

## Sensation seeking, narcissism, social comparison and online social networking usage behavior of undergraduate students at Kasetsart University

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### Abstract

The research was to study sensation seeking, narcissism, social comparison and online social networking usage behavior of undergraduate students at Kasetsart University, Thailand. The objectives of this research were 1) to study the level of sensation seeking, narcissism, social comparison and online social networking usage behavior of students, 2) to study the relationship between sensation seeking and online social networking usage behavior of students, 3) to study the relationship between narcissism and online social networking usage behavior of students, and 4) to study the relationship between social comparison and online social networking usage behavior of students. The samples of this study were 1,192 undergraduate students of Kasetsart University. Data was collected by questionnaires. The statistical data analysis was consisted of percentage, mean, standard deviation Cronbach's alpha reliability coefficient and Pearson product-moment correlation coefficient.

The results indicated that undergraduate students at Kasetsart University had medium level of sensation seeking and social comparison, low level of narcissism and online social networking active usage behavior, and high level of online social networking passive usage behavior. Sensation seeking, narcissism and social comparison were positively related to online social networking active usage behavior. Narcissism and social comparison were negatively related to online social networking passive usage behavior, while sensation seeking was unrelated to online social networking passive usage behavior.

**Keywords:** sensation seeking, narcissism, social comparison, online social networking usage behavior

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### 1. Introduction

One of the present day phenomena that is revolutionizing the world through the internet is the social media, which comes in many forms, including blogs, forums, business networks, photo-sharing platforms, social gaming, microblogs, chat apps, and last but not least social networks. The power of social networking is so intriguing that the number of worldwide users is expected to reach approximately 2.95 billion by 2020 [1]. Recently, various online social networks such as Facebook, Instagram, and Twitter have become more popular all over the world. According to the data in October 2016, the statistic shows the number of social media users worldwide from 2010 to 2016 with projections until 2020. In 2018, it is estimated that there will be around 2.67 billion social media users around the world, increasing from 1.91 billion in 2014 [1]. Online Social Networks (OSN) have enabled people to be able to express their thoughts and feelings, presenting and sharing their life events and personal information on

OSN. Especially, adolescents can access OSN became part of everyday life) easily via smartphones that they can perform various online social activities, such as friendship creation, content publishing, profile browsing, messaging, and commenting. Understanding online social networking is important to describe young people's social life and interaction between human and new virtual technology.

In 2016, Digital Year Book was reported that active social media users were 38.00 million, penetration 56% of 68.05 million of total Thai's population [2]. The popular online social network was Facebook (41 million) grew rapidly 17%. Thailand was ranked 8<sup>th</sup> in the world of using Facebook and 3<sup>rd</sup> of South East Asia [3]. Digital devices were used to access online social network via smart phone 64%, laptop or desktop computer 27% and tablet device 11% [2]. Raphiphan [3] mentioned that Thai people were trend to be social network addiction because of using online social network all time; starting from waking up, going into the bathroom, while working,

having meal, traveling or even before bedtime. Online social networks affected Thai people in everyday life.

Online social networking usage behaviors can be categorized into active and passive forms of usage [4, 5]. Active usage refers to activities that facilitate direct exchanges with others, such as posting status updates, commenting on posts. Whereas, passive usage involves consuming information without direct exchanges, such as scrolling through news feeds, viewing posts [6]. This distinction is crucial for comprehending characteristics of Thai's online social networks behavior.

The amount of information regarding people's lives on online social networks is overwhelming, demonstrating various personal perceptions and feelings. A fundamental psychological process leading how people think about themselves and others is social comparison. In the online social networks, self-presentation is to convey some information or image about oneself to others, pervasively motivated by impression management and the presented information is positively partial. In online social networks, social comparison is widespread due to it is easy to receive public data and posts of others, thus those are become the basis for comparison information. The social comparison can affect positively and negatively. In the positive way, social comparison is to learn how to define the self and how to manage the self on uncertain situation. Negative social comparisons are self-defeat, envy, low self-esteem and low satisfaction that may lead to mental health problems and affect psychological well-being [7, 8].

