IRA-International Journal of Management & Social Sciences
ISSN 2455-2267; Vol.19, Issue 01 (Q.1 2023)
Pg. no. 1-19.
IRA Academico Research

The Meaning of Life and its Influence on Adolescent Mobile Phone Addiction: An Exploratory Study

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Type of Work: Peer Reviewed.
DOI: https://dx.doi.org/10.21013/jmss.v19.n1.p1

Review history: Submitted: March 29, 2023; Revised: April 24, 2023; Accepted: May 02, 2023

How to cite this paper:
Zhao, Y. (2023). The Meaning of Life and its Influence on Adolescent Mobile Phone Addiction: An Exploratory Study. *IRA-International Journal of Management & Social Sciences* (ISSN 2455-2267), 19(1), 1-19. DOI: https://dx.doi.org/10.21013/jmss.v19.n1.p1

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ABSTRACT

With the popularization of mobile Internet devices, more and more teenagers use smartphones. The use of mobile phones can not only bring convenience to young people but at the same time improper use and dependence may also lead to the risk of addiction and harm the physical and mental health of young people. With the development and influence of positive psychology, the meaning of life plays an important role in preventing adolescents' psychological and behavioural problems. Individuals with a high sense of life are less likely to become addicted to mobile phones. Based on this, it is possible to prevent and alleviate the problem of mobile phone addiction by enhancing the sense of life, improving self-control, and paying attention to positive psychology and group counselling interventions.

Keywords： mobile phones; positive psychology; teenagers; meaning of life

1. Introduction

In 2007, when the first smartphone was made, Steve Jobs said: "iPhone is likely putting life in your pocket." With the development of science and technology and the improvement of Internet technology, 5G technology is becoming popular, mobile phones become an indispensable part of daily life (Roberts, Yaya, & Manolis, 2014) and the use of smartphones has expanded to the world (Hyuk, Won, & Young, 2017). According to the 46th China Internet Development Statistics Report, as of June 2020, the number of Chinese mobile Internet users has reached 932 million and 99.2% of Internet users use smartphones to access the Internet. Among them, the netizens in my country, students accounted for 23.7% (CNNIC, 2020). However, smartphone technology is a “technological paradox” because it can both benefit us and enslave us (Barnes, Pressey, & Scornavacca, 2019). Studies have found that adolescents are more likely to be “addicted” to smartphones than those over 19 years old (Buctot, Kim, & Park, 2018).

First of all, because they are digital natives with high rates of Internet access and smartphone ownership, more and more teenagers are experiencing addiction to technology-based behaviours. Studies have pointed out that they are full of novelty in the online world of smartphones. Their pursuit of excitement and low self-control can lead to mobile phone addiction (Spada & Marcantonio, 2014). Second, adolescents are faced with a lot of pressure from examinations and entering school. There is a correlation between their mental health conditions, such as depression, anxiety, stress and other negative emotion regulation disorders and mobile phone addiction.(Elhai et al., 2017). Third, compared with adults, adolescents are more likely to have problem behaviours, such as addiction, drug abuse, and antisocial behaviours (Chambers, Taylor, & Potenza, 2003), because of their lack of brain development and lack of diverse social experience in adolescence. It limits the ability of young people to control impulsive and risk-taking behaviours. Fourth, using the Internet and smartphones excessively may affect the health of young people, including their physical and mental health and social development. For example, adolescent Internet addiction can have a negative impact on self-identity formation, brain development and cognitive function. Such damage may cause secondary damage to academic performance and interpersonal relationships (Milani, Osualdella, & Di Blasio, 2009). However, many studies have focused on what causes smartphone addiction and the research target groups are college students and vocational students, but they rarely highlight the positive factors that adolescents and their own existence can prevent and avoid the process of using mobile phones.

Positive psychology focuses on changing their own behaviours through the way that people process and change cognition (Khazaei & Ghanbari, 2017). The meaning of life in positive psychology can help students understand the meaning of life and establish a correct attitude towards the meaning of life. "Life has a positive meaning for those who know how to interpret it." The prerequisite for identifying and pursuing the meaning of life is to have a more comprehensive and accurate understanding of it, to understand the meaning of life more deeply, and to practice the pursuit of meaning. The sense of the meaning of life in positive psychology can make adolescents withdraw from the boredom, anxiety, and alienation caused by lack of meaning, change adolescents' perception of their own meaning and value of life, enhance their sense of purpose, promote positive behaviours (Fredrickson & Barbara, 2001), and avoid mobile phone addiction. There is a positive relationship between the meaning of life and the health status of adolescence. Having a higher sense of life meaning can avoid negative behaviours and tendencies by paying attention to the purpose of life (Evik, Cierci, & Uyar, 2020).

