

ALWAYS CONNECTED AND STILL LONELY: LINKING WECHAT  
USE TO WELLBEING AND MENTAL HEALTH

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### ***INTRODUCTION AND JUSTIFICATION OF THE TOPIC OF STUDY:***

Technology development is a priority in China's modernization. Internet coverage and usage in China have expanded rapidly over the last two decades. As of December 2020, Chinese Internet users have reached 989 million, and the Internet penetration rate has reached 70.4%. Among them, the proportion of users using mobile phones to access the Internet is as high as 99.7% (CNNIC, 2021). It can be seen that China's Internet develop rapidly, and in this process, social media has gradually become an indispensable part of people's daily lives. WeChat was first released by the Chinese multinational company Tencent Holding Limited in January 2011. The number of monthly active users of this software has reached 1.213 billion, and WeChat has become the APP software with the largest number of users in China (Tencent, 2021). At the same time, WeChat has become the sixth-largest social software in the world, with 1213 million actives in 2021 (Statista, 2021). We can see from that WeChat is becoming pretty popular around the world, and this software has increasingly become one of the indispensable social software for people.

WeChat presents a multipurpose smartphone application, going beyond the features offered by its counterpart WhatsApp popular in Western countries (Montag et al., 2018). In terms of basic functions, WeChat's functions are similar to WhatsApp, which can be connected with others or groups through text, emoji, voice, or video online. At the same time, WeChat also provides a platform for people to show themselves, such as publishing and sharing personal information in the function of *Moments* through text, pictures, and videos. WeChat users also can get feedback in their interactions with others. For example, the information posted in the *Moments* will get likes or comments from others. In addition, WeChat can make friends with strangers through some functions, such as *shake* or *people nearby*, and then can realize the elastic social network, so that people can socialize with others based on the same time, the same space, and the same Interest topics to socialize (Zhan and Yan, 2013). It can be said that WeChat has both the basic function of contacting acquaintances and the extended one of chatting with strangers and making friends in terms of social functions.

Secondly, it is worth mentioning that, as stated in its slogan "WeChat is a way of life", WeChat is not only a social software for online communication, but also a platform for obtaining various information channels. WeChat is a cross-platform communication application combining popular features of Facebook and WhatsApp (Wu, 2014). The function of the *WeChat Public Account* enables users to get any kind of information when they follow a distinct public account. In fact, increasingly organizations, e.g., enterprises, and governments, have utilized a *WeChat Public Account* as a channel to transmit information to specific users and interact with them. Users can follow the latest information by subscribing to the public platforms they are interested in. In recent years, with the rapid development of short videos, WeChat has also added the function of *Channels*, which expands new forms of presentation in obtaining information. Audiences can learn about the information they are interested

in and what their friends are concerned about through *Channels*. On the whole, WeChat not only has the basic function of interpersonal social interaction, but continues to integrate various new functions.

A large number of users have been attracted by feature-rich WeChat. This App sent more than 45 billion messages every day in 2018 (Tencent, 2018). Through the huge numbers, we can also find that users' WeChat social behaviors are becoming dependent and frequent. The Internet may have an impact on people's cognition and thinking, and excessive use may bring negative emotional experience to users. Firstly, the Internet affects people's cognitive processes. Network users' sense of time, sense of space, perception of reality and sense of self change in the network (Morahan, 2000). Secondly, the network affects people's behavior process. The cognitive-behavioral model of pathological Internet use provides an explanation: Internet abuse leads to pathological behavior in real life (Li, et al, 2001). As one of the most commonly used social software in China, it is important to study the use of WeChat users and one of the important tasks is to explore the psychological factors behind it. Therefore, it is important to study users' mobile Internet use and one of the important tasks is to explore the social and psychological factors behind it. Loneliness is considered as one of the most important predictors of internet addiction (Baumeister et al., 2005; Wang, 2006; Bozoglan et al., 2013). Among these factors, loneliness is a pretty important factor. People often feel lonely when their interpersonal relationship status cannot meet their needs (Russell et al, 1980). People originally want to be able to contact others more conveniently when they use WeChat, but excessive use will also deprive the space to interact with others (Yan, 2017), resulting in a sense of alienation and loneliness.

