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LIFE IN CYBERSPACE: ROLE OF PERSONALITY AND LONELINESS

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Abstract:

The availability and essentiality of internet has increased exponentially in recent years. Individuals go to the internet for information, entertainment, relationships and support. Internet overuse is a raising phenomenon affecting people with varying frequency around the world and has produced negative impacts on the personal and professional aspects of many lives. Earlier research has shown that personality variables and loneliness influence the life in cyberspace. Extraversion/introversion, neuroticism, locus of control and self-efficacy, and social and emotional loneliness influence the individual's internet usage behavior. The present study reviews the earlier research and on the basis of that proposes a conceptual framework of the virtual human with gender, age and internet use moderating the relationship between personality, loneliness, and online flow experiences. It also proposes, online flow experiences mediating the relationship between personality, loneliness, and stress, depression, achievement and quality of life. The relationship between these entire variables act as antecedents of internet addiction disorder, a contemporary problem brought about by easy access to computers and online information. When an individual suffers from depression and stress, and his/her achievement and quality of life deteriorates; s/he is more prone to internet addiction disorder. These people find the virtual environment to be more attractive than everyday reality. Their lives are dominated with their need to be online. As internet use has become an indispensable part of many people lives, a comprehensive understanding of all these variables will enable to further the understanding of life in cyberspace.

Key words: *personality, loneliness, flow, internet use*

1. Introduction

Personality is an individual's unique and relatively stable patterns of behaviour, thoughts and emotions (Friedman and Schustack, 1999). Personality variables like extraversion/introversion and neuroticism (Amichai-Hamburger et al., 2002), locus of control (Hoffman et al., 2003), and computer self efficacy (Compeau and Higgins, 1995) influence the life of individuals in cyberspace. Loneliness is an unpleasant feeling and a subjective experience in which a person experiences a strong sense of emptiness and solitude resulting from inadequate levels of social relationships plays a role in an individual's use of the internet (Morahan-Martin and Schumacher, 2003). Levin and Stokes (1986) propose the term social loneliness to describe loneliness deriving from reduced social relationships, and emotional loneliness to describe loneliness resulting from absence of intimate attachment. Flow is "the state occurring during network navigation which is characterized by a seamless sequence of responses facilitated by machine interactivity, intrinsically enjoyable, accompanied by a loss of self-consciousness, and self reinforcing" (Hoffman and Novak, 2000). People identify themselves on the net when they are in a state of flow. Gender and age (Young and Rogers, 1998) also influence internet use.

The use of internet has increased in recent years. People use internet for information resource, for shopping, and for discussions with other users. Initially, the internet was developed as a technology for providing access to information. Internet users were perceived as information seekers and the phrase 'to browse' the net was introduced. Currently, the internet is also considered to be a social technology providing its users human support and a sense of belonging. In today's world, it is a necessary condition for the development of the digital proficiency required of modern citizens. In spite of the widely perceived merits of this tool, psychologists and educators have been aware of the negative impacts of its use, especially the over or misuse and the related physical and psychological problems. It hampers the mental health of individuals resulting in stress and depression (Takahira, et al., 2008). Internet overuse also deteriorates achievement (Griffiths, 2000), quality of life (Luciana, 2010) of people. Apart from these, one of the most common of these problems is internet addiction. Internet addiction, as a form of technological addiction (Griffiths, 2000) ruins lives by causing neurological complications, psychological disturbances, and relational chaos (Hur, 2006). Internet overuse is a raising phenomenon affecting people with varying frequency around the

world and has produced negative impacts on the academic, relationship, financial, and occupational aspects of many lives (Chou and Hsiao, 2000).

Earlier research has shown relationship of personality and loneliness on mental health, achievement, quality of life, flow and internet use. It has also shown the impact of gender and age in internet use. But, till now the research has not shown the combined relationships of all the aforementioned variables together. On the basis of literature review, the present study proposes a conceptual framework of the virtual human to examine how personality traits like extroversion/introversion, neuroticism, locus of control, and self efficacy influence the online behavior of an individual. The framework also proposes how personality and loneliness may influence mental health, achievement and quality of life with mediating role of flow and moderating effects of gender, age and internet use. As internet overuse interferes with daily life, it will lead to Internet Addiction Disorder in the long run. Thus, we propose a conceptual framework as shown in Figure 1.

