Adolescent peer interaction: The interplay between online and offline

Caleb David[1, a, *], Grace Jones[1, b],

[1]Stanford Center on Adolescence, Ventura Hall, 220 Panama Street, Stanford, CA 94305, USA
a.calebdavid_9893252@126.com, b.jones_grace06@icloud.com
*Corresponding Author

Abstract: In the internet era, online interaction based on the internet is gradually integrating with face-to-face offline interaction, becoming another crucial context for adolescents' peer interaction and social development. This article elaborates on the significance of typical characteristics of online interaction—such as anonymity, trans-spatiotemporality, asynchronicity, and archivability—for interpersonal communication. It points out that adolescents' online interaction primarily occurs among acquaintances, describes the formation process of adolescents' online friendships and their influencing factors, and discusses the relationship between offline and online peer interaction. The article suggests that future research should further explore the interactive influence between offline and online interaction, investigate the unique roles of different interaction contexts and network environments, examine individual differences in online interaction, and conduct more in-depth studies on the characteristics of interpersonal relationships within specific online social platforms.

Keywords: Adolescents, Online Interaction, Offline Interaction, Online Friendships

1. Introduction

Interaction is one of the fundamental forms of human social activities [1]. The Internet is currently the most prevalent medium for developing interpersonal relationships, and interpersonal interaction via the Internet has become one of the primary activities of Internet users. According to the 36th Statistical Report released by the China Internet Network Information Center (CNNIC), as of the end of June 2015, the number of Internet users in China had reached 668 million, with an Internet penetration rate of 48.8%. Meanwhile, adolescent Internet users under the age of 25 (those who had used the Internet in the past six months) remained the main force among China's Internet users. They were highly active in Internet usage, particularly in online interaction (also referred to as online communication) [2]. As a new form of social interaction, online communication exerts a profound and extensive impact on the development of adolescents. While adolescents gain more opportunities for development in the online world, they also face more challenges [3].

The concept of online communication can be defined in both broad and narrow senses. From the perspective of Internet users, online communication in the broad sense refers to "Internet Use Behavior," which encompasses all activities conducted through the Internet. In the narrow sense, however, online communication is a specific type of Internet use behavior, mainly referring to interpersonal interaction between individuals via computers and the Internet—i.e., the "human-computer-human" model [4]. Foreign scholars have used various terms to define online communication, such as "Computer-Mediated Communication (CMC)," "Online Communication," "Online Relating," and "Social Interaction on the Internet," all of which describe a process of information transmission. The specific definition of online communication discussed in this article refers to interpersonal interaction that occurs on the Internet, also known as online interaction, while traditional face-to-face interaction is correspondingly termed offline interaction.

2. Characteristics of cyberspace and online interaction

The Internet has transcended the limitations of traditional media for interpersonal interaction. Cyberspace serves not only as an interactive medium but also as a medium for self-presentation, as it fully

integrates two core functions of interpersonal communication: interactivity and self-presentation [5]. Adolescents [6] and college students [7] are currently the primary groups of Internet users; they spend more time online than adults and engage in more social activities through the Internet. As a form of communication, online interpersonal relationships share similarities with offline "face-to-face" interpersonal relationships in many aspects. Nevertheless, there are indeed substantial differences between online interaction and offline interaction [8].

2.1. Anonymity

In cyberspace, interpersonal interaction is based on the exchange of digital information and no longer possesses the tangibility or perceptible temporal location of daily offline interaction. Participants in online interaction inevitably encounter "visual anonymity" [9]. Visual anonymity further gives rise to issues such as online trust, self-disclosure, and "threshold characteristics." On one hand, the concealment of identity reduces interpersonal trust—some people perceive online interaction as casual, and view online relationships as unreliable, superficial, and meaningless. On the other hand, identity concealment enhances the controllability of self-disclosure. Online, individuals can decide when and how to present themselves [10]. For instance, one can make friends via email, display edited profile photos on social networking sites, or post comments under a pseudonym in online communities. Precisely because of the anonymity of online interaction, people often engage in higher levels of self-disclosure in online relationships. In the online world, individuals can freely choose their names, gender, avatar, and even interaction environment, all of which carry a strong sense of virtuality. As a platform for information exchange, the Internet is an open system with no restrictions on who can participate in communication. In real-world interpersonal interaction, the formation of social relationships is influenced by factors such as appearance, ability, proximity, similarity, complementarity, familiarity, and reciprocity. In contrast, online, people of any age, gender, ethnicity, nationality, occupation, or cultural background can communicate freely and equally.

