communicating using the internet masanger, with 5 questions consisting of 5 values (1 as strongly agree to 5 strongly disagree). Part 3 collects information about maintaining relationships with 5 statements that have 5 values (1 as strongly agree to 5 strongly disagree). Part 4 questions about their perception of smartphone use with 5 questions that have 5 values (1 as strongly agree to 5 strongly disagree).

## IV. RESULT AND DISCUSSION

There are three question sessions displayed on the questionnaire. The first session was emotional reaction, perception of excessive use, and maintenance relations. The data obtained amounted to 60 student data with intervals of 18-23 years.

Emotional reaction is a reaction of someone to the situation in communicating with others. There are five questions displayed, the question leads to the personality of an extroverted person..

Perception of excessive use is excessive use of smartphones. There are five questions that are displayed, the question leads to kebripadian someone introverted.

In the Relationship Maintenance section the higher the number surveyed shows that the person is more directed to Neuroticism. Neuroticism is a personality that assesses a person's ability to withstand stress or stress. The higher the number of neuroticism leads to extroverts.

TABLE I. EXPLORATION FACTOR ANALYSIS ON SELF-PERCEPTION OF IM/EMAIL DEPENDENCY

Exploration factor analysis on self-perception of IM/email dependency					
<i>Emotional reaction</i>	1	2	3	4	5
After sending a message/emails, i check my mailbox to see if I had received a response	0,19	0,36	0,28	0,14	0,3
I feel disapointed if I don't get reply to message/email immediatly	0,23	0,33	0,30	0,13	0,01
I feel axious when people don't immediatly reply to my message/email	0,11	0,38	0,32	0,18	0,01
I often check m mailbox to see if I had a new text message/email	0,18	0,41	0,25	0,14	0,01
I feel dsapointed if I don't receive any text-messages/email	0,13	0,24	0,25	0,30	0,08
<i>Perception of excessive use</i>					
I sometimes send message/emails whle engaging in a conversation wth other people	0,21	0,44	0,24	0,06	0,04
I somestimes spend several hours on sending message/email continuously	0,08	0,24	0,37	0,22	0,11
I often exchange many message/emails in short period of time	0,08	0,60	0,22	0,06	0,04
I send messae/emails even while I am talking with friends	0,09	0,38	0,37	0,13	0,04
I consider myself a quick-tipyst on smartphone	0,19	0,43	0,31	0,04	0,01
<i>Relationship maintance</i>					
I cannot maintaince new friendship without messgae/emails	0,14	0,32	0,29	0,18	0,08
I can't from any new friendship without sending message/emails	0,10	0,25	0,33	0,21	0,11
I think my relationship would fall apart without message/emails	0,06	0,18	0,37	0,25	0,16
Without message/emails, I would nit be able to contact friends whom I cannot meet often on daily basis	0,18	0,48	0,22	0,13	0
Without message/emails I can't say what is on my mind	0,09	0,19	0,41	0,21	0,13

After data collection through questionnaires, we analyzed that from the 3 question sessions, each of which had 5 answers, conclusions could be drawn:

### A. Emotional Reaction

In this session if the answer is 1, the personality of a student tends to be extroverted. Whereas if students answer choice number 5, they tend to be introverted. In the results of the questionnaire, it can be seen that the average student's answer is a range of 2-4 so it can be said that the student is normal.

### B. Perception of Excessive Use

In this session leads to kebripadian someone introverted, so when the answer chosen between ranges 1 or 5 means having an introverted personality. In the results of the questionnaire it turns out that students tend to answer 2-4

which means that it can be said that there is no influence on the normal person.

### C. Relationship Maintenance

In this session, if the higher numbers are surveyed, it shows that a person's personality is more directed to Neuroticism and tends to be extroverted. The results of the study show that the answer of the average student is range 2-4, it can be said that the student is normal.

## V. CONCLUSION

Based on research that has been carried out previously precisely to test smartphone dependence on students in Japan, the results show that smartphones do not have a large impact on the influence of student personality. With the results obtained this study wants to prove how much the impact of smartphone dependence on students, especially in Malang. An outline can be drawn that the smartphone does not have a big influence on the personality of students in Malang who have filled out the questionnaire given.

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