### ***WORKING HYPOTHESIS AND PRINCIPAL OBJECTIVES SOUGHT:***

#### **1. The motivation of users using WeChat under the theoretical framework of use and satisfaction**

Uses and gratifications theory is one of the classical theories of communication (Katz; Blumer; Gurevitch, 1973). It focuses on why people choose one media over alternatives to gratify a variety of needs (Katz *et al.*, 1974). The uses and gratifications theory approach provides a user-centered view to identify the social and psychological motives that drive individuals' use of a particular media (Leung and Wei, 2000). According to the uses and gratifications theory, people are active and can meet their requirements to use some particular media based on their needs. For example, through 25 in-depth interviews, Whiting and Williams (2013) identified ten types of gratifications for using social media, that is, social interaction, information seeking, pass time, entertainment, relaxation, communicatory utility, convenience utility, expression of opinion, information sharing and surveillance/knowledge about others. However, audiences differ in the gratifications that they seek from the media. For example, individuals with specific psychological characteristics, such as a high level of loneliness, could seek different gratifications from the media compared with

people who do not have to cope with feelings of loneliness. These different gratifications, in turn, are believed to differently affect individuals' media use. To determine lonely people's use of media, we, thus, need to identify their individual needs (Frison & Eggermont, 2020).

RQ1: What are people's motivations for using WeChat?

## **2. The relationship between the use of WeChat and loneliness**

Research on social media use and people's psychological barriers has become a research hotspot in recent years. Spurred by the Internet paradox (Kraut, et al., 1998), one of the most influential studies in Internet research, many researchers have investigated whether Internet use is detrimental or beneficial. From three different hypotheses about the effects of Internet use on subjective well-being. Firstly, a complementary approach (Huang, 2010; Kraut et al., 1998) states a displacement hypothesis where intensive internet use for communication displaces face-to-face interaction and provokes negative outcomes, because it enhances social isolation, and decreases opportunities for social support and integration. Second, the second hypothesis of replacement hypothesis is just the opposite, suggest that for people with limited social skills in face-to-face interaction and/or living in a socially limited environment (e.g., migrants living abroad or people distant from relatives and friends), internet use can replace face-to-face social support and facilitate well-being. The last one hold that internet use for communication complements existing social interaction and amplifies their effects, both in terms of positive and negative outcomes (Huang, 2012). Based on three different hypotheses, this paper designed a longitudinal survey to analyze the relationship between WeChat use and loneliness.

RQ2: What is the relationship between WeChat use and loneliness? Is there a difference in the relationship between using Facebook and loneliness?

## **3. The relationship between the use of WeChat different functions and loneliness**

One of the most commonly used functions of WeChat is the instant messaging. Users can socialize online by adding the phone number of their friends in the address book. Thus, users mainly socialize with acquaintances in WeChat. Wang and Zhu(2014) explain that the essence of WeChat communication is interpersonal communication, because it not only has the characteristics of traditional interpersonal communication, but continues the basic functions to transmit text, pictures, and other information.

There is a two-way relationship between loneliness/social support and SNS use. Lonely people are attracted to use SNS to reduce loneliness or gain support. Also, it has been found that excessive use of SNS can increase loneliness (van den Eijnden et al., 2008). One study has explained that if the increased Internet use enables individuals to manage time more effectively and create a network of relationships, it will increase the individual's perceived social support, thereby helping to reduce stress and reduce loneliness (Wellman & Haythornthwaite, 2002). If people use the

Internet too much and have less exposure to real human relationships, the longer the online time, the stronger the sense of loneliness (Nie & Hillygus, 2002).

RQ3: Under the influence of social support, what is the causal relationship between users and loneliness when they use WeChat for instant communication?

As mentioned before, *Moments* is also one of the basic functions, and users can present themselves. Compared with other social platforms, *Moments* have stronger management and control functions such as blocking, setting group visibility, and setting visibility for three days. These functions allow users to more actively manage their own presentation image. In existing research, researchers found that young adults present a variety of self-images on social networking sites, and suggest that the self-identity of young people is related to their self-presentation on social networking sites (Michikyan et al., 2015). In the self-presentation of *Moments*, Li (2017) divided the self-presentation strategies of WeChat Moments into self-censorship, audience isolation, and disappearance. Thus, users will choose their own *backstage image* to show them in the *frontstage image* of *Moments* when they present themselves. Tan (2017) further found that self-disclosure in *Moments* was significantly positively related to emotional status and loneliness.

RQ4: When users show themselves in WeChat Moments, do users with different loneliness have different levels of self-disclosure? What kind of presentation strategies will users use under the different exposure levels?

In addition, users can socialize with strangers by *Shaking* or *People Nearby*. Due to the existence of anonymity conditions, this function allows users to reveal themselves more truthfully, which leads to the fifth research question:

RQ5: Is there a difference between the degree of user self-reveal and the loneliness of self-revealing to acquaintances/friends when using the function of *Shaking* or *People Nearby*?