2.2. Transcendence of Time and Space

Geographical distance ceases to exist in the online world [11]. Theoretically, the Internet allows people to communicate and interact in various forms (via chat rooms, social networking sites, online shopping malls, etc.) at any time and from any location, as if they were "meeting" in real life. It also enables family members and friends separated by distance to stay connected (e.g., via email), provide each other with psychological support, and maintain intimacy. Online connectivity makes "interaction without physical presence" a reality [5].

2.3. Asynchronicity

Online interaction is less constrained by time. Unlike face-to-face interaction, which must occur within a specific real-time and physical space, online interaction is often asynchronous (i.e., non-simultaneous). For example, a person might spend an hour writing an email and receive a reply several days later. This characteristic of online interaction gives individuals maximum control over how they present and express themselves. Consequently, it often leads to a "hyper-personal" phenomenon—such as forming idealized impressions of others [12].

2.4. Archivability

Online interaction exhibits the properties of archivability (e.g., content uploaded to the Internet can usually be retained indefinitely), retrievability (e.g., information can be easily retrieved using search engines), and retrievability for correction [13]. This set of characteristics of online interaction holds significant psychological and social implications.

3. Forms and targets of adolescents' online interaction

Online interaction encompasses a wide range of forms, with the most influential including Instant Messaging (IM), Electronic Mail (E-mail), Bulletin Board Systems (BBS), Blogs, Social Networking Services (SNS), online games, and various online communities—among which adolescents are the most frequent users. The online interaction forms with the highest concentration of peer groups are social

networking sites (for asynchronous interaction) and instant messaging (for synchronous interaction) [5]. This article focuses on adolescents' information and emotional exchange through these two forms of online interaction, as well as their impacts on offline interpersonal relationships and social adaptation.

3.1. Instant Messaging (IM)

According to a 2015 survey by CNNIC, the penetration rate of instant messaging among Internet users in China had risen to 90.8% by that time, with the user base reaching 606 million. Instant messaging has thus become the most important form of online interaction [2]. Instant messaging refers to services that enable the real-time sending and receiving of Internet messages. Initially, it only supported text-based messaging; later, it integrated symbol systems (to better convey the emotions and moods of participants) on the basis of text, and also allowed communication via voice. Users can chat with specific individuals or multiple contacts according to their preferences, and they may choose to interact with strangers or with familiar friends and family. Unlike face-to-face interaction, users can either use their real names and identities or remain anonymous.

3.2. Social Networking Services (SNS)

SNS, the abbreviation of "Social Networking Services" (also referred to as "Social Network Site"), is commonly translated as "jiao wang wang zhan" (Social Networking Site) or "she jiao wang zhan" (SNS) in Chinese. The core functions of SNS platforms are making friends and sharing information. They create a public platform where each user has their own personal homepage for free self-presentation and can browse others' pages to engage in online communication [14]. Other public space functions of social networks (such as games, voting, forums, sharing, and transactions) also facilitate free communication and interaction between users and their relatives and friends. User relationships on SNS platforms can either extend from real-life connections or be gradually developed on the online platform itself; users can build relationships and interact with others through various means.

The development of SNS platforms has validated the "Six Degrees of Separation" theory, which states that "in terms of interpersonal connection networks, you can inevitably get in touch with any other person in the world through no more than six intermediaries." Based on the principle that "a friend of a friend is a friend," an individual's social circle will continue to expand and overlap, eventually forming a larger interaction network. Internationally, Facebook is the most popular social networking site; in China, similar platforms include Renren, Weibo, and QQ Space, which are widely popular among Internet users, especially adolescent groups.

It is worth noting that with the advancement of technology, the social functions of SNS have gradually become more powerful, enabling interactions between individuals, between individuals and institutions, and between individuals and society. As the online interaction environment continues to develop and update, characteristics previously discussed—such as anonymity and text-based limitations—deserve further examination. Ultimately, the online interaction environment will increasingly meet people's needs for social connection.