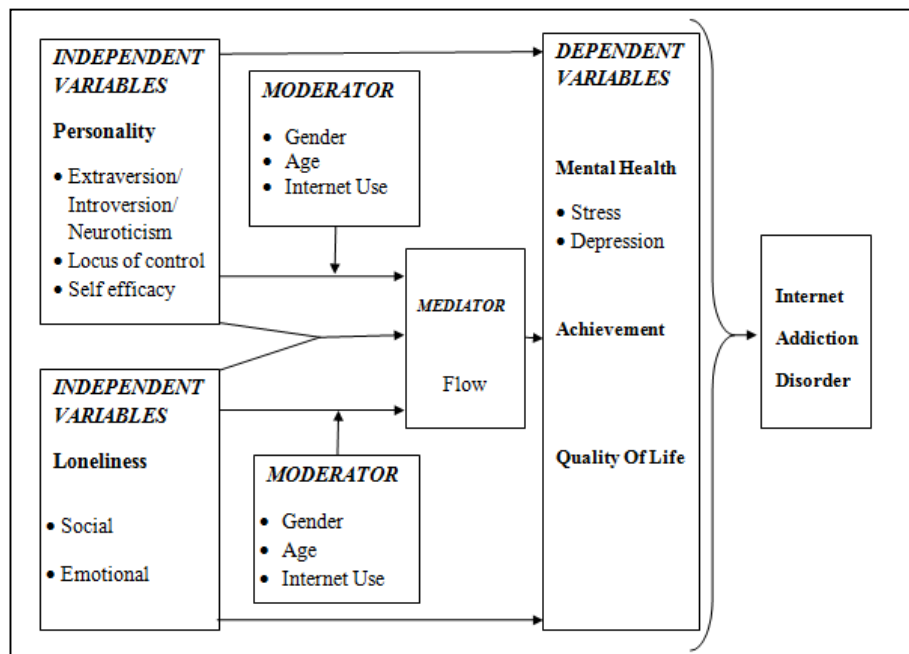


Figure 1: Proposed Conceptual Framework

2. Background and Hypotheses

2.1. Main effects

Research has identified two main personality tendencies: extraversion and neuroticism (Eysenck and Eysenck, 1964). The extrovert is a friendly person who seeks company, desires excitement, takes risks, and acts on impulse, whereas the introvert is a quiet, reflective person who prefers his or her own company and does not enjoy large social events; he or she does not crave excitement and may be seen by some as distant and remote. The neurotic person is an anxious, worrying individual who is overly emotional and reacts too strongly to all types of stimuli. It has also been observed that intensive users of the internet are introverted and more likely to be suffering from depression (Hills and Argyle, 2003). Stress, anxiety, and depression were significantly correlated with neuroticism in both men and women (Newbury-Birch & Kamali, 2000). The depressed patients who had attempted suicide had significantly lower introversion scores than controls. The individual whose behavior is characteristically introverted has a higher probability of being depressed (Jasper, 1930). Research has shown a strong positive correlation between neuroticism and depression (Barrio et al., 1997) while it is also seen that, there exists a negative correlation between extraversion and depression. Barrio et al., 1997 has further found out that the neuroticism level had a stronger relationship to social class, and depression to gender. *Higher-order personality factors have shown a significant and consistent association with major depressive illness includes neuroticism, extraversion (negative relationship). Neuroticism also appears to be the most powerful predictor of depression. Jylha, et al. (2009) found out that neuroticism is strongly associated with depressive and anxiety symptoms, introversion is moderately associated with depressive symptoms and extraversion correlated negatively with symptoms of depression. There also exist positive correlations between extraversion and stress, perceived availability of support, enacted support, and social network characteristics. Neuroticism predicted anxiety and depression. Further analyses suggested that perceived availability of support, in particular might mediate the relationship between extraversion and stress (Swickert et al., 2002).*

Thus we propose,

2.1.1. Proposition 1

The higher the individual is on extraversion and lower on introversion and neuroticism, the lower would be his/her depression and higher would be his/her stress.

Eysenck's (1967) theory of extraversion was analyzed further by Gray (1972) and it was found out that extraverts achieve best under conditions of reward while introverts achieve best under conditions of punishment (Gupta, 1976). Further research by McCord and Wakefield (1981) also confirmed these findings.

Thus we propose,

2.1.2. Proposition 2

The higher the individual is on extraversion and lower on introversion and neuroticism, the higher would be his/her achievement.

