

Exploration on Digital Loneliness and Self-identity Dilemma Influenced by Neurotic Personality and Metacognition

Jiamiao Liu

College of Liberal Arts and Social Sciences, City University of Hong Kong, Hong Kong, China

Abstract

This study uses neurotic personality and metacognition as research variables to explore the mechanism of their interaction on individual digital loneliness and self-identity loss, and to sort out the developmental characteristics of psychological distress in online social interactions. Using the literature analysis method, this study integrates empirical research results on personality psychology and online social networking in China over the past decade, and conducts analysis based on data measured by mature standardized scales. The results indicate a positive correlation between neurotic personality levels and digital loneliness experiences, and individuals with poor emotional regulation abilities are more likely to experience emotional alienation in online social interactions. Lack of metacognitive development can exacerbate cognitive judgment bias, resulting in individuals being unable to objectively recognize their self-identity in network scenarios. Most individuals with digital loneliness struggle with vague self-cognition and unstable identity perception. Metacognitive literacy can effectively buffer the negative effects of neurotic personality, alleviate loneliness, and assist individuals in establishing clear self-identity boundaries. Studying the clear relationship between variables can provide theoretical and practical references for adjusting psychological problems in the context of digitalization and shaping stable self-identity.

Keywords

Neurotic personality; Metacognition; Digital loneliness; Self-identity; Network psychological adjustment.

1. Introduction

The pervasive internet reshapes traditional social patterns, and cross-regional online interaction greatly reduces barriers to interpersonal communication. Virtual communication channels are becoming increasingly diverse. However, online interaction cannot compensate for the lack of real-life emotions. The mode of interaction that deviates from real-life interactions gradually changes the social mentality of the public and gives rise to the typical digital loneliness mentality in contemporary society. According to the 2023–2024 national mental health survey by authoritative Chinese psychological institutions, the persistent loneliness of the adult population in China has been on the rise year by year, with young individuals aged 18 to 29 becoming the high-risk group for digital loneliness. More than 60% of young individuals admit that online communication is difficult to alleviate their profound psychological loneliness [1]. Massive fragmented social information surrounds daily life, high-frequency online conversations have not brought psychological distance closer, and interpersonal emotional barriers have gradually solidified, becoming a common group psychological characteristic at present.

The innate personality traits of individuals determine the threshold of emotional perception and social behavior tendencies. Neurotic personality under the *Big Five* personality framework is generally accompanied by intense emotional fluctuations, sensitive perception of negative

emotions, and weak psychological resilience, which profoundly affects individuals' online social experiences and behavioral choices. Metacognition, as the core ability for individuals to autonomously control their thinking logic, directly affects netizens' information analysis, social behavior judgment, and online identity positioning.

Most existing academic research focuses solely on exploring the correspondence between personality traits or cognitive abilities and feelings of loneliness, and there is a lack of analysis on the correlation between digital loneliness and self-identity under bivariate interaction. This study relies on orthodox psychological theories and domestic research data to objectively dissect the internal mechanisms of psychological variables, delve into the causes of digital loneliness, analyze the causes of self-identity imbalance, and propose regulatory pathways based on psychological development laws to help individuals alleviate loneliness and shape healthy self-identity.

2. Definition of Core Concepts and Theoretical Basis

To conduct research, it is necessary to first clarify the connotation of core concepts, build an analytical framework based on classical psychological theories, and then analyze the intrinsic relationships between variables. Neurotic personality, metacognitive ability, digital loneliness, and self-identity constitute the core categories of this study, and the inherent attributes of these four concepts can all affect an individual's psychological development status.

Neurotic personality is a stable trait in the personality system. According to the Chinese academic norms, this group has weak emotional regulation ability and often experiences negative emotions such as anxiety and low mood. When dealing with social setbacks and external evaluations, their psychological tolerance is low. Chinese universities commonly use the *NEO Personality Inventory* to assess psychological states, and data shows that individuals with prominent traits are more likely to develop emotional and psychological problems. These types of individuals have a keen perception of external changes and lack facial and physical assistance in online communication, making it easy for them to subjectively speculate on others' thoughts and resist deep online communication.