Generally, people tend to pursue sensory pleasure. However, the trait of people who crave for intense sensations, even in involving risky behaviors to pursuit such experience is called sensation seeking. The sensation-seeking is defined as "the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences" [9]. Sensation-seeking is an important trait leading to risk taking behavior, such as drunk driving, reckless driving [10]. Sensation-seeking influences different kinds of risk-taking behavior including OSNs behaviors like online entertainment function of the Internet such as game playing, which serves as a source of excitement for the sensation-seeker. In addition, sensation seekers have characteristics in common with extroverts on OSNs behavior, such as the need for stimulation and a large number of friends [11].

The narcissistic personality has an exaggerated sense of self-importance. Those people expect to be

recognized as superior even without achievements that warrant it, exaggerate their achievements and talents, being preoccupied with fantasies about success, taking advantage of others to get what they want [12]. Narcissists have inflated sense of their own importance, a deep need for admiration and a lack of empathy for others. Mostly, several researchers have found a relationship between narcissism and frequency of using Facebook [13, 14, 15]. Other researchers found that narcissism is associated with the number of friends their participants have on Facebook [16]. If these findings are accurate, it suggests that when people are interacting with others on Facebook, they are more likely to be interacting with individuals who are high in trait narcissism than in other contexts. This study will explore the relationship between narcissism and OSN behavior.

There are lack of adequate research to study online social networking usage behavior in Thailand; therefore, this research sought to study the correlation between sensation seeking (thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility), narcissism (grandiosity, non-sympathy, and emotional instability), social comparison (personal life, social life, and social networking) and online social networking usage behavior of undergraduate students at Kasetsart University. This knowledge will aid more understandings about online social networking usage behavior.

## 2. Research objectives

There are four objectives of this study as the following.

2.1 To study the level of sensation seeking, narcissism, social comparison and online social networking usage behavior of students.

2.2 To study the relationship between sensation seeking and online social networking usage behavior of students.

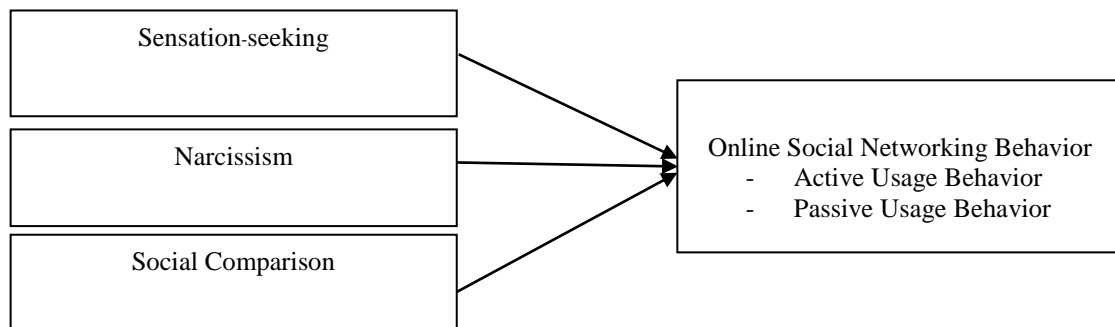
2.3 To study the relationship between narcissism and online social networking usage behavior of students.

2.4 To study the relationship between social comparison and online social networking usage behavior of students.

## 3. Methods

### 3.1 Population and samples

Population of this study was all undergraduate students of Kasetsart University, Thailand (Bangkhen Campus). The samples were cross-sectional collected



**Figure 1** Conceptual framework

from 1,192 undergraduate students of Kasetsart University that randomized by stratified random sampling methods and selected form year of study (1 - 4 year). The participants were given a consent form that described their rights as research participants. After participants agreed to participate, the questionnaires were collected. Data was collected by questionnaires. The statistical data analysis was consisted of percentage, mean, standard deviation Cronbach's alpha reliability coefficient and Pearson product-moment correlation coefficient.

### 3.2 Instruments

The instruments of this study were 4 parts of questionnaires as the following.