Quality of life is also influenced by extroversion, introversion and neuroticism. Extroverted people have high satisfaction with their lives; while introverts and people with neuroticism have low satisfaction with their lives (Heaven, 1989).

Thus we propose,

2.1.3. Proposition 3

The higher the individual is on extraversion and lower on introversion and neuroticism, the higher would be his/her quality of life.

Locus of control orientation is related to depression. A relationship between externality and depression may exist. But contrary to expectation, external locus-of-control subjects manifested less physiological arousal in stress than internal locus of control subjects (Kent, 1972). In another research, stress was negatively correlated with internal locus of control for student success (Parkay et al., 1988).

Thus we propose,

2.1.4. Proposition 4

The higher the individual is on external locus of control and lower on internal locus of control, the higher would be his/her depression and stress.

Coleman et al. (1966) initiated an extensive investigation of the relationship between locus of control and academic achievement and found that individuals with internal locus of control have a higher academic achievement than the ones with external academic locus of control, and this relationship is much stronger in male students compared to the

female ones. But in a study by Nowicki and Duke (1974), it was found that internality was related to high achievement for males, and externality for females. It was also found out that the relation between locus of control and achievement was stronger for adolescents than for adults or children (Findley and Cooper, 1983). Individuals with internal academic locus of control make much effort than the ones with external locus of control because they think that they can control outputs. First-year students who entered university with lower scores on the locus of control scale (internals) obtained significantly higher GPAs than those who scored higher (externals). So, locus of control predicted significant differences in academic achievement with an internal locus of control significantly and positively related to academic success (Gifford et al., 2006). High school students have shown that an external locus of control correlated to lower academic achievement and higher dropout rates. All measures of achievement were negatively related to external locus of control (Tesiny et al., 1980).

Thus we propose,

2.1.5. Proposition 5

The higher the individual is on external locus of control and lower on internal locus of control, the lower would be his/her achievement.

There also exists a relationship between internal-external locus of control and quality of life. Research found that people who scored high on satisfaction with life appeared to be internally controlled (Heaven, 1989).

Thus we propose,

2.1.6. Proposition 6

The higher the individual is on external locus of control and lower on internal locus of control, the lower would be his/her quality of life.

Self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Bandura, 1997). Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Individuals high on self efficacy set themselves challenging goals and maintain strong commitment to them. They approach threatening situations with assurance that they can exercise control over them (Bandura, 1997). Iskender and Akin (2010) examined the relationship of internet addiction, social self-efficacy, and academic locus of control. They found out that internal academic locus of control was predicted

positively by social self-efficacy. Internet addiction was explained negatively by social self-efficacy and internal academic locus of control, and positively by external academic locus of control. Bandura et al. (1999) found that social self-efficacy was related to the emotional well-being of high school students. Recent research has also indicated that lower levels of social self-efficacy are related to higher levels of depression and that social self-efficacy skills mediated the relationship between stressful life events and depressive symptoms. Self-efficacy has an important relationship with adolescent depression. The scope of self-efficacy theory to the development of depression has been extended and it has been explored that the predictive and causal influence self-beliefs have the occurrence of depressive episodes. Children's social self-efficacy was negatively related to both loneliness and social dissatisfaction. Self-efficacy also has an important relationship with adolescent depression. Bandura et al. (1999) stated that perceived social and academic inefficacy contributed to concurrent and subsequent depression both directly and through their impact on academic achievement, prosocialness, and problem behaviors. They also stated that perceived social inefficacy had a heavier impact on depression in girls than in boys in the longer term; and depression was also more strongly linked over time for girls than for boys. Self efficacy has also been found to be linked with stress; dispositional self-efficacy not only facilitates coping with stress but is already operating at an earlier phase of the stress process, namely at the cognitive appraisal stage (Schwarzer, 1992).

Thus we propose,

2.1.7. Proposition 7

The higher the individual is on self efficacy, the lower would be his/her depression and stress.

Self-efficacy is an important construct that helps to explain students' learning and performance of achievement-related behaviors (Multon et al., 1991).

Thus we propose,

2.1.8 Proposition 8

The higher the individual is on self efficacy, the higher would be his/her achievement.

There exists an association between self efficacy and quality of life of individuals. Robinson-Smith et al. (2000) determined the relationship of self-care self-efficacy to functional independence, quality of life, and depression after stroke and found that

functional independence and quality of life increased over time, while depression decreased.

