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Character Strengths of East Asia Adolescents and Their Relationships with Internet Addiction

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Abstract.
With the advancement of technology, the use of the internet has become increasingly indispensable in daily life, leading to a growing concern over internet addiction among adolescents. This study aims to explore the relationship between character strengths and internet addiction in adolescents. A questionnaire survey was conducted with a sample of 310 Taiwanese high school students. The research instruments used were the "New Inventory of Adolescents' Strengths"(NIAS) and the "chen internet addiction scale short version"(CIAS-10). Data analysis was performed using Pearson's product–moment correlation, *t*-tests, and ANOVA. The results of the study revealed the following: (1) Adolescents scored highest in character strengths related to "Gratitude," "Emotion Self-awareness," and "Love," while approximately 20.0% of students showed a tendency toward internet addiction; (2) Female participants demonstrated higher strengths in the dimensions of "Empathy," "Gratitude," "PersonMaking," and "Love," but no significant gender differences were found regarding internet addiction; (3) "Self-esteem," "Emotion Self-awareness," "Perseverance," and "Self-control" exhibited a strong negative correlation with internet addiction. These findings provide a foundational basis for further research into the relationship between character strengths and internet addiction among adolescents. Strengthening specific character strengths may potentially contribute to reducing levels of internet addiction.

Keywords: adolescents, character strength, internet addiction

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1. BACKGROUND

With the development of modern technology, the internet has profoundly influenced people's lives and learning. The popularity of smartphones and internet access has made it easier for people to get online anytime and anywhere. However, over-reliance on the internet may also lead to some negative impacts, especially for adolescents who are in their critical developmental stage[1]. Internet addiction can not only affect adolescents' academic performance and interpersonal relationships, but also have adverse effects on their mental health[2].

Previous studies focused mainly on improving adolescents' negative psychological states. With the rise of positive psychology, scholars have begun to explore how to cultivate adolescents' positive psychological qualities[3]. Strengths and virtues are core concepts of positive psychology, and are considered important factors for enhancing happiness and life satisfaction[4]. Developing adolescents' personal strengths may be an effective approach to preventing and alleviating internet addiction.

Therefore, the purpose of this study is to investigate the status of strengths and internet addiction among Taiwanese adolescents, as well as the correlation between the two. The findings can provide empirical evidence for strengthening adolescents' positive psychology as a means of preventing internet addiction.

1.1. Adolescent Strengths

Peterson and Seligman [5] and their research team analyzed and summarized the most influential cultural systems, philosophies, and religious beliefs in today's human society. This covers Christianity, Buddhism, Western philosophical thoughts, Eastern Confucianism and Taoism, the Boy Scout Code, etc., encompassing various aspects across three major cultural systems. They identified six core virtues and 24 character strengths. Although strengths are stable positive individual traits, unlike inborn talents, they can be cultivated through practice and effort. [5] In addition, Rawana and proposed that although individual strengths are inherent inclinations, their construction and development are interconnected with the socio-cultural environment. Wong [6] further interpreted the relationship between individual strengths and the social environment from the perspective of social constructivism. In summary, strengths are not just individual traits, but also abilities needed to develop in the culture one is situated in. Therefore, the importance of strengths is self-evident during adolescence when young people prepare to construct self-identity and become independent.

Based on the six virtues and 24 strengths, Peterson and Seligman [5] developed the Values in Action Inventory of Strengths (VIA-IS). However, as this inventory was designed mainly for adults with a large number of items, many scholars have since developed adapted versions for adolescents or children. For example, Park and Peterson [7] created the VIA-Youth based on the VIA-IS, applicable for adolescents aged 10-17, with 198 items.

As mentioned earlier, the construction of individual strengths is closely related to socio-cultural contexts. The differences between Eastern and Western cultures and values also influence individual strengths. Although Peterson and Seligman covered

Eastern philosophies and religions in their original literature review, there remain discrepancies from contemporary Chinese culture. For instance, in Chinese culture, considering others' face is a virtue, which conflicts with "authenticity." Therefore, local scholars Wu et al. (8) developed the New Inventory of Adolescents' Strengths (NIAS) based on the VIA-IS, aligning with Chinese moral education. It encompasses 11 adolescent strengths across three second-order dimensions of self, others, and things: self-esteem, emotional awareness, optimism, forgiveness, empathy, gratitude, humanity, love, creativity, perseverance, and self-control.