Metacognition was proposed by Flavell and gradually refined, and can be divided into three basic modules. Cognitive reserve reflects an individual's understanding of their own thinking and problem-solving abilities, psychological experience records subjective feelings during the cognitive process, and cognitive regulation is used to autonomously adjust thinking styles. Empirical observations indicate that individuals with strong metacognitive competence adapt better to diverse social scenarios and can rationally distinguish the authenticity of online information [2]. Lack of regulatory ability can lead to biased thinking and judgment.

There is a fundamental difference between digital loneliness and the loneliness of daily solitude. Being in a frequent online social environment, even with diverse online communication channels, some individuals still cannot find emotional comfort and fall into a state of mental alienation. This type of psychological problem is not caused by limited interpersonal contact, but rather by shallow utilitarian online interactions. Self-identification is a comprehensive judgment of one's own personality, identity, and value. The frequent switching of online images makes it difficult for many individuals to recognize their true selves.

Research relies on social comparison theory, cognitive bias theory, and self-determination theory to build an analytical system. The psychological gap caused by online browsing can be interpreted with the help of social comparison theory. Imbalance in thinking triggers negative emotions, which falls within the scope of cognitive bias theory research. When emotional needs cannot be met, fluctuations in self-identity can be analyzed using self-determination theory [3]. The three types of theories complement each other, laying a solid theoretical foundation for this study.

3. The impact mechanism of neurotic personality on digital loneliness

Neurotic personality is shaped by the interaction between innate temperament and postnatal growth environment, and is a highly stable personality trait. This trait is not a single emotional tendency, but a holistic psychological tendency from emotional perception, thinking patterns to social behavior, continuously permeating the entire online social process of individuals, gradually giving rise to digital loneliness, and its effects vary across different groups.

The most prominent trait of individuals with high neuroticism is a low emotional perception threshold, particularly sensitive to capturing negative signals, which can easily trigger online social anxiety. These individuals have a much higher perception of subtle social details than ordinary individuals, and even small differences in interaction can trigger strong emotional fluctuations. A survey conducted by Chinese universities shows that individuals with poor emotional stability tend to experience more pronounced online social anxiety [4]. The lack of nonverbal cues such as facial expressions and body language in online communication, as well as common scenarios such as delayed message replies and brief text expressions, are often interpreted as deliberate alienation. As negative emotions build and inner tension rises, one's willingness to engage socially diminishes, and loneliness quietly accumulates through repeated passive avoidance.

These individuals tend to view the world through a negative lens, which easily distorts their interpretation of online social information. Faced with ambiguous online interactions, they are more inclined to make negative attributions. Ordinary individuals often attribute others' perfunctory responses to busy affairs, while neurotic individuals are prone to self-doubt and assume that they are not valued. Long-term negative perspectives on online communication make it difficult for individuals to perceive the positive experiences brought about by social interaction, and every communication becomes a psychological burden, ultimately leading to active alienation from various online social circles.

After repeatedly experiencing social setbacks, individuals with high neuroticism are prone to a vicious cycle of social disengagement [5]. Deliberately reducing online chatting, dynamic sharing, and other interactions is intended to avoid negative emotional harm, but in reality, it completely cuts off the channel for emotional expression. Virtual social networking tends to lean towards shallow connections, and excessive self-isolation will only further weaken interpersonal bonds, ultimately creating a vicious cycle of avoidance, loneliness, and further withdrawal, with a continuous increase in inner alienation.

There are significant group differences in the influence of this trait: adolescents have not yet formed their personality, and are most affected by it; Women have a more delicate emotional perception and a relatively higher probability of experiencing digital loneliness; The highly educated individuals have stronger self-adjustment ability and can effectively buffer the negative effects of traits, resulting in generally lower levels of loneliness.

4. The moderating role of metacognition in digital loneliness and self-identity

Metacognition is a cultivable psychological capacity. It cannot eliminate loneliness directly, but it can alleviate the negative effects of neurotic personality and protect individuals' online mental well-being. Individuals rely on this ability to examine their own thoughts, correct misconceptions, alleviate mental exhaustion from loneliness, maintain stable self-identity, and balance personality with online psychology.