Thus we propose,

2.1.9. Proposition 9

The higher the individual is on self efficacy, the higher would be his/her quality of life.

Loneliness occurs when a person's network of social relationships is smaller or less satisfying than the person desired. Lonely people are more likely than the non-lonely to be socially inhibited and anxious, self-conscious, and sensitive to rejection. They have poor social skills, have difficulty making friends, initiating social activity, and participating in groups, are less likely to be intimate and self-disclose, and have low self-esteem.

Loneliness can affect the mental health of an individual. Higher levels of loneliness were associated with more depressive symptoms and loneliness is considered to be an independent risk factor in depression (Adams et al., 2004). Feelings of sadness and loneliness are ubiquitous in late life and a risk factor for depression and perhaps other mental illnesses in late life. Depression was associated with marital state, institutionalization, and perceived loneliness (Stek et al., 2005). A stronger, graded, relationship between the number of social support deficits and depression was observed as well as loneliness was itself strongly associated with depression (Prince et al., 1997). Weeks et al. (1980) reported that loneliness and depression were correlated but neither was a direct cause of the other, although both probably share some common origins. There exists an association between loneliness and the number of stressful life events experience (Gaudin et al., 1993).

Thus we propose,

2.1.10. Proposition 10

The higher the individual is on loneliness, the higher would be his/her depression and stress.

Children experiencing difficulties in their peer relations have typically been identified using external sources of information, and it was seen these children's feelings of loneliness were significantly related to their sociometric status and their academic achievement was hampered (Asher et al, 1984).

Thus we propose,

2.1.11. Proposition 11

The higher the individual is on loneliness, the lower would be his/her achievement.

Loneliness was significantly associated with low quality of life. Loneliness and depressive symptomatology can act in a synergistic effect to diminish well-being in middle-aged and older adults (Cacioppo et al., 2006). Borge et al. (1999) examined quality of life, loneliness, and social contact among long-term psychiatric patients and found out that health care providers constituted the patients' most important network; patients outside the institutions were most socially active, had the most satisfying contact with their families and reported a satisfactory quality of life, and those who lived outside institutions tended to be most satisfied. The variables of loneliness, satisfaction with neighborhood, and leisure time activities explained the patients' subjective well-being.

Thus we propose,

2.1.12. Proposition 12

The higher the individual is on loneliness, the lower would be his/her quality of life.

The relationship between online flow and personality variables was studied (Srivastava et al., 2010). An individual's action in the flow state is experienced "as a unified flowing from one moment to the next, in which he is in control of his actions, and in which there is little distinction between self and environment, between stimulus and response, or between past, present, and future" (Csikszentmihalyi 1977). In the state of flow, individuals' self-consciousness disappears, sense of time becomes distorted, and the resulting state of mind is extremely gratifying (Hoffman and Novak, 1996).

Introverted and neurotic people locate their "real me" on the internet, while extroverts and non-neurotic people locate their "real me" through traditional social interaction (Amichai-Hamburger et al., 2002).

Thus we propose,

2.1.13. Proposition 13

The higher the individual is on extraversion and lower on introversion and neuroticism, the lower would be his/her online flow experiences.

Locus of control structure suggested by Rotter (1966) shows a distribution on dimensions of internal-external locus of control in a way it was bound to individual perceives degree of their own responsibilities for events. Taylor et al. (2006) made a research to examine the relationship between locus of control and optimal experience

(flow) in carrying out work and/or study activities and found out that more frequent experience of flow is positively correlated with autonomy and internal locus of control.

Thus we propose,

2.1.14. Proposition 14

The higher the individual is on external locus of control and lower on internal locus of control, the lower would be his/her online flow experiences.

High self-efficacy enables an individual to perform a computer task successfully (Compeau and Higgins, 1995). Thus, it is assumed that for a successful outcome, the focused attention of the user would be higher. Bandura (1997) suggests that when people judge themselves capable of handling an activity, they perform with assurance and are able to direct all effort to the task at hand rather than being disturbed by thoughts concerning their own capabilities. Higher an individual is on self-efficacy, more would he adhere to only those activities which pose challenges matching their skills. High self-efficacy users would perceive themselves as endowed with high skills and thus capable of dealing with the high challenges posed by the web environment (Srivastava et al., 2010).

Thus we propose,

2.1.15. Proposition 15

The higher the individual is on self efficacy, the higher would be his/her online flow experiences.