Finally, this study adopts Wu et al.'s [8] definition and classification of adolescent strengths, taking moral education as the starting point. Strengths are seen as core positive traits that reflect adolescents' thoughts, emotions, and behaviors. The abbreviated version of the NIAS by Kuo and Wu [9] is used as the measurement tool for participants' strengths.

1.2. The Relationship between Adolescent Strengths and Internet Addiction

With technological advancement, internet use has become indispensable in daily life. Compared to ten years ago, the advent of smartphones enables people to get online anytime, anywhere. While bringing greater convenience in socializing, work, and learning, the internet also faces serious mental health issues, namely internet addiction.

In research on internet addiction, social psychologists believe the reward and reinforcement are the reasons why internet addicts find it hard to refrain from online activities. (10) Suler categorized internet addiction into two types. The first is the social type. People hope to obtain care through virtual relationships without fully exhibiting themselves, thereby connecting with society. Most internet addiction is this type. The second is the asocial type. Such users may only want to satisfy needs of self-identity, self-esteem, and self-worth online to escape deficiencies in life.

In Suler's theoretical model, the social type of internet addiction stems from a lack of connections with others. In the "others" dimension of adolescent strengths, including forgiveness, empathy, gratitude, humanity, and love, the emphasis is on social relationships. For the second asocial type of internet addiction, the issues lie in self-identification and needs, corresponding to the "self" dimension of adolescent strengths, including self-esteem and emotional awareness, optimism.

Additionally, studies have proven that internet addicts tend to have poorer impulse inhibition. [3,8] Shaw and Black [10] concur that they often disregard severe consequences and fail to resist the impulse to engage in certain behaviors, or seldom inhibit such urges even when feeling discomfort. This relates to the “things” dimension of adolescent strengths, including creativity, perseverance, and self-control. Research into adolescent internet addiction is therefore imperative. In summary, as one of the most influential issues among adolescents today, this study aims to explore the correlational relationships between internet addiction and personal strengths. Readers can consider the following three questions: 1) This study explores the score distribution across different character strengths among adolescents, and the prevalence of internet addiction; 2) Whether gender influences the manifestation of character strengths and the form of internet addiction; 3) The nature of correlations between character strengths and internet addiction.

2. RESEARCH METHODS

2.1. Research Participants and Procedures

The research participants were high school students in Taiwan. Using the administrative divisions of Taiwan, the island was divided into four regions: north, central, south, and east. Stratified random sampling was conducted based on the population ratio. The survey was administered on-site by a teacher assigned from each class. Before the test, the teacher explained to the students according to prepared instructions. The test took around 40 minutes. After completion, the assigned teachers mailed back the questionnaires collectively. After collecting the returned questionnaires, those with missing responses or contradictory answering tendencies were excluded. The final valid samples were 310, including 119 from the north (38.39%), 70 from the central (22.58%), 119 from the south (38.39%), and 2 from the east (0.64%). By gender, there were 143 male (46.13%) and 167 female (53.87%). By grade, there were 138 10th graders (44.52%), 77 11th graders (24.84%), and 95 12th graders (30.64%).

2.2. Research Instruments

2.2.1. Abbreviated Version of the New Inventory of Adolescents' Strengths

This study adopted the abbreviated version of the New Inventory of Adolescents’ Strengths by Kuo and Wu [9] to measure adolescent strengths. Grounded in the three

dimensions of self, others, and things as second-order factors, it encompasses 11 core adolescent strengths: forgiveness, love, creativity, self-control, perseverance, self-esteem, emotional awareness, empathy, humanity. The full scale has 33 items, with 3 items per core strength subscale. There are no reverse-scored items. A 5-point Likert scale is used, from 1 (very undescriptive of me) to 5 (very descriptive of me). Therefore, the subscale score is equal to the strength score. The overall Cronbach's α of the scale was .93, and .58 to .86 for the subscales, indicating good internal consistency and construct validity.