3.3. Teenagers' online communication partners

Foreign studies have shown that teenagers mainly use instant messaging to maintain existing interpersonal relationships, such as talking with real-life friends about school life, gossip, and hobbies [6, 15, 16]. A survey on teenagers' online communication in Zhejiang, Hunan, and Gansu provinces conducted by domestic scholar Huang Shaohua also revealed that real-time chat tools like QQ and MSN were the most frequently used communication tools, with a usage rate of 73.4%. Among the communication partners, the highest proportion was "familiar friends in real life" (58.3%), followed by "friends working or studying in other places" (33.0%), while "strangers encountered accidentally online" accounted for only 7.7% [5]. In studies on teenagers and social networking sites, girls reported using social networking sites more to keep in touch with real-life peers (whether they meet frequently or infrequently), while boys were more likely to build new relationships and make new friends [17]. It is evident that acquaintances remain the mainstay in online social interactions, but interactions with strangers do exist. Due to the restrictions on interacting with strangers in real life, researching teenagers' online interactions with strangers holds special significance.

Additionally, gender differences reflect certain social and cultural requirements and gender stereotypes, which also deserve in-depth study.

In addition, teenagers' cross-gender interactions online have attracted considerable attention. A survey by Cen Guo zhen on 166 internet users aged 14-16 showed that approximately three-quarters of the participants' online friends were of the opposite gender, with male participants having about 79% opposite-gender online friends and female participants having about 70% [18]. Researchers believe that the high proportion of opposite-gender friends may be related to the awakening of sexual awareness during adolescence, and the characteristics of online communication provide teenagers with more autonomous opportunities for cross-gender interactions.

4. The Formation of Teenagers' Online Friendships

With the vigorous development of teenagers' online communication, researchers have further deepened their studies on teenagers' online relationships. Regarding issues such as the formation mechanism and influencing factors of online friendships, Peter et al. proposed a model for the formation of online friendships, which has strong explanatory power [19]. They believe that the formation of online friendships is influenced by four factors: personality (introversion/extraversion), online self-disclosure, social compensation motivation, and the frequency of online communication (as shown in Figure 1). Extraverted teenagers engage in more frequent online self-disclosure and communication, which is conducive to the formation of online friendships [19], supporting the "rich get richer" theory [20]. Conversely, introverted teenagers have a strong motivation for online communication based on compensating for their lack of social skills in reality, which also increases their opportunities to make friends online. A strong compensation motivation leads to increased frequency of online communication and self-disclosure among introverts [16, 21-23], thereby making it easier for them to form online friendships [24]. In addition, the need for self-identity and parental monitoring are also important factors affecting the formation of online friendships.
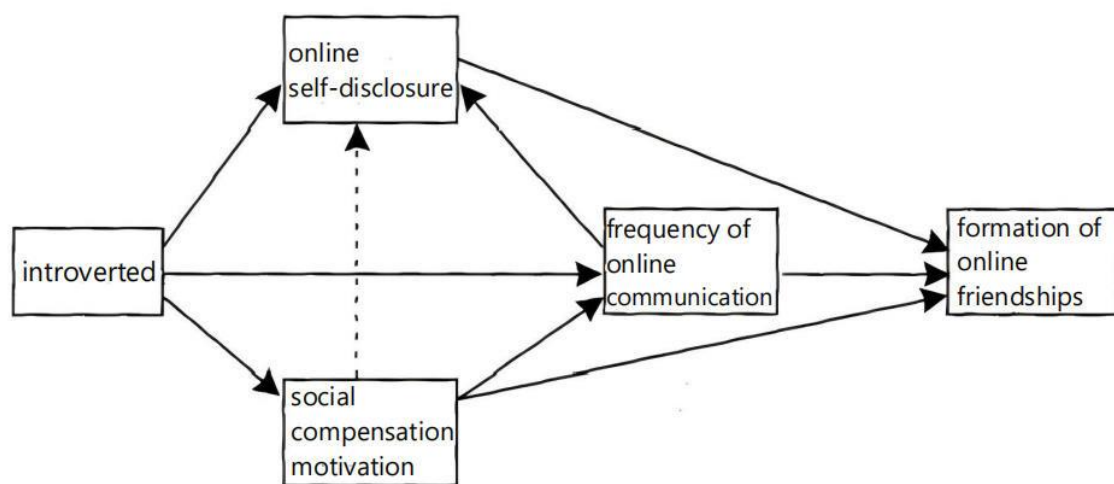

Figure 1: Model of the Formation of Teenagers' Online Friendships

4.1. Self-Disclosure and personality

Self-disclosure is "the act of revealing personal information to others" [25]. It is crucial for the formation of friendships, whether in real life or online [26]. The anonymity of the internet and the lack of social cues often lead to higher levels of self-disclosure in individuals' online relationships. Offline self-disclosure is often exposed to various risks such as rejection, ridicule, and opposition, while online communication, characterized by "physical absence," significantly reduces these risks [8]. Online self-disclosure is usually

particularly important for introverts, who perceive their online self as closer to their "true self" and can express themselves more freely through the internet, especially among females [26]. The more introverted teenagers are, the more online self-disclosure they engage in, which also contributes more to the formation of their online friendships [19]. Additionally, girls find online communication more comfortable, and they report higher social anxiety than boys [27].