Csikszentmihalyi's (1975) concept of the "flow experience" also describes a significant coping mechanism for people undergoing solitary ordeals. People involve in a flow state have problem in coping with adversity and are inclined to be hassled rather than challenged by life's ordinary difficulties.

Thus we propose,

2.1.16. Proposition 16

The higher the individual is on loneliness, the higher would be his/her online flow experiences.

2.2 Interaction effects

Though many researchers have recognized the need for greater understanding in this area, relatively little is known about how interactions of the personality variables and loneliness influence mental health, achievement, quality of life and flow.

Thus we propose interaction effects of personality variables and loneliness.

2.2.1. Proposition 17.1

The higher the individual is on extraversion and lower on loneliness, the lower would be his/her depression and higher would be his/her achievement and quality of life.

2.2.2. Proposition 17.2

The higher the individual is on extraversion and loneliness, the higher would be his/her stress.

2.2.3. Proposition 17.3

The higher the individual is on introversion and neuroticism, and loneliness, the higher would be his/her depression and lower would be his/her achievement and quality of life.

2.2.4. Proposition 17.4

The higher the individual is on introversion and neuroticism, and lower on loneliness, the lower would be his/her stress.

2.2.5. Proposition 17.5

The higher the individual is on external locus of control and loneliness, the higher would be his/her depression and stress, and lower would be his/her achievement and quality of life.

2.2.6. Proposition 17.6

The higher the individual is on internal locus of control and self efficacy, and lower on loneliness, the lower would be his/her depression and stress, and higher would be his/her achievement and quality of life.

2.3.Moderating effects

In recent years, there is growing research on personality traits in relation to the internet usage. It was seen that more introverted, less agreeable, and less conscientious students engaged in higher levels of internet usage as well as the internet usage was negatively related with optimism and work drive, and positively related to tough-mindedness (Landers and Lounsbury, 2006). Internet designers perceive surfers as a homogeneous group and take no account of personality differences, while psychologists tend to see the internet as a single entity, ignoring its richness and variety of services. Amichai-Hamburger (2002) suggests that the internet tend to deal in stereotypes and that the personality of the net users is completely ignored by the internet designers. The interaction between need for closure, innovators, locus of control, attachment, personality structure of profile of interests and risk taking, and internet usage has been studied (Amichai-Hamburger, 2002). People with a low need for closure felt better in an internet environment surrounded by hyperlinks. People who are innovators are stimulated and happy with a website that changes often and became bored with an unchanging website. These personality characteristics may explain the difference between structured surfers who carefully control their time on the net as opposed to other surfers who “disappear” into the net with little thought of time. This may be a relevant factor in determining internet addiction.

The relationship of internet use to extraversion and neuroticism was examined in earlier research. For men, extraversion was positively related to the use of leisure services and neuroticism was negatively related to information services, whereas for women, extraversion was negatively related and neuroticism positively related to the use of social services (Amichai-Hamburger and Ben-Artzi, 2000). Research by Amichai-Hamburger and Ben-Artzi (2000) found that women who are introverted and neurotic are likely to utilize the internet in order to chat and join discussion groups. Building upon this research it was later found that neurotic women seem to utilize the internet more often in order to overcome feelings of loneliness (Amichai-Hamburger and Ben-Artzi, 2003). Similarly, research suggests that introverted and neurotic individuals are more likely to express their “true selves” during computer mediated communication than during face to face interactions (Amichai-Hamburger et al., 2002). So, neuroticism was associated with greater motivation to use the internet for purposes of entertainment and extraversion was associated only with the interpersonal communication motive. Neurotic and introverted people reported using the internet to feel a sense of “belonging” and to be informed

while extraverts made more instrumental and goal-oriented use of internet services and psychotic people demonstrated an interest in more deviant, defiant, and sophisticated internet applications (Eysenck and Eysenck, 1975). Neuroticism may predispose towards problematic internet use. However, a sole factor like neuroticism alone is not very useful with respect to generating implications for behavior therapy and treatment of afflicted patients, because it includes too many facets of negative personality traits ranging from shyness to anxiety and it was further found out that self-directedness is a better predictor than neuroticism for problematic internet use; moreover, the time spent online in leisure activities was a significant predictor for internet addict (Montaga et al., 2010).