#### **4. The impact of moderating variables on the use of WeChat and loneliness.**

When examining the influence of WeChat use on loneliness, the user's personal characteristics should also be considered. We need to consider the impact of demographic variables such as the user's age, gender. The study of Li et al. (2019) found that compared with men, women use more online social media and use social skills to construct and maintain online social networks to meet their belonging needs and increase life satisfaction.

In addition, personality factors also need to be taken into consideration. A number of personality traits appear to be associated with the use of SNSs. The Big-Five personality test consists of five factors: neuroticism, extraversion, openness, agreeableness, and conscientiousness (McCrae and John, 1992).

RQ6: In terms of the relationship between loneliness and WeChat use, what are the different results for users of different genders, ages, and personalities?

***METHODOLOGY TO BE USED (PROVIDE CONSENT FORMS/REPORTS/PROTOCOLS GUARANTEEING***

## ***BIOETHICS/BIOSECURITY IF REQUIERED BY THE TYPE OF EXPERIMENTATION)***

### **1. Design**

This study uses two methods to distribute questionnaires. On the one hand, an online questionnaire created using ‘Qualtrics’ was distributed to participants. On the other hand, questionnaire data were collected face to face, mainly in Beijing, China. This study is expected to collect a total of 1000-1200 valid questionnaires.

Secondly, some of the projects in this study will be studied through longitudinal surveys and distributed through questionnaires. The time interval between the two questionnaires will be about 6 months, and the questionnaires will be mainly distributed in universities in Beijing, China. This project is expected to collect about 600 valid questionnaires.

All participants gave consent to participate in the study will closely followed. Each participant will give a gift or red envelope of no more than 10 RMB to encourage them to participate in the study. All participants will obtain relevant written informed consent.

### **2. Measures**

The variables measured in this study involve loneliness, social support, social interaction, WeChat usage habits, Big Five personality traits, and demographic variables.

#### **2.1 UCLA Loneliness Scale**

The UCLA Loneliness Scale (Russell, Peplau, & Ferguson, 1978) included 20 items (e.g. Do you always feel part of a group of friends?) and participants were required to rate the items as either “I often feel this way”, “I sometimes feel this way”, “I rarely feel this way” or “I never feel this way”.

#### **2.2 Social Interaction Scale (SIS)**

Social Interaction Scale developed by Yan (2011). The Social Interaction Scale contains 24 questions divided into two parts namely- Real Life Scale (14 items) and Online Scale (10 items). In our study, we only used the Real Life Scale to measure interpersonal communication with classmates, friends, parents, and other people in real life. The items are rated on a 4-point Likert scale from “1 = never” to “4 = always.”

#### **2.3 WeChat Excessive Use Scale (WEUS)**

The scale was developed to assess excessive use of WeChat (Hou et al., 2017). It includes items such as “I check my WeChat before something else that I need to do,” “I have used WeChat to relieve of loneliness and stress,” and “There are times when I would rather play on WeChat than go out with my friends.” The scale is scored on a Likert-type scale ranging from 1 (never) to 5 (always).

#### **2.4 Big Five Personality Questionnaire**

The author will use a 60-item personality questionnaire developed by Leung (2011) to assess five different personalities, namely, Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. Each factor featured 12 items rated

on 5-point scale ranging from strongly disagree to strongly agree (McCrae and Costa, 1991).

#### 2.5 Social Support Scale

Interpersonal Support/Social Support Scale include a 12-item measure of perceptions of social support. This measure is a short version of the original ISEL (40 items; Cohen and Hoberman, 1983). Items are rated on a 4-point scale ranging from “definitely true” to “definitely false.”

#### 2.6 Demographic information

Data collected included age, gender, student or non-student and work status (part-time, full-time or unemployed).

### 3. Statistics

The researcher mainly uses IBM SPSS Statistics 25 (Statistical Product and Service Solutions) for data analysis. The author will screen the collected first-hand data, and then perform descriptive statistical analysis, factor analysis, correlation analysis, regression analysis, and other methods for analysis.

### 4. Ethics and guidance

The distribution of the questionnaire will strictly comply with the approval of the relevant ethics committee. This research will strictly abide by BERA’s ethics and guidance documents, and all participants will agree to participate in this research.