Online social networking usage behavior questionnaire was developed from Pagani, Hofacker, and Goldsmith concepts [17] that dichotomizes online social networking behavior as passive usage and active usage. Active usage would prefer the direct activities to exchanges with others (posting status updates, commenting on posts); while passive usage consumed information without direct exchanges (such as scrolling through news feeds, viewing posts [6]. Participants rated each of the items on a 5-point Likert scale with the options strongly disagree, disagree, somewhat agree, agree, and strongly agree. Cronbach's alpha reliability coefficient of online social networking passive usage behavior was 0.7130, and online social networking active usage behavior was 0.8458.

Sensation-seeking questionnaire was developed from sensation-seeking concept of Zuckerman [9] and Arnett [18] that defined as "the need for complex sensations and experiences to take physical and social risks". Participants were asked to report how much they agreed with given statements on a 5-point Likert scale. Cronbach's alpha reliability coefficient of sensation-seeking was 0.9116, with four subscales; thrill and adventure Seeking ( $\alpha = 0.8734$ ), experience

seeking ( $\alpha = 0.8427$ ), disinhibition ( $\alpha = 0.8336$ ), and Boredom Susceptibility ( $\alpha = 0.8729$ ).

Social comparison questionnaire was developed from Festinger (1954 cited in Suls and Wheeler [19]) that defined "persons need to evaluate their opinions and abilities, to figure out our strengths and weaknesses, in order to have an accurate view of ourselves". Participants were asked to report how much they agreed with given statements on a 5-point Likert scale. Cronbach's alpha reliability coefficient of social comparison was 0.9447, with three subscales; personal life ( $\alpha = 0.8776$ ), social life ( $\alpha = 0.9048$ ), and social networking ( $\alpha = 0.8805$ ).

Narcissism questionnaire was developed from DSM-5 [12] and Raskin and Terry [20] that described a pervasive pattern of grandiosity, desire for admiration, and an exaggerated sense of self-importance, attention seeking, and exhibition". Participants were asked to report how much they agreed about themselves with given statements on a 5-point Likert scale. Cronbach's alpha reliability coefficient of narcissism was 0.9447. This study categorized narcissism into three subscales; grandiosity ( $\alpha = 0.9350$ ), non-sympathy ( $\alpha = 0.9187$ ), and emotional instability ( $\alpha = 0.9213$ ).

### 3.3 Conceptual frame work and hypotheses

Conceptual framework:

See Figure 1.

Hypothesis:

1) There are positive relationship between sensation seeking and OSN usage behavior of undergraduate students at Kasetsart University

2) There are positive relationship between narcissism and OSN usage behavior of undergraduate students at Kasetsart University

3) There are positive relationship between social comparison and OSN usage behavior of undergraduate students at Kasetsart University

**Table 1** Means ( $\bar{x}$ ), standard deviations (S.D.) and levels of online social networking usage behavior, sensation seeking, narcissism and social comparison

| Variables                                      | $\bar{x}$   | S.D.        | Level         |
|--|-------------|-------------|---------------|
| <b>Online Social Networking Usage Behavior</b> |             |             |               |
| - Passive Usage                                | 3.61        | 0.52        | High          |
| - Active Usage                                 | 2.56        | 0.65        | Low           |
| <b>Sensation Seeking</b>                       | <b>3.15</b> | <b>0.45</b> | <b>Medium</b> |
| - Thrill and adventure seeking                 | 3.33        | 0.64        | Medium        |
| - Experience seeking                           | 3.69        | 0.55        | High          |
| - Disinhibition                                | 2.54        | 0.68        | Low           |
| - Boredom susceptibility                       | 3.01        | 0.66        | Medium        |
| <b>Narcissism</b>                              | <b>2.42</b> | <b>0.49</b> | <b>Low</b>    |
| - Grandiosity                                  | 2.69        | 0.51        | Medium        |
| - Non-Sympathy                                 | 2.28        | 0.61        | Low           |
| - Emotional Instability                        | 2.18        | 0.64        | Low           |
| <b>Social Comparison</b>                       | <b>2.68</b> | <b>0.59</b> | <b>Medium</b> |
| - Personal Life Comparison                     | 2.75        | 0.63        | Medium        |
| - Social Life Comparison                       | 2.75        | 0.65        | Medium        |
| - Social Networking Comparison                 | 2.47        | 0.74        | Low           |