Loneliness has been associated with increased internet use. It has been observed that lonely individuals may be drawn online more than the non-lonely individuals because of the increased potential for companionship, the changed social interaction patterns online, as a way to modulate negative moods associated with loneliness, and for emotional support. It was also seen that they were more likely to report making online friends and heightened satisfaction with their online friends (Morahan-Martin and Schumacher, 2003). For some lonely individuals, loneliness may lead to increased internet use, and even to the development of internet-related problems in their lives. Kraut et al. (1998) carried out a longitudinal study from which they concluded that people who are lonely spend more time on the internet. Some lonely individuals may use the Internet as an escape: to reduce stress and alleviate negative feelings that are associated with loneliness. Internet use for those who are lonely appear to be vulnerable to developing problems in their lives from internet use such as work, school or social disruption (Morahan-Martin and Schumacher, 2003).

High levels of internet use were associated with low levels of social loneliness and high levels of emotional loneliness (Moody, 2004). Greater use of the internet as a communication tool was associated with a lower level of social loneliness and greater use of the internet to find new people was associated with a higher level of emotional loneliness (Sum et al., 2008).

Whitty and McLaughlin (2007) studied online recreation: The relationship between loneliness, internet self-efficacy and the use of the internet for entertainment purposes and found out that those who scored higher on loneliness were more likely to use the internet for computer-based entertainment, as well as, use the internet to obtain information about the entertainment world; and individuals higher in internet self-efficacy were more likely to use the internet for computer-based entertainment and to

facilitate offline entertainment. Engelberg and Sjoberg (2004) found frequent use of the internet is associated with greater loneliness, poorer social adaptation and emotional skills. Lonely individuals can develop a preference for online social interaction which can lead to problematic internet use. Gender differences were also reported in the experience of loneliness, with the frequency of intense feelings of loneliness being higher among women.

Gender and age significantly influenced patterns of internet use. Gender has a positive impact on average daily time spent on the use of the internet for communication/e-mailing/chat and information access/downloading/entertainment; age has a positive impact on average daily use of the internet in general and a negative impact on the use of the internet for information access/downloading/entertainment; and, gender and age do not have any significant impact on average daily use of internet for electronic services such as e-commerce/e-shopping/e-banking/e-government (Akman and Mishra, 2010). Young and Rogers (1998) reported that the mean age of internet addicts was over 30, and that the proportions of addicted men and women were about equal.

The internet is a new tool whose use increases especially among young people (Yen et al., 2007). Over-users of internet were found to be younger and less experienced in computer use than average or addicted users (Hardie and Tee, 2007). Internet use is highest among young adults; the age group (16–24 years) at a critical period for social and emotional development and suggests that these may be regarded as a risk group for internet addiction. Young people's efforts to establish their own identity, to belong to a group and receive group acceptance and approval may cause them to turn to a variety of instruments and make the "advantages" provided by internet use appear attractive. Young people regard online communication more attractive for establishing friendships. Age increases perceived internet influence. Older adults who use the internet are less lonely, less depressed, and have more positive attitude toward computers, and are more confident than non-internet users (White et al., 2002).

Males and females generally exhibit differences in terms of the purpose behind internet use; adolescent girls using it to communicate, meet new people, join various groups and for personal reasons, while males generally use it for surfing or to play violent games (Gross, 2004). Female students in Britain spent more time on the internet for academic study than male students. Boys use the internet for entertainment and web page creation more than girls do, and no other gender differences have been noted regarding pupils' other internet activities. According to Hardie and Yi-Tee (2007), problematic internet use

is similar in both sexes. Problematic internet use was significantly higher among male students than females (Odac and Kalkan, 2010). LiZhai (2009) reported that differences existed in prevalence between male and female and that differences existed in self consistency and congruence, self non-consistency, the drive of seeking success, the motivation of avoiding failure, achievement motivation and self-esteem between internet addiction disorder and non internet addiction disorder. It has been observed that intensive users of the internet tend to be young males with limited social skills and little self confidence (Griffiths, 2000). Women who conversed with a stranger in a computer mediated communication environment reported more happiness and better moods than female participants who conversed with a stranger in a face to face communication. Neurotic women seem to utilize the internet more often in order to overcome feelings of loneliness (Amichai-Hamburger and Ben-Artzi, 2003). Perceived self inefficacy had a heavier impact on depression in girls than in boys in the longer term and depression was also more strongly linked over time for girls than for boys (Bandura et al., 1999).

To the best of our knowledge, no research has been carried out to examine the moderating effects of gender, age and internet use on the relationship between personality variables, loneliness, and flow.