#### ***MATERIAL MEANS AND RESOURCES AVAILABLE:***

This work is developed in the PhD program: Education in the Knowledge Society (García-Peñalvo, 2014), being its portal, accessible from <http://knowledgesociety.usal.es>, the main tool of communication and visibility of the advances (García-Holgado et al., 2015). It will include all the publications, stays and attendance at conferences during the course of the work.

The author will obtain English papers related to this research, e.g. social media, online interpersonal communication, loneliness from the USAL library, and fully read some social media-related papers and books written by my tutor, Professor Igartua. Secondly, I will also learn about relevant Chinese literature from the Chinese CNKI database. In addition, I will also read paper books or e-books to fully understand the content related to this research, such as use and satisfaction, group loneliness, self-representation in the media, research methods, etc. Last but not the least, I can also make full use of OCA's resources (<http://www.ocausal.es/en/>) by learning and using tools such as Qualtrics and SPSS to help me better complete this thesis.

#### ***TIMING SCHEDULE OVER THREE YEARS / FIVE YEARS (Part time)***

2020.10-2021.03 Thinking about the topic of the doctoral dissertation, reading books and papers related to the topic.

2021.03-2021.06 Organize literature reviews, refine research hypotheses, and learn to consolidate SPSS knowledge.

2021.06-2021.09	Read extensively books/papers and other materials related to graduation thesis, write a literature review, compile and modify audience survey questionnaires.
2021.09-2021.11	Submit the questionnaire and improve the content of the question
2021.11-2022.01	Distribute audience survey questionnaires and collect data.
2022.01-2022.03	Read literature and books, organize and process data samples
2022.03-2022.06	Write some chapters of the doctoral dissertation and modify the content
2022.06-2022.09	Develop and improve new questionnaire questions
2022.09-2022.12	Issue questionnaires and process data samples
2022.12-2023.03	Write the relevant chapters of the doctoral dissertation
2023.03-2023.06	Revise and improve the details of the doctoral dissertation

## **REFERENCES**

- Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social Exclusion Impairs Self-Regulation. *Journal of Personality and Social Psychology*, 88(4), 589–604. <https://doi.org/10.1037/0022-3514.88.4.589>
- Blumler, J., & Katz, E. (1974). The uses of mass communications : current perspectives on gratifications research. *Sage Publications*.
- Bozoglan, B., Demirer, V., Sahin, I. (2013). Loneliness, self-esteem, and life satisfaction as predictors of internet addiction: a cross-sectional study among turkish university students. *Scand. J. Psychol.* 54, 313–319. <https://doi.org/10.1111/sjop.12049>
- Butt, S., & Phillips, J. (2008). Personality and self reported mobile phone use. *Computers in Human Behavior*, 24(2), 346–360. <https://doi.org/10.1016/j.chb.2007.01.019>
- CNNIC.(2021).The 47<sup>th</sup> China statistical report on the Internet development. <http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/hlwtjbg/202102/P020210203334633480104.pdf>
- Cohen, S., & Hoberman, H. (1983). Positive Events and Social Supports as Buffers of Life Change Stress. *Journal of Applied Social Psychology*, 13(2), 99–125. <https://doi.org/10.1111/j.1559-1816.1983.tb02325.x>
- Frison, E., & Eggermont, S. (2020). Toward an Integrated and Differential Approach to the Relationships Between Loneliness, Different Types of Facebook Use, and Adolescents' Depressed Mood. *Communication Research*, 47(5), 701–728. <https://doi.org/10.1177/0093650215617506>
- Gan, C., & Wang, W. (2015). Uses and gratifications of social media: a comparison of microblog and WeChat. *Journal of Systems and Information Technology*, 17(4), 351–363. <https://doi.org/10.1108/JSIT-06-2015-0052>
- García-Holgado, A., García-Peñalvo, F. J., & Rodríguez-Conde, M. J. (2015). Definition of a technological ecosystem for scientific knowledge management in