2. Literature review on Smartphone addiction

2.1 The prevalence of smartphone addiction among teenagers

Spread across the world, the average prevalence of smartphone addiction (or excessive use) among adolescents is 6.5%, but the prevalence of various surveys is quite different. In addition to factors such as region, race, living habits, etc., it may also be related to the different questionnaires used. In 2005, Bianchi compiled the "Mobile Phone Problem Use Scale (MPPUS)" applicable to adults. The 27 items in the 5 dimensions of "other problems" and "producing negative consequences" were subsequently translated and widely used by scholars in many countries. In 2008, Leung revised the simplified version of "Mobile Phone Addiction Seale (MPAS)" for teenagers on this basis. In addition, the "Smartphone Addiction Scale (SAS)" compiled by South Korea in 2013 and its simplified version (Smartphone Addiction Scale Short Version, SAS-SV) are frequently used. The rates of smartphone addiction in different regions surveyed by the same scale are quite different. Loper Fernandez used the MPPUS scale to survey 1026 British adolescents (11-18 years old), and their smartphone addiction rate was only 10%. However, Balogun used the same scale to survey 575 African Nigerian adolescents (10-24 years old), and their smartphone addiction rate was as high as 46.5%. According to SAS and its simplified version of the scale, Extremera and Venkatesh. A survey was conducted among teenagers in Switzerland, Spain and Saudi Arabia, and their smartphone addiction rates were 16. 9%, 41.9% and 71.9%, respectively. The rate of smartphone addiction using different scales in the same area also varies greatly. Sanchez Martinez used a self-made scale to investigate the smartphone addiction rate of Spanish adolescents at 20%. Koo and Li Changho surveyed smartphone addiction among Korean adolescents at 4.1% and 35.2%, respectively. Xu Hui used MPAS to survey 493 high school students in Henan Province, China and found that 35.5% of them have a tendency to rely on smartphones. The mobile phone dependence rate of college students is about 15%. The "Smartphone Dependence Scale" has been compiled for the youth group in our country, but the application in our country has not yet been popularized. However, because the definition and diagnosis of smartphone addiction (or mobile phone dependence) are not uniform in many of the above-mentioned studies, and although the age of the survey population is adolescents, the age span is relatively large (about 10-25 years old), and the time of the research It has also spanned more than ten years, so the prevalence and temporal and spatial trends of smartphone addiction in the world still need to

be further researched.

2.2 Definition of mobile phone addiction

At present, the terminology used by researchers for "mobile phone addiction" is still not uniform. Such as mobile phone dependence, smartphone overuse, no mobile phone phobia, problematic smartphone use, smartphone use disorder, and smartphone addiction. Among them, some researchers regard excessive use of mobile phones or relying on smartphones as addiction (Bian & Leung, 2015). Although the terminology used for “mobile phone addiction” is inconsistent, these refer to the disorderly and dangerous use of the Internet or digital technology and are still not considered mental disorders (Stevanovic, 2020). Therefore, while acknowledging that overuse of technology may have many different manifestations and problems, we will use the term “smartphone addiction,” which is still a popular term in the existing literature. Regarding the concept of mobile phone addiction, many studies have used the component model of behavioural addiction. Specifically, Roberts, Yaya, and Manolis (2014) pointed out that when mobile phone use exceeds a “critical point”, mobile phone addiction occurs. At this critical point, individuals are no longer able to control their mobile phone use or the excessive negative consequences of use. It is also defined as excessive, unsuitable, problematic or pathological use of mobile phones, which interferes with the user's social functions. It also has characteristics such as difficulty in withdrawal, prominence, emotional regulation, desire, and loss of control (Lee et al., 2014). Mobile phone addiction is regarded as a behavioural pattern of compulsive use and problematic mobile phone use, unable to successfully regulate or control one's smartphone use, and experiencing bad withdrawal symptoms (Lin et al., 2016), which is regarded as a kind of A typical form of behavioural addiction.

Domestic scholars also define the concept of mobile phone addiction. Some experts and scholars believe that mobile phone addiction is a behaviour addiction (Xu Hua, Chen Yinghe, Lan Yanpeng, 2008). Han Dengliang and Qi Zhifei define mobile phone addiction as a condition in which individuals overuse mobile phones for some reason, leading to physical or psychological discomfort (Han Dengliang, Qi Zhifei, 2005). Sun Guoqing and others believe that the concept of mobile phone addiction can fully draw on Internet addiction, because a mobile phone network is a special form of the network, and smartphones are the carrier of the network, the two categories overlap (Sun Guoqing, Yu Yan, Luo Zhenli, 2011).

In conclusion, the use of smartphone addiction is defined as a new characteristic of behavioural addiction: Regarding the excessive use of smartphones and the difficulty of controlling oneself, to a certain extent, individuals ignore other areas of life and experience psychological and social problems, And even show differences in neural processes related to addiction (Horvath et al., 2020). Its characteristics are: first, the use of smartphones is out of control, such as the frequency of use is too high or the inability to control the behaviour of mobile phone use on important occasions (Lin et al., 2016); second, the psychological dependence on smartphones, which produces happiness during use, Relieve the feeling of pain and stress so that it is difficult to extricate themselves from indulging in the Internet world, neglect the reality, and have an adverse effect on oneself. (Choliz, 2010).