Thus we propose,

2.3.1. Proposition 18

Gender/ Age/ Internet use will have a significant moderating effect on the relationship between personality variables/ loneliness and online flow experiences.

2.4. Mediating effects

The flow construct (Csikszentmihalyi, 1977) is a holistic sensation; online flow was proposed by Hoffman and Novak (1996) as essential to understanding consumer navigation behavior in online environments such as the World Wide Web. They found the flow symptoms on the web as clear goals and immediate feedback, personal skills well suited to given challenges, merger of action and awareness, concentration on the task at hand, a sense of potential control, a loss of self-consciousness, and an altered sense of time experience which becomes autotelic.

Hoffman and Novak (2000) conducted a study on consumer control in online environments. Results showed that internal locus of control is positively correlated with number of years on the internet and satisfaction with their internet skills, goal-directed

usage of the internet, and negatively correlated with web use substituting for other activities and with beliefs that internet content should be regulated through filter use or the government. External locus of control is negatively correlated with number of years on the internet and satisfaction with their internet skills, experiential usage of the internet and positively correlated with web use substituting for other activities and with beliefs that the government should regulate internet content. Voiskounsky (2007) had a cross-cultural study of flow experience in the IT environment, like human-computer interaction, computer-mediated communication and exploratory behavior, consumer and marketing applications, educational practice, playing computer, video and online games, psychological rehabilitation of the disabled, and web usability testing. He found that though a universal experience, flow can be expected to be culture specific and culture dependent. Optimal experience has only rarely been studied from a cross-cultural perspective, mainly in the field of gaming activities.

As more people connect to the internet, researchers are beginning to examine the effects of internet use on users' mental health. Kim et al. (2006) evaluated the relationship between depression and internet addiction and found that internet addiction was significantly associated with depressive symptoms. Depression is found among those that abuse the internet. The use of the internet tended to increase depression, aggression and preference for internet communication (Takahira, 2008). Yen et al. (2007) demonstrated that adolescents with internet addiction had higher ADHD symptoms, depression, social phobia, and hostility; and higher ADHD symptoms, depression, and hostility are associated with internet addiction in male adolescents, and only higher ADHD symptoms and depression are associated with internet addiction in female students. Internet is a cause of depression and social isolation (McKenna and Bargh, 2000). Increased levels of depression are associated with those who become addicted to the internet which suggests that clinical depression is significantly associated with increased levels of personal internet use (Young and Rodgers, 1998). Dependent individuals showed signs of social withdrawal and isolation, depressive symptoms, and had problems managing responsibilities Depression was correlated with more frequent use of the internet to meet people, socially experiment, and participate in chat rooms, and with less frequent face-to-face socialization. In addition, individuals meeting criteria for internet abuse and dependence endorsed more depressive symptoms, more time online, and less face-to-face socialization (Fortson et al., 2007). Selfhout et al. (2000) examined the longitudinal associations of time spent on internet activities for communication purposes versus time

spent on internet activities for non communication purpose with depression and social anxiety, as well as the moderating role of perceived friendship quality in these associations. They found out those adolescents who perceive low friendship quality, internet use for communication purposes predicted less depression, whereas internet use for non-communication purposes predicted more depression and more social anxiety.

Stress is a multi-faceted problem and an integral part of human life today caused by many factors operating both individually and in parallel. There exists a positive correlation between stress and addiction to internet; and people with stress are more dependent to the internet and have more tendencies to overuse of internet. Perceived stress and sensation seeking predict abuse of the internet (Chaney and Chang, 2005). Stress has been documented to have a negative effect on students and may be linked to internet use (Lavoie and Pychyl, 2001). Some researchers have also found that the internet is used by some as a means of stress relief (Lavoie and Pychyl, 2001). Disinhibition and total perceived stress were predictive of internet abuse for sexual purposes, and perceived hopelessness and boredom susceptibility were predictive of internet abuse for non-sexual purposes (Velezmoro et al., 2010).

Internet overuse is a raising phenomenon affecting people with varying frequency around the world and has produced negative impacts on the academic achievement, job performance, relationship, financial, and occupational aspects of many lives (Chou and Hsiao, 2000). Internet use and students' academic achievement was examined by Gil-Flores (2007). He measured the students' proficiency in math and linguistic communication skills and obtained data on the frequency of computer use at home and at school and found out a much higher use of the computer at home than at school. Home computer technology is associated with statistically significant and persistent negative impacts on student math and reading test scores (Clotfelter et al., 2009). On the other hand, a positive effect on mathematical achievement was, however, observed for a small group of students who used the computer in a self-determined way that largely engaged them in problem- solving activities (Wittwer and Senkbeil, 2008). Children who used the internet more had higher scores on standardized tests of reading achievement (Jackson et al., 2006).