4.2. Self-Identity

Teenagers' self-identity is built through interactions with others, and the characteristics of these interactions help determine the salience of different aspects of self-identity and the degree to which they can coexist harmoniously. Foreign researchers have pointed out that virtual interactions and cyberspace are regarded as another vast venue for teenagers' interactions, where teenagers can develop their self-identity and self-concept [28, 29].

4.3. Parental monitoring

In cyberspace, the impact of parental monitoring on teenagers' online behavior is minimized. Adolescents in puberty are more willing to share their secrets with peers rather than parents, and the internet precisely provides them with a safe and private base. Most teenagers view the internet as a personal space where they can act and express themselves freely [30]. Through the internet, teenagers can avoid parental surveillance and control, maintain their private space, and express themselves in their preferred way, communicating and sharing freely with peers.

5. The relationship between adolescents' online and offline interactions

5.1. Comparison of quality between online and offline friendships

Researchers often compare online friendships with offline ones. Based on the core qualities of interpersonal relationships, such comparisons involve four dimensions: intimacy, trust, durability, and relationship satisfaction [31]. The traditional view holds that online interactions, which rely on text and lack cues like voice and personal characteristics, create distance between communicators, resulting in a quality far inferior to face-to-face offline interactions [32]. Another perspective argues that features of online interactions, such as anonymity and "low thresholds," increase individuals' self-disclosure. High levels of self-disclosure foster intimacy and make it easier to build relationships with others [26], indicating that online friendships can be as intimate and meaningful as offline ones. Additionally, there are individual differences in adolescents' perception of online friendship quality: those with high social anxiety show better adaptability and satisfaction in online interpersonal relationships [27]. Interestingly, there are also gender differences in online friendship quality: girls experience more intimacy in online friendships than boys, and the quality of online cross-gender friendships is significantly higher than that of same-gender ones [33].

5.2. Prediction of online interactions by offline interactions

Numerous studies have explored the predictive power of offline interpersonal relationships on online behavior. Research by Lei Li and Wu Yana found a significant correlation between peer attachment and internet use: the degree of alienation from peers in adolescents can positively predict their preference for social services and pathological internet use [34]. A longitudinal study showed that adolescents who adapted well at ages 13–14 used online social services more frequently at ages 20–22, and their offline peer relationships, friendship quality, and behavioral adaptation could predict the relationship quality and behavioral problems in their online interactions during ages 20–22 [35]. In other words, individuals' early offline peer interactions reappear in their online interactions in early adulthood. How, then, do offline peer interactions influence online ones? Evidence suggests that individuals uncomfortable with face-to-face interactions prefer online communication, while those who enjoy face-to-face interactions tend to use the internet for information acquisition [36]. Another view holds that adolescents socially active offline are also active in online relationships, whereas socially withdrawn offline individuals show the opposite pattern [35]. In other words, the truth is: "A dog remains a dog online."

5.3. Impact of online interactions on offline interactions

Negative impacts of online interactions always attract attention first. Early studies mostly argued that online interactions inevitably occupy time for offline social activities and communication with relatives and friends, thereby shrinking offline social circles. The degree of dependence on online interactions can significantly and positively predict the level of distress in offline interpersonal communication [37]. Excessive online make friends among adolescents can lead to social isolation and anxiety, as well as weaken their relationships with family and friends [38]. Moreover, since most online communication is limited to like-minded individuals, it may reduce people's tolerance and acceptance of those who are different.

However, as the internet evolves, people's understanding is also changing. Many internet users believe that the internet can improve their lives and even provide essential links for interacting with others [39]. A study investigating the relationship between college students' Facebook usage time and their participation in club activities found that Facebook enhances social communication and increases social capital [40]. Positive comments from friends on social networking sites are also correlated with adolescents' positive adaptation [16]. Another study on 66 internet chat room users found that healthy online interpersonal relationships can effectively complement offline ones [23]. Some researchers argue that online interactions expand long-distance social circles, actually enhancing face-to-face interactions with relatives and friends and increasing social capital [41].