**Table 2** Correlation between sensation seeking, narcissism, social comparison and online social networking usage behavior

| Variables                      | Online Social Networking Usage Behavior |              |                |              |
|--------------------------------|---|--------------|----------------|--------------|
|                                | Passive Usage                           |              | Active Usage   |              |
|                                | R                                       | p-value      | r              | p-value      |
| <b>Sensation Seeking</b>       | <b>-0.003</b>                           | <b>0.925</b> | <b>0.185**</b> | <b>0.000</b> |
| - Thrill and Adventure Seeking | -0.004                                  | 0.898        | 0.106**        | 0.000        |
| - Experience Seeking           | 0.123**                                 | 0.000        | 0.074*         | 0.011        |
| - Disinhibition                | -0.162**                                | 0.000        | 0.221**        | 0.000        |
| - Boredom Susceptibility       | 0.044                                   | 0.128        | 0.123**        | 0.000        |
| <b>Narcissism</b>              | <b>-0.134**</b>                         | <b>0.000</b> | <b>0.305**</b> | <b>0.000</b> |
| - Grandiosity                  | -0.116**                                | 0.000        | 0.280**        | 0.000        |
| - Non-Sympathy                 | -0.128**                                | 0.000        | 0.252**        | 0.000        |
| - Emotional Instability        | -0.106**                                | 0.000        | 0.274**        | 0.000        |
| <b>Social Comparison</b>       | <b>-0.109**</b>                         | <b>0.000</b> | <b>0.418**</b> | <b>0.000</b> |
| - Personal Life                | -0.068*                                 | 0.019        | 0.338**        | 0.000        |
| - Social Life                  | -0.059*                                 | 0.043        | 0.326**        | 0.000        |
| - Social Network Life          | -0.207**                                | 0.000        | 0.469**        | 0.000        |

#### 4. Results and discussion

This research has found that undergraduate students spent 4.83 hours per day for OSN, the favorite types of OSN were Line (35.32%) and Facebook (34.06%). The preferred OSN activities were pressing like (50.00%), posting photos (12.25%) and commenting (7.63%). The preferred contents of OSN were entertainment (36.32%), social movement/ news (7.05%), and game (6.80%). The benefits of online social networking were communication (40.27%), entertainment (36.91%) and information exchange (5.37 %), respectively.

Table 1 showed the mean scores and S.D. scores of four variables of undergraduate student at Kasetsart

University. Accordingly, majority of the participants had a high level of OSN passive usage, while the level of active usage behavior was low. The mean score of the participants is 3.61 with the S.D. of 0.52 in passive usage behavior, and the mean score of the participant is 2.56 with the S.D. of 0.65 in active usage behavior.

The participants had a medium level of sensation seeking ( $\bar{x}$  = 3.15, S.D. = 0.45) including 2 subscales; thrill and adventure seeking ( $\bar{x}$  = 3.33, S.D. = 0.64) and boredom susceptibility ( $\bar{x}$  = 3.01, S.D. = 0.66), while the level of experience seeking was high ( $\bar{x}$  = 3.69, S.D. = 0.55), but the level of disinhibition was low ( $\bar{x}$  = 2.54, S.D. = 0.68).

The majority of the participants had a low level of narcissism ( $\bar{x} = 2.42$ , S.D. = 0.49) with 2 dimensions; non-sympathy ( $\bar{x} = 2.28$ , S.D. = 0.61) and emotional instability ( $\bar{x} = 2.18$ , S.D. = 0.64), while the level of grandiosity dimension was medium ( $\bar{x} = 2.69$ , S.D. = 0.51).

The majority of the participants had a medium level of social comparison ( $\bar{x} = 2.68$ , S.D. = 0.59) with 2 dimensions; personal life comparison ( $\bar{x} = 2.75$ , S.D. = 0.63) and social life comparison ( $\bar{x} = 2.75$ , S.D. = 0.65), while the level of social networking comparison y dimension was low ( $\bar{x} = 2.47$ , S.D. = 0.74).