Excessive use of the internet in the long term strongly affects the teenagers' physical and psychological health which results in the teenagers' isolation from the real world and a sudden drop in their quality of life (Luciana, 2010). The use of the Internet is likely to result in decreased psychological well-being (Kraut et al., 1998). The internet influences

the quality of life, including social, leisure, economic, and community well-being. The internet and email are excellent sources of support and enjoyment which improves the quality of life of older homebound adults. The use of broadband, wireless, and mobile internet is found to be positively correlated with the people's overall quality of life (Liang, 2011). The more the internet services of e-Government are used, the higher the satisfaction with social-economic status and social competence; people using more internet services in their daily activities also have higher self-esteem and less psychological pressures, but people who deeply rely on internet services for e-Business such as online shopping or ticket booking have lower satisfaction with community support (Liang, 2011).

To the best of our knowledge, no research has been carried out to examine the mediating effect of flow on the relationship between personality variables and loneliness, and mental health, achievement and quality of life.

Thus we propose,

2.4.1. Proposition 19

Flow would mediate the relationship between personality variables/ loneliness and mental health/ achievement and quality of life.

The interaction between need for closure, innovators, locus of control, attachment, personality structure of profile of interests and risk taking, and internet usage has been studied (Landers and Lounsbury, 2006). People with a low need for closure felt better in an internet environment surrounded by hyperlinks and who are innovators are stimulated and happy with a website that changes often and became bored with an unchanging website. These personality characteristics may explain the difference between structured surfers who carefully control their time on the net as opposed to other surfers who "disappear" into the net with little thought of time. This may be a relevant factor in determining internet addiction. In view of all the above mentioned literature reviews, we propose,

2.4.2. Proposition 20

The higher the individual has depression and stress and lower the achievement and quality of life, the more likely s/he will suffer from internet addiction disorder.

3. Conclusion

In the present day scenario, our life has been enormously changed by the Internet. We are living in a digital era where technologies like the Internet have profoundly influenced our day-to-day living. Most of the people choose to live in a virtual world, a world of computers and internet, losing touch with the real world and its problems. People use the Internet for information searching, web surfing, online gambling, gaming, instant messaging, blogging, online shopping, e-mailing, online chatting, cyber relationship and pornography. An individual's personality as well as their degree of their loneliness plays an important role in their different uses of the internet. People who experience flow on the web as those who focus exclusively on the interaction find web browsing extremely gratifying. Moreover, gender and age can influence internet usage. Pathological computer use can seriously affect the mental health of an individual, causing depression and stress. It also lowers down their achievement and interferes with their quality of life. So, it may be predicted that the effects of excessive internet use can lead to Internet Addiction Disorder (IAD), while not yet officially codified within a psychopathological framework, is growing both in prevalence and within the public consciousness as a potentially problematic condition with many parallels to existing recognized disorders. The rapid and unfettered increase in the number of people accessing a relatively unrestricted internet substantially increases the possibility that those suffering with underlying psychological co morbidity may be at serious risk of developing an addiction to the internet.

On the basis of literature review, the present study attempts to propose a conceptual framework focusing on the main, interaction, moderator and mediating effects of the above mentioned variables. The present paper has contributed to the extant literature by theoretically grounded understanding of how flow, gender, age and internet use effect the relationships between personality variables, loneliness, and stress, depression, quality of life, achievement, thereby leading to Internet Addiction Disorder. Internet addiction disorder (IAD) is a modern day addiction. One way to describe persons infected with this disorder is that they find the virtual environment to be more attractive than everyday reality. Their daily lives are dominated with their need to be online. It is a contemporary problem brought about by easy access to computers and online information. Individuals addicted to the Internet can develop many types of disorders. In extreme cases, persons addicted to the Internet may be destructive to themselves, their families, and their place of employment.

It is expected that this would lead to a subtle understanding of online behavior of individuals. Empirical research may be conducted to validate the significance of these relationships. In addition, the proposed framework also gives the opportunity to justify the presence of Internet Addiction Disorder and making it a valid case to be included in the clinical frameworks.

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