Cognitive regulation is the core of metacognition, which can correct one-sided cognition in online social interaction. The scattered and vague content of online information can easily lead to subjective judgments. Individuals with good cognitive abilities often organize their thinking

process, distinguish between real situations and subjective thoughts [6]. When encountering situations such as delayed replies and reduced interaction, one will not simply feel ignored, but will judge the reasons based on the actual situation. By adjusting their own thinking, individuals can reduce the occurrence of negative thoughts, prevent the spread of bad emotions, and mitigate the psychological impact of personality traits.

Accumulated cognitive experience enables individuals to engage in online communication rationally. By recognizing one's thinking characteristics and familiarizing themselves with online interaction patterns, individuals can distinguish between online and real-life interactions. The content displayed on the internet is mostly modified, and simple interactions such as likes and comments cannot judge the quality of interpersonal relationships and personal value. Emotionally sensitive individuals can see the essence of the internet and calm down their expectations for social interaction, which can reduce the low mood caused by the gap.

Metacognitive experience can detect emotional changes in a timely manner and help individuals adjust their own mentality. Individuals are able to distinguish the origin of emotions, distinguish between genuine inner emptiness and fleeting emotions triggered by the internet. When individuals perceive that their mentality is not right, they can shift their attention, look at the problem from a different perspective, and not let their loneliness continue to worsen. Timely sorting out emotions can weaken the impact of negative emotions and prevent mental imbalance from disrupting self-identity.

The intensity of the influence of personality traits will change with the level of metacognition [7]. When individuals' emotional sensitivity is similar, their cognitive abilities may differ, and their psychological states may also differ. Those with good cognitive abilities can restrain negative thoughts, stabilize their emotions, and not easily fall into loneliness. Those with weak cognitive abilities find it difficult to adjust their mentality; negative emotions continue to accumulate, and feelings of loneliness gradually deepen.

5. The self-identity dilemma and its manifestations caused by digital loneliness

Long-term exposure to online loneliness not only causes emotional torment, but also gradually damages one's internal self-identity. Virtual social interaction has unique characteristics of interaction, coupled with deficiencies in personality and cognition, individuals' originally clear self positioning will gradually become blurred, and various self-identity problems will arise, mainly manifested in four aspects: image, value, cognition, and real-life social interaction.

Individuals often have multiple online identities, which can easily lead to fragmented self-identity [8]. People adjust their behaviors and expressions in family and friends groups, work platforms, and entertainment groups, showing completely different appearances. Playing these virtual roles for a long time makes it difficult for individuals to integrate their own traits and distinguish between online personas and their true selves, often leading to identity confusion in their hearts. The platform algorithm pushes content based on browsing habits, fixing a single online image and widening the gap between online and offline, leading to confusion in self-identity.

Various online data indicators can easily cause biases in self-worth evaluation. Many people judge personal charm and worth by likes, followers and interaction frequency [9]. Individuals experiencing loneliness lack a sense of security and tend to define themselves based on external evaluations online. When the data performance is good, it will briefly gain confidence, and when the interaction is quiet, it will immediately negate oneself. Long term reliance on online evaluation to recognize oneself will lead to a continuous weakening of personal independent

judgment ability, fluctuating emotions with online feedback, and a constant oscillation in self-worth cognition.

The mutual comparison in the online environment will constantly intensify the mentality of self-doubt. Most of the daily clips on the platform are decorated and beautified, and it is inevitable to unconsciously compare them during browsing. Sensitive individuals are prone to psychological discrepancies. Those prone to anxiety struggle with self-acceptance, and after witnessing others' glamorous lives, they are more likely to magnify their own shortcomings and frequently fall into self-devaluation. Repeated negative comparisons continue to deplete one's sense of identity, causing individuals to become increasingly aware of their own shortcomings and gradually resist accepting their true selves, resulting in a continuous decline in their level of self-identity.

Excessive addiction to online communication will gradually distance oneself from daily real-life interactions. After adapting to the relaxed and casual communication mode of the internet, the ability to express oneself face-to-face will gradually weaken. In real life interactions, it is inevitable to have conceptual differences and emotional adjustments. After encountering setbacks, lonely groups become increasingly resistant to offline interactions and turn to hiding in the internet for comfort. The opportunities for offline interaction are constantly shrinking, and individuals are unable to rely on real interactions to recognize themselves. Their cognition gradually deviates from real life, and ultimately falls into self-isolation, impeding healthy self-identity development.