2.3 Causes of mobile phone addiction

2.3.1 Social cognitive theory

Chen et al. (2019) believe that in addition to explaining the reasons related to this harmful behaviour, the social cognitive theory (SCT) also helps to better understand information technology addiction. It explains that behaviour is reinforced by rewards and punishments. In the process of using the mobile phone, it brings satisfaction through a large number of attractive Internet services and applications, such as communication functions, competitive games, social platforms, and online entertainment. This enjoyable experience plays a motivating role and increases opportunities to form habitual or addictive behaviours. Whiting and Williams (2013) pointed out that media devices, such as smartphones, are used to selectively meet individual needs for social networking, information services, time-killing, entertainment, and relaxation. The portability of smartphones (such as portability, ease of use, multi-function, and personalization) is just conducive to meeting various personal needs. The immediacy and low-cost nature of meeting demand through smartphones has led to repeated use by people and ultimately led to problematic use of the phone itself (Ruggiero, 2000). As a result, we are more likely to repeat these behaviours in order to escape real life, and mobile phone use expectations may be positive (e.g., feel better emotionally) or negative (e.g., avoid pain), and if associated with such use Correlation with the expected effect will be enhanced, and this enhancement may lead to mobile phone addiction (Chen et al., 2019).

2.3.2 Compensatory Internet use theory

The Compensatory Internet Use Theory (CIUT) of Kardefel-winther and Daniel (2014) describes problematic Internet use as a compensatory behaviour rather than compulsive behaviour, which can be understood by the motivations of personal use, in other words, the purpose of the activity for personal service. Specifically, in terms of mobile phone use, the compensation model believes that network services can compensate individuals for negative emotions, and make individuals repeat and continue to use the Internet (Kardefelt-Winther & Daniel, 2014). For example, in social networking sites that provide social support (Facebook in Western countries and WeChat in China), especially in the context of Eastern culture, people need to perceive a sense of belonging and connection, love and care, and being loved and cared for by the environment. Increased the frequency and intensity of using mobile services (Dong, Wright, & Hu, 2018).

2.3.3 The three-path model by mobile phones use

Billieux et al. (2015) proposed a three-path model for problematic use, the excessive comfort approach, the comfort approach, and the impulsive approach. Two of these approaches, the over-comfort approach and the impulsive approach, describe emotional regulation challenges (ie, emotional instability) and poor impulse control (ie, lack of pre-planning, low self-control) as risk factors for mobile phone addiction patterns. In this study, we focused on the appeasement pathway, which seems to reflect specific aspects of adolescent behaviour. This pathway assumes that problematic mobile phone use is triggered by the need to obtain comfort from others in social and emotional relationships, and this usage pattern is assumed to be related to risk factors such as social anxiety, emotional instability, and low self-esteem. In this path, individuals tend to preferentially use applications such as instant messaging and social media (Billieux et al., 2015). In addition, in this theoretical path, Internet-enabled devices such as smartphones encourage inspection behaviour by providing a series of regularly updated and notified applications,

which leads to addiction in teenagers.

2.3.4 Motivation and Sensitivity Theory

Motivational Sensitivity Theory was originally used to describe substance abuse and it is considered to be one of the best explanations for addiction (Robinson & Berridge, 2008). In essence, this theory assumes that addiction is caused by constant changes in the brain system which cultivate people's psychological motivation for reward-related cues. Addicts show pathological symptoms because they almost "desperately" trying to approach reward prediction clues. Smartphones provide many functions that make users express unusual desires for these stimuli and become addicts (Holden, 2001). Although strong desire constitutes the traditional dimension of addiction, we believe that mobile social interaction is another characteristic dimension of smartphone addiction. Unlike substance addiction that hardly requires social participation, information technology addiction is often accompanied by a desire for interpersonal communication (Caplan, 2002). Many studies have shown that social interaction is one of the most important motivations for online use of information technology (Yang & Tung, 2007). In addition, research in the socio-technical environment found that users' social needs for belonging and interacting with others are the basis of technology addiction (James et al., 2017). The smartphone is a model of social technology, which makes it easy to communicate with others via e-mail, text messages, online chat and online social networks. We believe that people's growing preference for mobile social interaction reflects a core dimension of smartphone addiction.

2.4 The impact of smartphone use

With the attractiveness of smartphone functions and the convenience of use, people are becoming dependent on mobile phones and addicted. For the masses who use smartphones, a day without smartphones seems to be an incomplete day. It is this strong dependence on mobile phones that has led to many negative and positive effects of mobile phone use.

2.4.1 The positive effects of smartphone use

With the development of modern technology, mobile phones have gradually become people's daily necessities, and students cannot do without mobile phones in their daily studies and life. Mobile phones can provide students with a broad learning platform, massive learning resources, convenient lifestyles, and information-based working methods. On the online shopping platform, they can also easily buy goods from all over the country and even around the world; on the takeaway software, they can order takeaways from various stores in the city. The overlapping feature of mobile phone use time relatively prolongs the time that people actually have in a day, and to a certain extent, it is indeed convenient for people's lives. In conclusion, teenagers use their mobile phones to do some common activities such as socializing, entertainment (Westlund, 2010), and finding learning resources (Torbjoern et al., 2018). In this process, you can also expand your horizons, get information conveniently, release pressure and promote learning.

For COVID-19 in 2020, we have implemented a policy of "no suspension of classes". Analyze from the perspective of student learning. Students learn by using smartphones, which is beneficial for students to break the time and space constraints of autonomous learning; it is beneficial for students to conduct self-learning before class based on the theoretical knowledge of books and the knowledge content

preview materials and courseware provided by the instructor; It is helpful for students to repeatedly learn the video demonstration of the teacher; it is helpful for students to cultivate self-discipline in learning; it is helpful for students to give feedback on the classroom teaching situation of the teacher.