Hypothesis 1: There are positive relationship between sensation seeking and OSN usage behavior of undergraduate students at Kasetsart University.

Table 2 showed the coefficient correlation value ( $r = 0.185$ ) indicated that there was a significant positive relationship between sensation seeking and OSN active usage behavior of the participants at 0.001 level. The hypothesis is accepted that found consistent with the results of Wang *et al.* [21] which predicts that sensation seeking will be positively related to online social network especially playing OSN game, and also consistent with Lin and Tsai [11] has developed an internet sensation seeking scale were highly correlated with internet dependency. In contrast, there was not related between sensation seeking and OSN passive usage behavior. Exceptionally, subscale of experience seeking was positively related with passive usage behavior ( $r = 0.123$ ,  $P < 0.001$ ), subscale of disinhibition was negatively related with passive usage behavior ( $r = -0.162$ ,  $P < 0.001$ ).

Hypothesis 2: There are positive relationships between narcissism and OSN usage behavior of undergraduate students at Kasetsart University.

The result indicated that there was positively related between narcissism and OSN active usage behavior ( $r = 0.305$ ,  $P < 0.001$ ), and also there were positively related between OSN active usage behavior and all subscales of narcissism; grandiosity ( $r = 0.280$ ,  $P < 0.001$ ), non-sympathy ( $r = 0.252$ ,  $P < 0.001$ ), and emotional instability ( $r = 0.274$ ,  $P < 0.001$ ). These positive correlation found consistent with the results of Walters and Horton [22] studied the influence of Facebook use on narcissism among male college students found that the relationship between grandiose narcissism and Facebook user more frequency and duration of Facebook using, and also consistent with

Wang [23] studied about the relationship between narcissism, extraversion, drive for entertainment, and narcissistic behavior on social networking sites, he found that narcissistic behavior was predicted use more online time to exhibition to edit picture and check other comments. Consistent with Mantymaki and Islam [24] found the negative view of that narcissism exhibitionism is considered as socio-psychologically dysfunctional because does not maintain interpersonal relationships. In contrast, narcissism was negatively related with OSN passive usage behavior ( $r = -0.134$ ,  $P < 0.001$ ) and also were negatively related with OSN passive usage behavior all subscales grandiosity ( $r = -0.116$ ,  $P < 0.001$ ), non-sympathy ( $r = -0.128$ ,  $P < 0.001$ ), and emotional instability ( $r = -0.106$ ,  $P < 0.001$ ). Narcissism personality generally wanted to expressing themselves to others these characteristics was difference with passive usage behavior.

Hypothesis 3: There are positive relationship between social comparison and OSN usage behavior of undergraduate students at Kasetsart University.

The result showed the relationship between social comparison and OSN active usage behavior ( $r = 0.418$ ,  $P < 0.001$ ) and were positively related with OSN active usage behavior including all subscales personal life ( $r = 0.338$ ,  $P < 0.001$ ), social life ( $r = 0.326$ ,  $P < 0.001$ ), and social network life ( $r = 0.469$ ,  $P < 0.001$ ). These positive correlations found consistent with the results of Cramer *et al.* [25] the study showed that persons compared themselves to others on Facebook for self-evaluation, self-enhancement, self-improvement, and self-destruction motives. Positively ways of social network sites were social enhancement form of self-promotion, and was venues for building social identity and impression management [25]. On the other hand, Lim and Yang [26] the research found that social comparison to media figures correlates with a range of emotional responses as well as with behavioral intention and psychological responses. Envy was negatively the emotional effect that social comparison on social network. Lee [27] found that the more social comparison, the higher level of anxiety and depression. In contrast, social comparison was negatively related with OSN passive usage behavior ( $r = -0.109$ ,  $P < 0.001$ ) and also were negatively related with OSN passive usage behavior all subscales personal life ( $r = -0.068$ ,  $P < 0.05$ ), social life ( $r = -0.059$ ,  $P < 0.05$ ), and social network life ( $r = -0.207$ ,  $P < 0.001$ ). The result revealed that passive usage was low comparison with others that might be less effect of comparison.