2.2.2. Chen Internet Addiction Scale Short Version (CIAS-10)

This study used the Chen Internet Addiction Scale Short Version (CIAS-10) developed for the Ministry of Health and Welfare in Taiwan, referencing the original Chen Internet Addiction Scale (CIAS) (6). It can be divided into two subscales: Core Symptoms of Internet Addiction and Related Problems of Internet Addiction. The full scale has 10 items using a 4-point Likert scale, from 1 (strongly undescriptive to 4 (strongly descriptive), without reverse-scored items. A total score of 28 or above indicates internet addiction. The Cronbach's α of this scale was .84, demonstrating good reliability and construct validity.

2.3. Data analysis technique

The data was analyzed using SPSS statistical software for descriptive statistics, independent sample t-tests, and Pearson correlation analysis.

3. RESULT

3.1. Adolescents scored highest in character strengths related to ``Gratitude," ``Emotion Self-awareness," and ``Love," while approximately 20.0% of students showed a tendency towards internet addiction.

Among Taiwanese adolescents' strengths, "Gratitude" had the highest average score, followed by "Emotion Self-awareness" and "Love." 62 students scored 28 or above on "Internet Addiction," indicating a tendency toward high internet use immersion. This accounts for 20.0% of the total sample. In other words, about one out of five high

school students may have an internet addiction problem, demonstrating the severity of this issue.

3.2. Female participants demonstrated higher strengths in the dimensions of ``Empathy," ``Gratitude," ``PersonMaking," and ``Love," but no significant gender differences were found regarding internet addiction.

Analysis using independent sample t-tests revealed significant differences in high school students' strengths across genders. Female students scored significantly higher on "Empathy," "Gratitude," "PersonMaking," and "Love" compared to males. This indicates female high school students are more adept at "others"-related strengths, with better performance in "Empathy," "Gratitude," "PersonMaking," and "Love." However, analysis of gender differences in internet addiction showed no statistically significant differences.

TABLE 1: The t-test of the difference in the effectiveness of the strength scale of the gender.

dimension	Male (*N*=167)		Female (*N*=143)		df	*t*	*p*	effect size(*d*)
	Mean	SD	Mean	SD				
self-esteem	3.42	0.92	3.16	0.85	308	2.61*	.010	.297
emotion self-awareness	3.92	0.70	3.95	0.63	308	-0.42	.674	.048
optimism	3.58	0.85	3.56	0.73	308	0.26	.793	.030
empathy	3.73	0.74	3.90	0.64	308	-2.12*	.035	.238
forgiveness	3.01	0.97	2.91	0.93	308	0.99	.324	.113
gratitude	4.14	0.68	4.36	0.57	308	-3.17**	.002	.356
person-making	3.67	0.76	3.90	0.59	306	-2.96**	.003	.330
love	3.75	0.79	3.94	0.67	308	-2.29*	.023	.258
creativity	3.60	0.76	3.38	0.73	308	2.63**	.009	.299
persistence	3.36	0.82	3.45	0.75	308	-0.98	.330	.111
self-control	3.42	0.81	3.53	0.71	308	-1.26	.208	.144

*p < .05, **p < .01, ***p < .001

3.3. ``Self-esteem," ``Emotion Self-awareness," ``Perseverance," and ``Self-control" exhibited a strong negative correlation with internet addiction.

Pearson correlation analysis revealed a strong negative correlation between "Self-esteem," "Emotion Self-awareness," "Perseverance," and "Self-control" and internet

addiction. The strengths female students performed better at, including “Empathy,” “Gratitude,” “PersonMaking,” and “Love,” showed no significant correlations. This contradicts Suler’s theory of the social internet addiction type and may relate to shifts in internet use habits.

Table 2: Analysis of strengths in relation to internet addiction.