Analyze from the perspective of the teacher's teaching. By using smartphones, teachers help teachers break the traditional teaching concepts and teaching models to implement flipped classroom teaching; it helps teachers to grasp the classroom teaching situation at any time, and change teaching-oriented teaching to problem-solving; yes It helps teachers to improve and improve the places where students have low evaluations in a timely manner; it helps teachers use less time to solve common problems, set aside time for students to learn independently, and cultivate students' self-learning ability.

Analyze from the perspective of teaching and learning. Teachers use mobile phones for teaching, which helps schools to use mobile devices and network technology to serve education and teaching work; it helps to establish a reasonable and effective mobile interactive learning mode in teaching, and creates teacher-student interaction in teaching; it is beneficial to the school builds high-quality teaching resources; it is conducive to the school's sharing of teaching resources for courses through the smartphone networking function. (Fu, Chen, & Zheng, 2020).

2.4.2 Negative Effects of smartphone use

The entry of smartphones into daily life will not only lead to addiction to smartphones but also causes various problems in different areas. The problems generally include both physical and mental health. In terms of physiology and body, Ding and Li (2017) believe that excessive use of smartphones is an “increasing public health problem” that deserves serious attention. Others believe that living in this digital age is not good for health (Buctot, Kim, & Park, 2018). Fragmented videos and readings in the online world kidnap people’s time for leisure sports and physical exercise. As one of the most common negative effects of smartphone addiction, long-term attention to a sedentary lifestyle or lack of exercise on mobile phones brings many physical problems, including shoulder pain, headaches, visual disturbances and sleep disturbances caused by constant screen viewing. In the survey of adolescents all over the world, sleep disorders caused by mobile phone addiction have become a common problem and attracted great attention. In the Swedish survey of 4156 adolescents aged 20-24 years, Thomee et al. found that sleep disorders in adolescents increased with the increase in mobile phone addiction. A survey of 94777 adolescents in Japan shows that phone calls or text messages after lights out can reduce sleep time, reduce sleep quality, and cause insomnia, and are more prone to sleep during the day. In the survey of 1656 adolescents aged 13.7-16.9 years in Belgium, Bulck et al found that adolescents who use mobile phones from 00: 00 to 03: 00 after lights out will feel extremely tired by 3.9 times. A survey of 7292 adolescents in Finland shows that excessive use of mobile phones reduces sleep quality and increases daytime fatigue. Similarly, smartphone addiction can also affect a person's mental health and social life. A large number of studies have analyzed the impact of mobile phone addiction on adolescent mental health. The results show that the number of messages sent by adolescents per day is significantly positively correlated with their anxiety and depression levels. After a correlation analysis of the depression level and mobile phone addiction of 519 adolescents in the United States, Chen found that mobile phone addiction symptoms (attention dispersion, withdrawal response and avoidance response) are significantly positively correlated with depression levels. Similar results have been reported in other

studies, such as Thomee et al., Billieux et al., and Hassanzadeh and Rezaei also found that mobile phone addiction was significantly positively correlated with anxiety and depression. In addition, there are studies that mobile phone addiction can effectively predict the mental health of adolescents. Akashe et al. investigated the use of mobile phones and the mental health of 4156 college students in Shakher Kurdistan, Iraq. They found that the mental health of students in this school is not optimistic. The rate of mobile phone addiction is as high as 21.49 %, depression is 17.30 %, obsessive-compulsive disorder is 14.20 %, and interpersonal maladjustment is 13.8 %. Further analysis shows that mobile phone addiction can significantly predict students ' sleep disorders and depression. Mobile phone addiction is a risk factor for psychological problems. Individuals who are addicted to smartphones exhibit psychological consequences such as depression and anxiety (Bickham et al., 2015). In addition, due to the multi-functional use of smartphones and the abuse of social media, face-to-face interaction between people is decreasing, which causes many users not to socialize and leads to social phobia and social anxiety disorder among teenagers (Doğan & Tosun, 2016). For students, smartphone addiction has a negative impact on their communication skills, social life and academic performance (Cho & Lee, 2015).

Mobile phone addiction may lead to poor academic performance by distracting students ' attention, and the reason is related to the dual task effect. The dual-task effect refers to that it is difficult for students to deal with two different tasks at the same time. Students ' attention is limited, and focus is the key to learning content in the memory system. Only when attention is applied can students remember what they have learned. In the classroom, there are many kinds of information that can be perceived, such as the text of the slide, the light, the scenery outside the window, the voice of the teacher and the classmates, the taste of the table clothes, the fragrance of flowers and the touch on the stool. So much information and everyone can be perceived, but students can't remember everyone, they won't even notice sitting on the bench touch, won't remember the classroom light changes, of course, can't remember every teacher said. Students who listen carefully will remember the key knowledge because they are focused and the teacher has emphasized it in class. Attention plays an important role in learning. Therefore, during teaching, teachers need to try to make students focus on key knowledge, which can attract students ’ attention by strengthening tone, slightly exaggerated body movements and rich expressions. Moreover, the knowledge points presented at one time should not be too much, otherwise, it is difficult to remember. Of course, due to limited attention, teachers need to minimize the interference of other factors while attracting students ' attention, and mobile phones are one of them. In addition to strictly prohibiting the use of mobile phones in class, it should also be appropriate to limit the use of students during school learning, because playing mobile phones during class will let students still think about mobile phones, which will also distract attention.