5.4. Impact of online interactions on mental health

Some studies indicate that online interactions have positive psychological effects. For example, online interactions can significantly reduce loneliness and depression, and improve individuals' self-esteem and perceived social support [42]. For adolescents actively cooperating in cancer treatment and rehabilitation, online forums and support groups are effective tools for self-help, and the psychological support provided by online support networks has important clinical significance [43]. Although some researchers believe that practical help cannot be obtained in virtual spaces and that people's perception of support is weak, more and more studies have confirmed the role of online social support: it is easier to find needed individuals (such as those with similar experiences) in virtual spaces, where people can communicate better, share worries, reduce stress, and truly feel others' support. Moreover, support from virtual spaces has unique advantages: it does not require reciprocation, can provide more extensive support, and can be sought at any time [44]. Domestic scholar Liang Xiaoyan explored the structure of adolescents' online social support, which is a real multi-dimensional structure including peer support, information support, emotional support, and instrumental support, with similarities to real-life support [45].

Of course, online interactions are a double-edged sword. Many researchers have also proven that internet use has negative impacts on users' loneliness, depression, and life satisfaction [46]. Studies on the correlation between online interactions and internet addiction have shown that instant messaging and chat room conversations are positively correlated with adolescents' internet addiction six months later [47]. Virtual socializing provides a way to escape interpersonal disharmony in real life and is the most significant factor leading to students' internet addiction tendencies [48]. Online interactions can even have a negative impact on the personality development of internet users [49]. Some studies further point out that it is not online interactions themselves, but online interactions with strangers that are negatively correlated with mental health. However, for lonely adolescents, online interactions are detrimental regardless of whether they involve strangers [50].

6. Conclusion

McKenna and Seidman argue that internet use has no absolute effects. Although online interpersonal interactions can be transformative and transferable, these processes depend on individual differences in personality and motivation, as well as the online groups they affiliate with [51]. In other words, there is no inherent problem with the internet itself or online interactions; rather, issues arise from how the internet is used. There is no clear, absolute boundary between online and offline interactions, at least among teenagers [52]. Many existing studies on teenagers and the internet support the view that online activities of internet users are an extension of the psychological experiences of their offline lives in the online world, and the online and offline worlds are interconnected [53]. Research on social networking sites has begun to focus on

the possibility that the online and offline worlds are linked, with online and offline socializing interacting with each other [14, 54].

   To lead a healthy and balanced life, everyone needs interpersonal connections, social recognition, social support, and a sense of belonging. During adolescence, individuals face two key developmental tasks: first, developing a sense of belonging and identity; second, building new and meaningful interpersonal relationships. Internet use can help fulfill these two tasks. Teenagers can easily engage in various interactions and interpersonal connections through social media online, even forming online social support and gaining a sense of intimacy and belonging. Online interactions also promote adolescents' identity experimentation, i.e., constructing their identity through self-representation and self-exploration in the online environment [29]. It is evident that teenagers' online interactions deserve more attention. While excessive use can impair their social functions, blindly opposing or prohibiting teenagers from using internet social services will only backfire. Therefore, it is particularly important to understand them, guide them appropriately, and help them treat and use online social services healthily. Understanding the characteristics and motivations of interactions in different social contexts, as well as the individual differences of users, has become a necessary path for effective guidance and a direction that future researchers should explore.

7. References

[1]   Ma Shu Hong, Liu Jian Cheng. Changes and impacts of communication methods in the internet era. *Journal of Chang Zhi University*, 2008, 25(4): 90-92.

[2]   China Internet Network Information Center. *The 36th Statistical Report on Internet Development in China*, 2015. Cited from http://www. cnnic.net. cn/ dtygg /dtgg /201101 /P020110119328 96019 2287. pdf

[3]   Zeng Yan Bo. Adolescents' survival and development in the virtual world. *Social Sciences*, 2007, 9: 82-89.

[4]   Chen Qiu Zhu. Interpersonal communication in cyberspace. *PhD Dissertation, Jilin University*, 2006.

[5]   Huang Shaohua. The online communication structure of adolescent internet users. *Journal of Lanzhou University (Social Sciences Edition) *, 2009, 37(1): 70-78.