- a PhD Programme. In G. R. Alves & M. C. Felgueiras (Eds.), Proceedings of the Third International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'15) (Porto, Portugal, October 7-9, 2015) (pp. 695-700). New York, NY, USA: ACM.
- García-Peñalvo, F. J. (2014). Formación en la sociedad del conocimiento, un programa de doctorado con una perspectiva interdisciplinar. *Education in the Knowledge Society*, 15(1), 4-9.
- Huang, C. (2010). Internet use and psychological well-being: a meta-analysis. *Cyberpsychology. Behavior and Social Networking*, 13(3), 241–249. <https://doi.org/10.1089/cyber.2009.0217>
- Huang, C. (2012). Internet use and psychological well-being. In Z. Yan (Ed.), *Encyclopedia of research on cyber behavior* (pp. 302–312). Hershey, PA: Information Science Reference.
- Hogan, B. (2010). The Presentation of Self in the Age of Social Media: Distinguishing Performances and Exhibitions Online. *Bulletin of Science, Technology & Society*, 30(6), 377–386. <https://doi.org/10.1177/0270467610385893>
- Hou, J., Ndasauka, Y., Pan, X., Chen, S., Xu, F., & Zhang, X. (2018). Weibo or WeChat? Assessing preference for social networking sites and role of personality traits and psychological factors. *Frontiers in Psychology*, 9(APR), 545–545. <https://doi.org/10.3389/fpsyg.2018.0054>
- Hou, J., Ndasauka, Y., Jiang, Y., Ye, Z., Wang, Y., Yang, L., Li, X., Zhang, Y., Pang, L., Kong, Y., Xu, F., & Zhang, X. (2017). Excessive use of WeChat, social interaction and locus of control among college students in China. *PloS One*, 12(8), e0183633–e0183633. <https://doi.org/10.1371/journal.pone.0183633>
- Jin, B. (2013). How lonely people use and perceive Facebook. *Computers in Human Behavior*, 29(6), 2463–2470. <https://doi.org/10.1016/j.chb.2013.05.034>
- Katz, E., Blumler, J., & Gurevitch, M. (1973). Uses and Gratifications Research. *The Public Opinion Quarterly*, 37(4), 509-523. <http://www.jstor.org/stable/2747854>
- Kraus, L., Davis, M., Bazzini, D., Church, M., & Kirchman, C. (1993). Personal and Social Influences on Loneliness: The Mediating Effect of Social Provisions. *Social Psychology Quarterly*, 56(1), 37-53. <https://doi.org/10.2307/2786644>
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet Paradox: A Social Technology That Reduces Social Involvement and Psychological Well-Being? *The American Psychologist*, 53(9), 1017–1031. <https://doi.org/10.1037/0003-066X.53.9.1017>
- Leung, L., & Wei, R. (2000). More than just talk on the move: Uses and gratifications of the cellular phone. *Journalism & Mass Communication Quarterly*, 77(2), 308–320. <https://doi.org/10.1177/107769900007700206>
- Li H.(2017). Self-presentation of youth groups in WeChat Moments. *Youth Journalist*(23),49-50. doi:10.15997/j.cnki.qnjz.2017.23.030.
- Li L., Lei L., Wang Z. & Zhang L.(2001). The psychological impact of the Internet on people. *Advances in Psychological Science*(04),376-381. doi:CNKI:SUN:XLXD.0.2001-04-014.

- Li G., Zhu H. (2019). Why using moments of friends: A study on the WeChat self-presentation strategies and influencing factors of college students from the perspective of social psychology. *Shanghai Journalism Review* (05),25-35. doi:10.16057/j.cnki.31-1171/g2.2019.05.003.
- Liu W., Huang K. (2011). The relationship between internet use and loneliness. *Chinese Journal of Special Education*(11). 92-96. doi:CNKI:SUN:ZDTJ.0.2011-11-020.
- Li, S., Palonen, T., Lehtinen, E., & Hakkarainen, K. (2019). Face-to-face Contacts, Facebook Connections and Academic Support: Adolescents' Networks between and across Gender and Culture in Finland. *YOUNG*, 27(2), 184–200. <https://doi.org/10.1177/1103308818766773>
- Louis Leung (2011) Loneliness, social support, and preference for online social interaction: the mediating effects of identity experimentation online among children and adolescents. *Chinese Journal of Communication*, 4:4, 381-399, <https://doi.org/10.1080/17544750.2011.616285>
- McCrae, R., & Costa, P. (1991). Adding Liebe und Arbeit: The Full Five-Factor Model and Well-Being. *Personality & Social Psychology Bulletin*, 17(2), 227–232. <https://doi.org/10.1177/014616729101700217>
- McCrae, R., & John, O. (1992). An Introduction to the Five-Factor Model and Its Applications. *Journal of Personality*, 60(2), 175–215. <https://doi.org/10.1111/j.1467-6494.1992.tb00970.x>
- Michikyan, M., Dennis, J., & Subrahmanyam, K. (2015). Can You Guess Who I Am? Real, Ideal, and False Self-Presentation on Facebook Among Emerging Adults. *Emerging Adulthood*, 3(1), 55–64. <https://doi.org/10.1177/2167696814532442>
- Montag, C., Becker, B., & Gan, C. (2018). The multipurpose application WeChat: A review on recent research. *Frontiers in Psychology*, 9(DEC), 2247–2247. <https://doi.org/10.3389/fpsyg.2018.02247>
- Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior*, 16(1), 13–29. [https://doi.org/10.1016/S0747-5632\(99\)00049-7](https://doi.org/10.1016/S0747-5632(99)00049-7)
- Muusses, L., Finkenauer, C., Kerkhof, P., & Billedo, C. (2014). A longitudinal study of the association between compulsive Internet use and wellbeing. *Computers in Human Behavior*, 36, 21–28. <https://doi.org/10.1016/j.chb.2014.03.035>
- Nie, Norman H./ Hillygus, D. Sunshine (2002b): The impact of Internet use on sociability: Time-diary findings. *IT & Society*, Vol. 1(1), 1–20. Google Scholar.
- Peplau L.A. (1985) Loneliness Research: Basic Concepts and Findings. In: Sarason I.G., Sarason B.R. (eds) Social Support: Theory, Research and Applications. NATO ASI Series (D: Behavioural and Social Sciences), vol 24. Springer, Dordrecht. [https://doi.org/10.1007/978-94-009-5115-0\\_15](https://doi.org/10.1007/978-94-009-5115-0_15)
- Russell, D., Peplau, L., & Ferguson, M. (1978). Developing a Measure of Loneliness. *Journal of Personality Assessment*, 42(3), 290–294. [https://doi.org/10.1207/s15327752jpa4203\\_11](https://doi.org/10.1207/s15327752jpa4203_11)
- Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: concurrent and discriminant validity evidence. *Journal of personality and*