## 5. Conclusions

This is the first research in Thailand that studies the sensation seeking, narcissism, social comparison and OSN usage behavior. The level of OSN passive usage behavior was high; while the level of active usage behavior was low that might show that Thai's students were not express or active in online social network sites, such as posting status updates, commenting on posts, but student trended to passive consuming information, such as scrolling through news feeds, viewing posts. The result showed specific OSN usage behavior of Thai's students. The level of sensation seeking was medium that revealed appropriately characters of student that self-control and inhibition under Thai sociocultural context. The level of narcissism was low that showed normal character; however, grandiosity dimension was medium, which might show the positive attitude about themselves. The level of social comparison of students was medium that demonstrated that interchange between people and society to compare, judge, learn and socialize from OSNs.

The correlation between sensation seeking and OSN active usage behavior was positively related. This revealed that sensation seeking trait might be increase risk behavior on social network site; on the other hand, sensation seeking was not related with passive usage behavior. The high sensation seeking was biologically vulnerable sensitive to positive reinforcement by OSN.

The narcissism was positively related with OSN active usage behavior that showed narcissism person might use online social network interchange to show and get attention seeking; therefore, using more frequency and duration of online social networks to express themselves. In contrast, the narcissism was negatively related with passive usage behavior.

The social comparison was positively related with OSN active usage behavior. In contrast, social comparison was negatively related with OSN passive usage behavior. Online social network sites have become the part of virtual social that influenced the persons to perceive, compare and struggle. OSN self-presentation was motivate for impression others. People used OSN to interact with friends and peers on Facebook, Line or Instagram. Furthermore, if vulnerable persons are dependent on information from online social networks, OSNs may be very dominating and influential to those people.

This study has several implications for educators, counselors and policy makers. The finding had showed that undergraduate students spend nearly 5

hours per day for online social network usage behavior that should give more attention and intervention to control over OSN usage behavior. The policy makers should limit time and access control the content of online social networking behavior. Online offender should forthrightly control via criminal code who posts and shares picture of other without their consent. For educators and counselors, the result found that the correlation between sensation seeking, narcissism, social comparison and online social networking active usage behavior that could develop intervention programs to handle sensation seeking, narcissism, social comparison in order to reduce online social networking usage behavior.

A limitation of this study was the cross-sectional study design by questionnaire that was specific and deductive data. Future research design might use qualitative research to get depth and rich of data. Moreover, interested issue should explored the ways in which OSN usage affects to negative emotion and behavior; for example, social network addiction behavior, aggression, jealousy, isolation and mental illness.

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## References

- [1] Statista. **Number of social media users worldwide from 2010 to 2020 (in billions) [Internet]**. [cited 15 September 2016]. Available from: <https://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/>
- [2] Kemp S. 2016 Digital Year Book. **We are Social. [Internet]**. 2016. [cited 5 September 2016]. Available from: <https://www.slideshare.net/wearesocialsg/2016-digital-yearbook>
- [3] Raphipahan P. Social media Thai-populations. **IT24hrs. [Internet]**. [cited 5 September 2016]. Available from: <https://www.it24hrs.com/2016/stat-social-media-thai-populations/>
- [4] Burke M, Marlow C, Lento T. **Social Network Activity and Social Well-Being [Internet]**. [cited 20 August 2016]. Available from: [http://www.thoughtcrumbs.com/publications/burke\\_chi2010\\_sns\\_and\\_wellbeing.pdf](http://www.thoughtcrumbs.com/publications/burke_chi2010_sns_and_wellbeing.pdf). 2010
- [5] Deters FG, Mehl MR. Does posting Facebook status updates increase or decrease loneliness? an online social networking experiment. **Soc. Psychol Personal Sci.** 2013; 4 (5): 1-13.