2.5 Measurement of Mobile phone addiction

Based on the behavioural characteristics of mobile phone addiction, the Smartphone Addiction Scale (SAS) and its short version (SAS-SV), the Smartphone Addiction Scale (SPAI) and the Mobile Phone Addiction Propensity Index (MPAI) from different perspectives Measure mobile phone addiction. Although SAS and SPAI were developed in Asian countries, they have been used all over the world to measure smartphone addiction and have demonstrated good psychometric properties in different cultures (Lopez-Fernandez, 2017). In addition to SAS, SPAI and MPAI, two other scales have recently been

developed to assess specific aspects of human interaction with smartphones: "Young People's Attachment to Mobile Phone Scale" (YAPS) and the "No Phone Phobia Questionnaire" (NMP-Q). Both of these scales measure the degree of attachment to smartphones from different angles. Similarly, they use an addiction-oriented method.

Domestic scholars have also developed a questionnaire to measure mobile phone addiction according to the corresponding research. The mobile phone dependence scale for college students was developed by Xu. (2008). The measurement results of this scale have significant differences in different personality and social conditions, which are consistent with the results of foreign studies. However, due to the insufficient number of items, the reliability of the scale is not high. Xiong Jie. (2012) first used interviews to understand the problems of college students in the use of mobile phones, and combined with Yong's theory, developed the Mobile Phone Addiction Tendency Scale (MPATS). The retest reliability of the scale is good, but the internal consistency coefficient of mood change is low.

2.6The connection and difference between mobile phone addiction and internet addiction

Both Internet addiction and smartphone addiction are based on the use of Internet technology. In previous studies, Internet addiction has also been the focus of technology addiction research (Stavropoulosetal., 2017). However, the portability and universality of smartphones make their use different from traditional computers or laptops to surf the Internet. Because smartphones allow users to continuously surf the Internet without being restricted by time and space, smartphone addiction may replace the Internet as a possible source of addiction (Barnes, Pressey, & Scornavacca, 2019), so it is still necessary to distinguish "smartphones" Addiction" and "Internet addiction". The main link between the two lies in Internet addiction refers to the compulsive tendency and continuous desire of individuals to use the Internet. Another form of Internet addiction behaviour, smartphone addiction is defined as an individual's habitual impulse to continue using smartphones regardless of the negative effects on their own health (Roberts, Yaya, & Manolis, 2014). With the continuous development of smartphones, most of the activities that people traditionally perform on computers can now be performed on smartphones. In addition, because the main feature of smartphones is the use of Internet-based applications, smartphone addiction can be seen as a variant of Internet addiction. They have common pathological manifestations, such as tolerance, withdrawal symptoms, and decreased interest in other activities (Wanetal., 2020). It should also be noted that many researchers define smartphone addiction as a specific Internet addiction (Billieuxetal., 2015), and point out that Internet addiction is positively correlated with smartphone addiction. Studies have also shown that excessive use of smartphone applications (such as social media applications) can predict Internet addiction (Salehan & Negahban, 2013). Although the two are closely related, there are also differences in the definition of the concept: First, Internet addiction has been included in the "Diagnostic and Statistical Manual of Mental Disorders" (DSM-5) in the compulsive-impulsive spectrum disorder, Internet gaming disorder (American Psychiatric Association, 2013). Smartphone addiction is not included in the diagnosis of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). However, more and more studies on this issue have confirmed that the use of smartphones is associated with certain addiction characteristics, similar to the symptoms of substance use disorders (Jocelyne, Doris, & Naoyuki, 2017). Second, the content of mobile phone addiction is integrated. Internet addiction has various types of addictions such as game addiction and social addiction that meet certain specific types of needs. However, the category characteristics of

mobile phone addiction are not obvious (Liu Qinxue et al., 2017). Third, mobile phone addiction is more likely. The smartphone is known as a combination of a handheld phone and a computer. The most important advantage is its accessibility when on the move (Nielsen & Fjuk, 2010), which brings the opportunity to experience "anytime, anywhere". Thousands of downloadable "applications", each application has a unique purpose to meet the various needs of different people, which undoubtedly increases the probability of mobile phone addiction.