- social psychology*, 39(3), 472–480. <https://doi.org/10.1037//0022-3514.39.3.472>
- Song, H., Zmyslinski-Seelig, A., Kim, J., Drent, A., Victor, A., Omori, K., & Allen, M. (2014). Does Facebook make you lonely?: A meta analysis. *Computers in Human Behavior*, 36, 446–452. <https://doi.org/10.1016/j.chb.2014.04.011>
- Statista.(2021). Most popular social networks worldwide as of January 2021, ranked by number of active users. <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>
- Tan H.(2017). Research on the relationship between self-disclosure and loneliness in WeChat Moments. *Research on Transmission Competence* (04),89. doi:CNKI:SUN:CBLy.0.2017-04-068.
- Tencent.(2021).*Tencent Announces 2020 Third Quarter Results*. [https://cdc-tencent-com-1258344706.image.myqcloud.com/uploads/2020/08/26/92a625ffb6f781cecd011d0511c793a4.pdf](https://cdc.tencent.com-1258344706.image.myqcloud.com/uploads/2020/08/26/92a625ffb6f781cecd011d0511c793a4.pdf)
- van den Eijnden, R., Meerkerk, G., Vermulst, A., Spijkerman, R., & Engels, R. (2008). Online Communication, Compulsive Internet Use, and Psychosocial Well-Being Among Adolescents: A Longitudinal Study. *Developmental Psychology*, 44(3), 655–665. <https://doi.org/10.1037/0012-1649.44.3.655>
- Wang, B. (2006). A study on the relationship between the loneliness and internet addiction tendency of college students. *Psychol. Sci.* 79, 427–436.
- Wang H., Zhu Y.(2014). Discussion on the function of WeChat from the perspective of interpersonal communication. *Journal of Modern Information*(02), 84-87+95. doi:CNKI:SUN:XDQB.0.2014-02-017.
- WeChat(2018). 2018 WeChat Annual Data Report. [http://www.360doc.com/content/19/0125/11/472536\\_811192517.shtml](http://www.360doc.com/content/19/0125/11/472536_811192517.shtml)
- Wellman & Haythornthwaite (2002). *The Internet in Everyday Life*. Oxford: Blackwell Publishers Ltd.
- Whiting, A., & Williams, D. (2013). Why people use social media: a uses and gratifications approach. *Qualitative Market Research*, 16(4), 362–369. <https://doi.org/10.1108/QMR-06-2013-0041>
- Yan, M. Y. (2011). *The Research of Interpersonal and Internet Addiction in the Undergraduate Students*. Unpublished Master's thesis, Anhui Medical University, Hefei.
- Zhan Y., Yan X.(2013). Research on the Impact of WeChat Use on Interpersonal Communication. *Modern Communication(Journal of Communication University of China)* (12),112-117. doi:CNKI:SUN:XDCB.0.2013-12-028.