- [6] Verduyn P, Lee DS, Park J, Shaback H, Orvell A, Bayer J, Ybarra O, Jonides J, Kross E. Passive Facebook usage undermines affective well-being: experimental and longitudinal evidence. **Journal of Experimental Psychology: General**. 2015; **144** (2): 480-488.
- [7] Zuo A. **Social comparison on Facebook measuring up: Social comparison on Facebook and contributions to self-esteem and mental health [Internet]**. 2014. [cited 21 June 2016]. Available from: <https://deepblue.lib.umich.edu/handle/2027.42/107346>
- [8] Appel H, Gerlach AL, Crusius J. The interplay between Facebook use, social comparison, envy, and depression. **Current Opinion in Psychology**. 2016; **9**: 44-49.
- [9] Zuckerman M. **Sensation seeking: Beyond the optimal level of arousal**. Hillsdale, NJ: Erlbaum; 1979.
- [10] Zuckerman M, Neeb M. Demographic Influences in sensation seeking and expressions of sensation in religion, smoking, and driving habits. **Personality and Individual Differences**. 1980; **1**: 197-206.
- [11] Lin SSJ, Tsai CC. Sensation seeking and internet dependence of Taiwanese high school adolescents. **Computers in Human Behavior**. 2002; **18** (4): 411-426.
- [12] American Psychiatric Association. **Diagnostic and statistical manual of mental disorders (DSM 5)**. Washington, DC. 2013.
- [13] Buffardi LE, Campbell WK. Narcissism and social networking web sites. **Personality and Social Psychology Bulletin**. 2008; **34** (10): 1303-1314.
- [14] Mehdizadeh S. Self-Presentation 2.0: Narcissism and self-esteem on Facebook. **Cyberpsychology, Behavior, and Social Networking**. 2010; **13** (4): 357-364.
- [15] Ong EYL, Ang RP, Ho JCM, Lim JCY, Goh D H, Lee CS, Chua AYK. Narcissism, extraversion and adolescents' self-presentation on Facebook. **Personality and Individual Differences**. 2015; **50** (2): 180-185.
- [16] Bergman SM, Fearrington ME, Davenport SW, Bergman JZ. Millennials, narcissism, and social networking: what narcissists do on social networking sites and why. **Personality and Individual Differences**. 2011; **50** (5): 706-711.
- [17] Pagani M, Hofacker CF, Goldsmith RE. The influence of personality on active and passive use of social networking sites. **Psychology & Marketing**. 2011; **28** (5): 441-456.
- [18] Arnett J. Sensation seeking: a new conceptualization and new scale. **Person. Individ. Diff.** 1993; **16** (2): 289-296.
- [19] Suls J, Wheeler L. **Handbook of social comparison: Theory and research**. Springer; 2013.
- [20] Raskin R, Terry H. A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. **Journal of Personality and Social Psychology**. 1988; **54**: 890-902.
- [21] Wang JL, Jackson LA, Zhang DJ, Su ZQ. The relationships among the Big Five Personality Factors, self-esteem, narcissism, and sensation-seeking to Chinese University students' uses of social networking sites (SNSs). **Computers in Human Behavior**. 2012; **28**: 2313-2319.
- [22] Walters NT, Horton R. A diary of the influence of Facebook use on narcissism among male college student. **Computers in Human Behavior**. 2015; **52**: 326-330.
- [23] Wang D. Studied about the relationship between narcissism, extraversion, drive for entertainment, and narcissistic behavior on social networking sites. **Computers in Human Behavior**. 2017; **66**: 138-148.
- [24] Mantymaki M, Islam AKM. The Janus face of Facebook: Positive and negative sides of social networking site use. **Computers in Human Behavior**. 2016; **61**: 14-26.
- [25] Cramer EM, Song H, Drent AM. Social comparison on Facebook: motivation, affective consequences, self-esteem, and Facebook fatigue. **Computers in Human Behavior**. 2016; **64**: 736-746.
- [26] Lim M, Yang Y. Effects of users' envy and shame on social comparison that occurs on social network services. **Computers in Human Behavior**. 2015; **51**: 300-311.
- [27] Lee SY. How do people compare themselves with others on social network sites?: The case of Facebook. **Computers in Human Behavior**. 2014; **32**: 253-260.