3. Literature Review on the Meaning of Life

3.1 The definition of the meaning of life

Since Frankl (1959) first wrote about the core role that the meaning of life plays in human existence, the sense of the meaning of life has always been an issue of interest to psychologists, and it is also a core principle of positive psychology. People define the meaning of life in many ways, from cognitive systems that give personal meaning (Wong, 1989) to motivational systems that support the pursuit of meaningful goals (Emmons, 2005). Until Steger et al. (2006) proposed that the meaning of life (MIL) is defined as the extent to which people discover the meaning and meaning of life and the extent to which they recognize and pursue overall goals. Wong (1989) believes that the three components of meaning are related to cognition, motivation and emotional content: (1) a cognitive component-thinking and interpretation of daily life events and experiences; (2) a motivating factor- determining and pursuing personal goals; (3) Emotional component-personal feelings about whether life is worth living. Emmons (2005) pointed out that goals are the basis of meaning construction. Recording the pursuit of important personal goals is helpful to the construction of positive experiences and meaning in life. Steger et al. (2006) combined the cognition and motivational dimension of the life meaning conceptual model and defined it as "the meaning constituted by the essence of a person's existence and existence and the meaning they feel". According to the degree to which people experience and search for the meaning of life, the meaning of life can be divided into two dimensions: the existence of meaning (POM), the individual’s perception of the meaning and meaning of their own life; the search for meaning (SFM), people’s pursuit of the meaning of life degree. Steger et al. (2006) demonstrated that the "search for meaning" and "the existence of meaning" exist as two distinct dimensions in the structure of the "meaning of life". The existence of meaning makes people tend to experience their lives as understandable and meaningful and feel a sense of purpose or mission in their daily efforts. Searching for meaning represents the dynamic and active effort a person makes when trying to understand the meaning and purpose of life. In short, some important features of life meaning can be summarized as follows: life meaning can be divided into different levels; the meaning of life is constructed by individuals and varies from person to person; the meaning of life has cognitive, emotional and motivational factors. Based on previous studies, this study argues that the sense of meaning of life is the individual's perception of their own existence, and take action to pursue life goals and value of life.

In the vision of Steger et al. (2009), meaning includes two key components-understanding and purpose. Understanding is related to the meaning of life and purpose is related to completing the general life mission. Most of the conceptualization of meaning revolves around having a clear understanding of one's life and a sense of purpose (Steger, Oishi, & Kashdan, 2009). "Sense of life" is an umbrella term that encompasses many narrower concepts (for example, only referring to the purpose of life). Although

there are countless definitions of the meaning of life. What we are interested in is the commonality between these views, that is the extent to which a person feels that his life is meaningful and that his life is purposeful (Heintzelman & King, 2014). In this research, the meaning of life refers to the belief that one's life is valuable, meaningful, or purposeful.

3.2 The Source of the Meaning of Life

The meaning of life can have different sources. These meaning sources may have significant differences between individuals, times and cultures, and function as tools for adapting or controlling the world, self-regulation and belonging (Baumeister, 1991). Meaning is a subjective, constructivist construction that develops in the dynamic exchange between individuals and their environment (Steger et al., 2006). In other words, meaning is understood not only as quantity but also as quality. It is important to study the qualitative sources of meaning to determine how people experience and express meaning. Since the 1970s, some studies have investigated the sources of meaningful life (Schnell, & Tatjana, 2009). In all studies, regardless of the interviewee's culture, gender, or age, interpersonal relationship is the most consistent and compelling source of meaning. From first grade to 91 years old (Edward & Prager, 1996), from psychiatric patients to non-psychiatric patients (Debats, 1999), the vast majority of people pay tribute to the relationship and believe that it is essential for them to construct meaning for themselves. As a social process, the creation of meaning incorporates cultural nuances. The source of meaning includes life's career (Debats, 1999), personal growth (Edward & Prager, 1996), service, happiness, beliefs and gains in life, including material pursuits, respect and responsibility (Ebersole & DePaola, 1987). Research on the source of meaning shows that family relationship is the most valued aspect of meaning (O'Connor & Chamberlain, 1996). In a series of studies specifically aimed at young people, Lambert et al. (2010) found that family relationship is an important source of meaning in the lives of many young Americans. The family is usually an important source of meaning in life (Schnell & Tatjana, 2009). In addition, achievement/work, relationship/intimacy, religion/spirituality, and self-transcendence/generation are the four most common sources of meaning in life (Emmons, 2005).

3.3 The Role of the Meaning of Life

The meaning of life is the core of the successful operation of human beings and is related to active physical and mental health (O'Connor & Chamberlain, 1996). The sense of meaning in life is considered to be the basic resource for the positive development of adolescents (Brouzos, Vassilopoulos, & Boumpouli, 2016). It is related to positive emotions (Steger et al., 2006), subjective well-being (Doğan et al., 2012) and perceived Social support (Dunn & Obrien, 2009) is related. The connection between the meaning of life and life satisfaction has been found in people from different countries, including Filipino teenagers (Datu & Jose Mateo, 2015) and Latin teenagers (Vela et al., 2016). Among college students, a high level of life satisfaction is also accompanied by a higher sense of meaning in life (Kresset al., 2015). The sense of meaning in life is also an indicator of happiness (Steger et al., 2006) and a promoter of adaptive coping (Park & Folkman, 1997). The lack of meaning will lead to lower self-consistency and consistency, which usually manifests itself in processing a Lack of flexibility in daily events (such as failure, social injustice, and material loss), and more frequent self-conflict. Similarly, research also shows that in addition to good connections with mental health, people who experience a lot of meaning will

participate more frequently in health-promoting behaviours, which brings physical health (Homan & Boyatzis, 2010) and promotes long-term professional development. (Kosine, Steger, & Duncan, 2008).