	Internet Addiction	Core Symptoms	Issues Related
Self	-0.21**	0.15**	-0.25**
Other	-0.07	-0.02	-0.14*
Things	-0.30**	-0.24**	-0.32**
self-esteem	-0.19**	-0.15**	-0.20**
emotion self-awareness	-0.18**	-0.14*	-0.20**
optimism	-0.14*	-0.08	-0.20**
empathy	-0.001	0.05	-0.08
forgiveness	-0.04	-0.04	-0.03
gratitude	-0.001	0.03	-0.05
person-making	-0.12*	-0.05	-0.19**
love	-0.10	-0.03	-0.18**
creativity	-0.11	-0.07	-0.14*
persistence	-0.25**	-0.19**	-0.27**
self-control	-0.34**	-0.30**	-0.32**

* $p < .05$, **$p < .01$

4. DISCUSSION

4.1. Elucidating the correlations between character strengths and internet addiction

This study revealed moderate to high negative correlations between strengths like self-esteem, emotional awareness, perseverance, self-control and internet addiction, consistent with existing literature (9–12). This indicates that cultivating positive personal traits may help mitigate addiction risks among adolescents. Specifically, those with higher self-esteem are more capable of resisting excessive internet use and developing addictive symptoms. Additionally, greater emotional awareness enables individuals to notice over-engagement online and its detrimental effects early on, and withdraw in time to prevent dependence. In terms of perseverance and self-control, they pertain to impulse inhibition and goal maintenance abilities. Adolescents possessing these qualities are more capable of self-regulating online time instead of over-immersing in the virtual world at the expense of schoolwork and life. In summary, future research could

develop relevant intervention programs targeting the above strengths as prevention strategies.

4.2. Unpacking the implications of gender differences

The study found females superior in certain strengths like empathy, gratitude, humanity and love, yet no significant gender differences regarding internet addiction levels. This contradicts with previous studies which suggested gender differences in internet addiction, with males being more susceptible than females (2, 7, 13). However, with the convergence of gender roles, male and female online behaviors have become analogous, which also aligns with role assignments in this information age. (14) Lin's [15] study on Taiwanese university students also indicated non-significant gender differences in internet addiction. Specifically, despite females being more adept at interpersonal connections, they do not differ in utilizing internet tools, thus facing similar addiction risks as males. Therefore, discussions of adolescent internet addiction should not differentiate by gender. For parsing group differences, future studies could consider other factors like online usage motivations (1, 16).

4.3. Depicting the shifts in internet use habits

Past theories often attributed addiction to compensating for poor social skills, yet this study found socially competent females also faced addiction risks. This signifies an evolution of internet use from a singular social function to multifaceted life domains [17]. Adolescents now regard the internet as the primary approach to daily affairs and socializing, rather than just enhancing interpersonal ties. Hence, discussions of internet addiction should consider situational and cultural contexts, not just social motivations (4, 5). Additionally, internet and smartphone addiction are interrelated rather than independent issues today [18].

4.4. Proposing directions for further research

Given the present-day realities of "ubiquitous connectivity" [19], future research should adopt a holistic social-ecological perspective, examining the dynamic relationships between varied usage patterns (functional, recreational, etc.) and addiction levels. (1, 18, 20) For adolescent internet addiction prevention, positive development should be considered in addition to negative emotion regulation, in order to propose tailored,

culturally-sensitive management strategies that promote healthy growth. Incorporating addiction prevention in strengths development programs could also serve as a direction to facilitate adolescent. thriving.

5. CONCLUSION

In light of the present findings, positive personal traits such as self-esteem and emotional awareness may act as protective factors against internet addiction among adolescents. In contrast to previous beliefs that internet addiction shows gender differences, this study revealed no significant distinctions between genders regarding addiction tendencies. This provides new perspectives for parents and educators that they should focus on nurturing adolescents' self-regulatory capacities when supervising internet use, instead of differences based on gender. With the evolution of times, the internet has undoubtedly become an integral part of adolescents' lives. Hence, further research could investigate associations between usage motivations and addiction levels, as well as personalized internet management strategies based on users' dispositions. This will offer important insights for formulating internet plans that promote adolescent well-being and preventing internet addiction.

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