6. Intervention strategies and practical paths based on metacognition

Combining the formation logic of digital loneliness, based on the cultivation of metacognition, and taking into account the stability of personality traits, intervention paths can be designed from cognitive correction, knowledge dissemination, emotional regulation, and social reconstruction to alleviate psychological distress, repair self-identity, and help the public build a healthy digital psychological state.

Doing a good job in cognitive correction is the primary step of intervention, and the core is to break the one-sided thinking patterns in online social interaction. Research has found that most people tend to subjectively speculate and ignore objective facts when encountering negative online feelings. The training revolves around self-examination, rational judgment, and cognitive restructuring, recording events that trigger negative emotions, sorting out inner thoughts, distinguishing facts from subjective thoughts, and abandoning negative thinking methods [10]. Schools and community psychological stations regularly organize group activities, relying on case studies and scenario exercises to gradually correct cognitive biases and reduce the breeding of loneliness from the source.

Merely adjusting thinking patterns is insufficient; it is even more necessary to establish a rational concept of online communication. Students and young professionals are more susceptible to digital loneliness, and many lack relevant knowledge, mistaking shallow online interactions for genuine friendships. During the popularization stage, explain the connotation of metacognition and personality emotional characteristics, and demonstrate that online content is often beautified and packaged, and online interaction cannot replace real emotional communication [11]. The campus integrates content into psychological classrooms, while the workplace uses popular science sharing to convey ideas, helping individuals establish rational cognition and reduce psychological gaps.

While clarifying cognition, it is also necessary to strengthen emotional regulation to alleviate emotional distress. Related studies have shown that individuals who are trapped in loneliness find it difficult to distinguish emotional changes and often amplify temporary feelings of low mood. Relying on psychological training to identify various negative emotions and accept the

normal nature of emotional fluctuations. When encountering negative emotions, use relaxation methods to adjust the state and temporarily detach from the online environment. Professional psychology courses can guide sensitive individuals to accept themselves, alleviate inner distress, and reduce the interference of negative emotions on self-identity.

Effective emotional counseling and returning to real-life interactions are essential for stabilizing self-identity. Individuals should reasonably control their online time, avoid becoming addicted to the virtual world, and actively participate in offline communication and collective activities. Accumulate experience in daily gatherings, interest activities, and public welfare practices, and rely on real-life interactions to clarify one's own positioning. Multiple parties work together to create a harmonious offline environment, allowing individuals to step out of online life, improve their personal image in companionship, and form a stable and complete self-identity.

7. Conclusion

Findings indicate that neurotic personality and metacognition together shape people's online psychological states. The interweaving of two factors has given rise to the problem of digital loneliness, constantly disrupting individuals' self-identity structures, and becoming the main cause of the formation of current online psychological problems. These personality traits can amplify negative emotions, distort real-life views, and deliberately avoid socializing, leading to an increasing sense of inner alienation. Emotionally sensitive individuals are more likely to fall into loneliness, and the related psychological effects may vary depending on individual conditions such as age and education.

Individuals with weak cognitive abilities struggle to regulate their mentality, leading to persistent negative emotions and worsening loneliness. Such deficits hinder one's ability to distinguish virtual personas from the real self and maintain stable cognitive boundaries. If cognitive development lags behind and individuals are unable to adjust their thoughts and mentality independently, their personality weaknesses will be further highlighted, and psychological distress will also intensify.

Digital loneliness not only causes low mood, but also leads to problems such as scattered image cognition, imbalanced value judgments, and avoidance of real-life interactions. Long-term exposure to this state can hinder physical and mental development and personality growth. Taking metacognitive cultivation as the starting point, interventions can be carried out from the perspectives of thinking correction, emotional counseling, social balance, etc., which can effectively alleviate psychological pressure and guide individuals to break out of cognitive misconceptions.

This study is based on existing empirical results to sort out variable associations and intervention strategies. Long term follow-up has not yet been conducted, and it is temporarily impossible to determine the long-term effects of intervention methods. Long term research can be conducted on the group in the future to deeply analyze the underlying mechanisms of psychological influence. In daily life, with joint efforts from all stakeholders-prioritizing cognitive cultivation, fostering rational online attitudes, and balancing virtual and real life-individuals can gradually overcome digital loneliness and foster a stable self-identity.

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