3.4 Measurement of the Meaning of Life

There are many ways to conceptualize and measure the meaning of life, but they generally refer to people's coherent understanding of self and life experience and the possession of lifelong goals (Steger, Oishi, & Kashdan, 2009). Common measurement methods are the Life Purpose Test (PIL) (Crumbaugh & Maholick, 1964), Life Index (LRI) (Battista & Almond, 1973) and Meaning of Life Questionnaire (MLQ). Among them, the Meaning of Life questionnaire compiled by Steger et al. is the most widely used. Both the Life Purpose Test and the Life Index Test were developed after Frank proposed the concept of the meaning of life. Life purpose measures the existence of purpose and sense of meaning in an individual's life. The life index scale measures the extent of the existence of an individual's life purpose and the ability to find this sense of value and purpose. The Meaning of Life questionnaire is a test in which Steger et al. (2006) regard the two dimensions of meaning existence and search for meaning as independent parts. The questionnaire has good reliability and validity after measurement.

Chinese scholars have developed relevant scales for different characteristics of the population. Sheng (2007) compiled the Meaning of Life questionnaire for college students, which takes into account the influence of interpersonal relationships and family atmosphere on the meaning of life. Liu Lijun (2009), according to the characteristics of middle school students ' physical and mental development, compiled a questionnaire of middle school students ' personal meaning of life and supplemented the measurement tools of the domestic meaning of life. Xu Li (2012) in view of the lack of domestic research on the meaning of life for the elderly, compiled the meaning of life questionnaire for the elderly.

4. The relationship between the meaning of life and mobile phone addiction

In recent years, with the gradual in-depth study of addiction in academic circles, it has been proved that there is a close relationship between the sense of the meaning of life and the tendency or behaviour of addiction. A strong sense of meaning reduces the likelihood of smoking addiction (Steger et al., 2009). The sense of the meaning of life is negatively related to negative behaviours such as Internet addiction (Zhang et al., 2015) and alcoholism (Thurang & Tops, 2012).

Secondly, in terms of the function of the existence of meaning of life, individuals with a high meaning of life have a clear sense of purpose and are less addicted (Doğan et al., 2012). People with a high sense of life tend to live in harmony with their values or goals. In other words, those who have no meaning in their lives may think that life is meaningless, purposeless, and unplanned. A high sense of meaning in life is often associated with a higher level of belief in achieving life goals (Karaman, Cavazos, & Garcia, 2020). In addition, people with high life meaning will have more positive emotions (Steger et al., 2006) and thus less need to find happiness in the world of mobile phones. Conversely, individuals who lack a sense of meaning will be more empty and bored (Ge Xuhua, 2016; Melton & Schulenberg, 2007), and they need to use mobile phones to fill these gaps. Loneliness (Phu & Gow, 2019), anxiety (Lepp, Barkley, & Karpinski, 2014) and boredom (Tong Yuantian, Lian Shuilei, Sun Xiaojun, 2019) have also been shown to be positively correlated with mobile phone addiction.

In addition, subjective well-being is important in dealing with negative emotions (Doğan et al., 2012). Studies have shown that the meaning of life and subjective well-being (Doğan et al., 2012) is positively

correlated with positive emotions (Hicks & King, 2007), and the relationship between the meaning of life and well-being is stable across time (Steger, Oishi, & Kashdan, 2009). Negative emotions such as depression and stress (Kim & Koh, 2018) are often related to mobile phone addiction. Research has proved the relationship between the meaning of life and psychological problems, as well as the relationship between psychological problems and mobile phone addiction (Maryam Hedayati & Mahmoud Khazaei, 2014).

Numerous studies have shown that the meaning of life is related to life satisfaction and subjective well-being (Doğan et al., 2012), as well as happiness and optimism (Steger et al., 2006). These are all positive indicators of adolescents' optimal mental function and are conducive to their mental health and personal growth. Therefore, in the development of adolescents, the necessary positive psychological resource (Schnell & Krampe, 2020), a sense of meaning in life, is a protective factor for maintaining and enhancing health and also plays an important role in reducing adolescents' mobile phone addiction. Ryff (1989) believes that the meaning of life is composed of "goals, intentions and sense of direction, all of which make people feel that life is meaningful." For adolescents, the purpose of life can provide an organizational framework for experiences in daily life, linking current activities with future visions (Sonia et al., 2011). There is motivation if there is a goal. The existence of a sense of meaning in life avoids the sense of boredom and directionlessness and guides young people to work towards a beautiful vision. Therefore, teenagers with a high sense of life have relatively avoided using the world on mobile phones to solve the dilemma of emptiness and boredom, reducing the probability of mobile phone addiction.

In summary, individuals with a high sense of life are less likely to become addicted to mobile phones. The sense of meaning of life is a positive factor in preventing adolescents from mobile phone addiction. Having the meaning of life is very important for a person to be attached to life, achieve the purpose of life, and avoid certain negative behaviours and tendencies by paying attention to the purpose of life (Evik, Cierci & Uyar, 2020). Therefore, it can be inferred that there is a negative correlation between a high sense of life meaning and mobile phone addiction. By improving the degree of adolescents' positive sense of life, the possibility of adolescents' mobile phone addiction can be reduced.