[6]   Boneva B S, Quinn A, Kraut R, et al. Teenage communication in the instant messaging   era. Computers, Phones, and the Internet: Domesticating Information Technology, 2006:201-218.

[7]   Jones S. The internet goes to college. Washington D C: Pew Internet &American Life   Project. Retrieved June,2008, from http://www.pewintermet.org/pdfs/ PIP_College_Report.pdf

[8]   Piazza J, Bering J M. Evolutionary cyber-psychology: Applying an evolutionary ramework· to internet behavior. Computers in Human Behavior,2009,25(6): 1258-1269.

[9]   Joinson A N. Understanding the psychology of internet behaviour: Virtual worlds, real lives. London: Palgrave Macmillan,2003.

[10] Qian H, Scott C R. Anonymity and self-disclosure on weblogs. Journal of   Computer-Mediated Communication, 2007,12(4):1428-1451.

[11] Lea M, Spears R. Love at first byte? Building personal relationships over computer networks. In J T Wood &S Duck (Eds.), Understudied relationships: Off the beaten track. Newbury Park, CA: Sage, 1995:197-233.

[12] Walther J B. Selective self-presentation in computer mediated communication: Hyperpersonal dimensions of technology, language, and cognition. Computers in Human   Behavior, 2007, 23(5): 2538-2557.

[13] Viegas F B. Bloggers' expectations of privacy and accountability: An initial survey. Journal of Computer-Mediated Communication,2005,10(3), article 12.

[14] Boyd D &Ellison N B. Social network sites. Definition, history and scholarship. Journal of Computer- Mediated Communication,2007b,13(1):210-230.

[15] Gross E F. Adolescent intermet use: What we expect, what teens report. Journal of Applied Developmental Psychology,2004,25(6):633-649.

[16] Valkenburg PM, Peter J. Preadolescents' and adolescents' online communication and their closeness to friends. Developmental Psychology,2007,43(2):267-277.

[17] Lenhart A, Madden M. Social networking websites and teens: An overview. Washington, DC: Pew Internet & American Life Project. Retrieved August 9,2007, from http://www. pewinternet. org/pdfs/ PIP_SNS_Da-ta_Memo_Jan_2007.pdf

[18] Cen Guo Zhen. A survey on online friendship-making and mental health status of adolescent students. *Chinese Journal of School Health*, 2006, 26(6): 488-489.

[19] Peter J, Valkenburg PM, Schouten A P. Developing a model of adolescent friendship formation on the intemet. Cyber Psychology &Behavior,2005,8(5): 423-430.

[20] Desjarlais M, Willoughby T.A longitudinal study of the relation between A J, Cumming SR, Hughes I. Internet use by the socially fearful: Addiction or therapy? Cyber Psychology &Behavior,2006,9(1):69-81.

[21] Peris R, Gimeno M A, Pinazo D, et al. Online chat rooms: Virtual spaces of interaction for socially oriented people. Cyber Psychology &Behavior,2002,5(1): 43-51.

[22] Peter J, Valkenburg PM, Schouten A P. Characteristies and motives of adolescents talking with strangers on the internet. Cyber Psychology &Behavior,2006,9(5):526-530.

[23] Wolak J, Mitchell K J, Finkelhor D. Escaping or connecting? Characteristics of youth who form close online relationships. Journal of Adolescence,2003,26 (1):105-119.

[24] Archer J L. Self-disclosure. In: Wegner D&R Val-lacher (eds.), The self in social psychology (pp. 183-204). London: Oxford University Press,1980.

[25] McKenna KY A, Green A S, Gleason M E J. Relationship formation on   the internet: What's the big attraction? Jounal of Social Issues,2002,58(1):9- 31.

[26] La Greca A M, Lopez N. Social anxiety among adolescents: Linkages with   peer relations and friendships. Journal of Abnormal Child Psychology,1998,26(2): 83-94.

[27] Maczewski M. Exploring identities through the internet: Youth experiences online//Child and Youth Care   Forum. Kluwer Academic Publishers-Plenum Publishers, 2002,31(2):111-129.

[28] Chai Xiaoyun, Gong Shao Ying. Adolescents' identity experimentation: A perspective from the online environment. *Advances in Psychological Science*, 2011, 19(3): 364-371.

[29] Aslanidou S, Menexes G. Youth and the intenet: Uses and practices in the home. Computers &Educa-tion,2008,51(3):1375-1391.