5. Countermeasures for college students ' mobile phone addiction

5.1 Improving The Students ' Life Meaning

Frankel proposed meaning therapy for era hollow disease, helping people find and discover the meaning of life. He thinks there are three ways to get the meaning of life. First, complete a certain effect of behaviour, through creative value to obtain the meaning of life. Such as work (doing meaningful things), hobbies of certain activities. Work is an important way to discover the meaning of life. Work enables people to realize their creative value, but simple, repetitive and mechanical work is not enough. People should also understand and understand the meaning and motivation behind work so as to truly discover the meaning of life. For example, students can choose to join student organizations such as sub-committees, student unions and associations or serve as student cadres in class, exercise themselves in campus activities, complete the work of school and teacher presentations, and realize personal value to discover the meaning of life. Second, experience. The significance of life is found by virtue of good experiences such as kinship, love, friendship, meditation, and appreciation of nature and art. For example, students should learn the correct art of interpersonal communication, make real friends, and experience

the warmth of friendship to discover and obtain the meaning of life. Third, after suffering, everyone will encounter suffering, and everyone has a miserable scripture. The key is the attitude towards unavoidable suffering, and the meaning of life can be found through this attitude value. Frankel believes that when people encounter suffering, how to face suffering is very important. Through this kind of attitude value, one obtains a new understanding, realizes the growth the misery brings, realizes life's real intrinsic sublimation, and discovers life significance. Schools can offer lectures and theme class meetings on the meaning behind suffering, and encourage students to read celebrity biographies and watch inspirational films to enhance their sense of life significance.

5.2 Improving The Students' Self - control Ability

The self-control intervention model proposed by Ronen and Rosenbaum is to teach children the skills of self-control and the methods of self-help so that their independent function can be played. Mental health educators can use this model to improve students ' self-control ability through individual psychological counselling or group counselling. This model includes four independent units: first, cognitive reconstruction. Let students think about the reasons for their mobile phone addiction and help students establish positive attributions, and let them understand that people's behaviour can be changed, and the key to this change is their own. Second, problem analysis. Training students to observe the relationship between body and mind and problematic behaviours. Let students think about the relationship among ideas, emotions and behaviours when they use mobile phones. Third, selective focus. Through self-monitoring learning, monitor the use of mobile phone awareness, and identify internal clues. And through daily use of mobile phone self-monitoring exercises, improve the level of self-monitoring. Fourth, self-control exercises. Combining delay of gratification and self-reward, helps students to improve self-control, and can find a reasonable way to control the impulse to use mobile phones.

5.3 Emphasis on positive psychology

Positive psychology attaches great importance to the study of human positive quality, fully tapping the individual’s own existing, potential and constructive power, promoting the harmonious development of individual and society, make human happiness. Positive psychology has three pillars, namely, positive psychological quality, positive emotions and positive social relations. Therefore, school mental health education can start from these three aspects. First, cultivate school students ' positive psychological qualities. Counsellor teachers guide students to identify and discover their own positive psychological qualities through various ways, make full use of positive psychological qualities to overcome their own psychological problems, and then turn them into positive coping styles. Second, let students experience more positive emotions. Schools should adopt various channels to increase students ’ positive emotional experiences. For example, the use of experiential mental health education classroom teaching, guide students to experience positive emotions, teach students to stimulate positive emotions, and understand the progress of positive emotions to their own, and then learn to stimulate positive emotions skills to migrate to students ' other learning and life. Third, pay attention to establishing a positive social support system for students. Colleges and universities can establish a dormitory-class-college-school four-level linkage psychological work network to form a social support system for students ' mental health and provide all-around support and services for students ' mental health. When students encounter

psychological problems, dormitory roommates, classmates, head teachers, counsellors and psychological teachers constitute an effective social support system to help and support students.

5.4 Vigorously promote the form of group counselling intervention

Compared with individual counselling, group counselling is an economical and efficient form of mental health education with less time-consuming, quick effects. Improving college students ' mobile phone addiction is a very effective form of psychological counselling. First, group assistance helps individual exploration and self-growth. Group Auxiliary provides members with a good place for social activities, creating a warm, trusting, safe, supportive atmosphere and situation, conducive to cultivating members to establish a positive attitude towards their career, and more mature to accept challenges. Second, develop good adaptive behaviour and interpersonal relationships. In the group, members provide behaviour demonstrations to each other. They can learn through group experience, experience how interpersonal relationships are formed, and then develop good behaviour and establish good interpersonal relationships. Third, help to experience mutual assistance and mutual benefit. In group assistants, members share difficulties and help each other. Each member will find himself important to others when helping others. This experience makes people feel the value of their existence, obtain a sense of joy and satisfaction, and further enhance self-confidence. Fourth, multiple values and information exchange. In group assistants, information and data sharing is a very important part. Not only are team leaders transmitting information to members but also among members. Especially for college students group counselling, members can also share learning experiences, employment information and so on. They have different backgrounds and experiences, and they have different views and opinions on the issue. Therefore, colleges and universities can carry out group counselling such as meaning therapy, self-control, self-growth and other topics to effectively help students reduce mobile phone addiction.

Therefore, in our daily education and management of young students, we should pay attention to taking corresponding measures to improve students ' sense of the meaning of life, correctly guide students to seek the meaning of life, and constantly improve students' subjective well-being, which can effectively reduce mobile phone dependence.

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