[30] Cheng GHL, Chan D K S, Tong PY. Qualities of online friendships with different gender compositions and durations. Cyber Psychology &Behavior,2006,9 (1):14-21.

[31] Kiesler S, Siegel J, Me Guire TW. Social psychological aspects of computer-mediated communication. American Psychologist,1984,39(10):1123.

[32] Valkenburg PM, Peter J. Internet communication and its relation to well-being: Identifying some underlying mechanisms. Media Psychology,2007,9(1):43-58.

[33] Lei Li, Wu Yana. The relationship between adolescents' peer attachment and their internet use. *Studies of Psychology and Behavior*, 2009, 7(2): 81-86.

[34]   Mikami A Y, Szwedo D E, Allen J P, et al. Adolescent peer relationships   and behavior problems predict young adults' communication on social networking websites. Developmental Psychology,2010,46(1): 46-56.

[35] Sheeks M S, Birchmeier Z P. Shyness, sociability, and the use of computer-mediated communication in relationship development. Cyber Psychology &Behavior, 2007,10(1):64-70.

[36] Li Fei fei. A study on the relationship between college students' online communication and real-life interpersonal communication. Master's Thesis, Central China Normal University, 2010.

[37] Sanders C E, Field T M, Diego M, et al. The relationship of internet use to depression and social isolation among adolescents. Adolescence,2000,35(138): 237-242.

[38] Lenhart A, Rainie L, Lewis 0. Teenage life online: The rise of the Instant-Message generation and the in-temet' s impact on friendships and family relations. Washington, DC: The Pew Internet &American Life Project,2001.

[39] Ellison N B, Steinfield C, Lampe C. The benefits of Facebook "friends": Social capital and college students' use of online social network sites. Journal of Computer-Mediated Communication, 2007,12(4): 1143-1168.

[40] Kiesler S, Kraut R, Cummings J, et al. Internet evolution and social impact. It &Society,2002,1(1):120-134.

[41] Shaw L H, Gant L M. In defense of the internet: The relationship between Internet communication and depression, loneliness, self-esteem, and perceived s0cial support. Cyber Psychology &Behavior,2002,5(2):157-171.

[42] Fenichel M A. Online behavior, communication, and experience. Online counseling: A handbook for mental health professionals,2004:3-18.

[43] Wright K B. Computer-mediated social support, older adults and coping. Journal of Communication, 2002, 50(3):100-118.

[44] 45Liang Xiaoyan, Liu Huashan. Exploration on the structure of adolescents' online social support. Educational Research and Experiment, 2010, (2): 83-87.

[45] Kraut R, Patterson M, Lundmark V, et al. Internet paradox: A social technology that reduces social in volvement and psychologieal well-being? American Psychologist,1998,53(9):1017-1031.

[46] van den Eijnden RJ J M, Meerkerk G J, Vermulst A A, et al. Online communication, compulsive inter net use, and psychosocial well-being among adolescents: A longitudinal study. Developmental Psychology,2008, 44(3):655-665.

[47] 48. Chen Hui Shu, Su Yiren, et al. Development of a Chinese Internet Addiction Scale and study on its psychometric properties. *Chinese Journal of Psychology*, 2003, 45(3): 279-294.

[48] Zhou Tao. A study on the correlation between college students' social anxiety and internet addiction. *Journal of Educational Science of Hunan Normal University*, 2003, 2(3): 85-87.

[49] Valkenburg PM, Peter J. The effects of instant mes-saging on the quality of adolescents' existing friend-ships: A longitudinal study. Journal of Communication, 2009,59(1):79-97.

[50] Kraut R, Brynin M, Kiesler S. Computers, phones, and the internet: Domesticating information technology. Oxford series in human-technology   interaction. (p p. 279-295). New York, NY, US: Oxford University Press,2006.

[51] Lenhart A, Madden M, Hitlin P. Teens and technology. Retrieved October 20,2008, from http://www. pewinternet.org/pdfs/PIP_Teens_Tech_July2005 web.pdf.

[52] Subrahmanyam K, Reich S M, Waechter N, et al. Online and offline social networks: Use of social networking sites by emerging adults. Journal of Applied Developmental Psychology, 2008, 29(6): 420-433.

[53] Ellison N B& Boyd D. Social network sites: Definition, history, and scholarship. Journal of Computer Mediated Communication,2007,13(1):210-230.