

Exploring associations between Facebook games, stress,

Self-distraction/behavioural disengagement

Coping and life satisfaction.

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## **Abstract**

This study attempts to explore associations between time spent playing Facebook games and the variables perceived stress, life satisfaction, behavioural disengagement and self-distraction coping. A between subjects quantitative correlation research design was carried out. An online questionnaire containing demographic questions and psychological measures for variables was employed. Also included was the researcher's own questions to determine if participants were actively playing Facebook games and for how long per day. It was hypothesized that those who spent longer hours playing Facebook games would have higher stress and lower satisfaction with Life. A convenience sample of 88 participants was collected. Although no significant association was found between time spent playing Facebook games and perceived stress post-hoc analysis suggests that those who actively played Facebook games may experience higher stress than those who do not. A significant negative relationship was found between Life Satisfaction, perceived stress and self-distraction/behavioural disengagement coping styles.

## Introduction

### **Social Network Sites & online gaming**

Social Networking Sites (SNS) have become a huge part of life for many people. One of the most popular sites is Facebook, which was founded in 2004 and has grown immensely since then.

Research by Wilson et al. (2010) suggests that young people engage in social network sites to socially connect online with others. The study which ultimately looked at psychological predictors of Social Network use found that personality and self-esteem significantly predicted level of use and addictive tendencies in a group of university students. More recent research suggests that need for popularity motivated social network use. (Utz et al, 2012). Although Facebook began as a social site to connect with friends socially and share information online, in 2006 third party software exploded onto the market opening up the possibility to access gaming through the site.

In 2011, Zynga which is a massive online gaming company began generating 12% revenue for Facebook by attracting many users to its extensive gaming range and thousands of Irish people log on daily to access these games. (Facebook, 2013). Another gaming giant who has partnered up with Facebook to bring new gaming experiences all over the world is King, formally known as King.com. This successful mobile gaming company which only launched on Facebook in 2011 has over 150.2 million users through the site (Geron, T, 2013). Currently they rank in the No. 1 application accessed through Facebook for their game Candy Crush which is extremely popular amongst its users. (checkfacebook.com, 2014)

The online gaming world has expanded vastly since computers first made an appearance 50 years ago and has evolved progressively from computers to consoles and in

the last decade to the internet. (History of Video Games, 2007). With the introduction of colourful and innovative games available through social Network (SNS) like Facebook, social gaming is described as the fastest growing industry since the introduction of the search engine. (Laporte, 2012).

In 2012 it was reported to have over 1 Billion users and generated revenue of over \$1 Billion. (Laporte, 2013). These games are easily accessible through computers and other hand held devices such as mobile phones, laptops and tablets, making them readily available to users at any time. Many people can be seen logging on daily everywhere while using public transport and even when sitting in the company of peers and family. By logging onto these sites it provides users with a means of escapism from everyday life and enables them to create virtual lives in which they have a lot more control over what information they share with the world. (Lee et al, 2012). Recent research found that video games participation is emotionally enjoyable and has a strong social element for users (Oswald et al, 2014).

### **Social Network Gaming & Stress**

The term stress is frequently heard in everyday language. It has been studied extensively over the years but little research exists exploring its relationship to social network gaming. Stress is described as “a negative emotional experience accompanied by predictable biochemical physiological, cognitive and behavioural changes that are directed either toward altering the stressful event or accommodating its effects” (Baum, 1990, p. 653–675).

Stressors are the name given to anything which may cause a person to feel stressed. They can take many forms and people report things like family responsibilities, financial responsibilities, the economy, health problems and work as being the biggest stressors, but researchers suggest that minor hassles which occur every day such as traffic jams, household chores and even waiting in line can all produce feelings of distress in people (Taylor, 2012). However not everyone experiences stress in the same way and what may be perceived as

stressful to one person may not be for another. It is therefore down to how an individual appraises an event as stressful and if they have sufficient resources to meet environmental demands (Taylor, 2012).

Perceived stress is the measure of psychological stress appraised when one's demands exceed the ability to cope with stressors (Lazarus & Folkman, 1984 as cited in Rueggeberg, R., Wrosch, C., & Miller, G. E, 2012).

Historically television has been studied as a form of stress alleviation and past research suggests that it can temporarily induce positive feelings over negative ones. (Zillmann & Bryant, 1985 as cited by Leung, 2007).

It has been suggested in a recent study into Facebook induced stress that Facebook use can result in a physiological stress response in users (Campisi et al, 2012) .The study reports that Facebook use is correlated with high stress in users with more frequent users having higher stress (Campisi et al, 2012). A more recent study found a significant relationship between Facebook use and perceived stress and suggests that Facebook was used as a means to avoid daily stressors (Fleming, 2013). Could time spent playing online games through Facebook be related to perceived stress also? This study will attempt to answer this question.

Online gaming can take many forms and some research has been carried out to support both the negative and positive aspects of online gaming. Issues such as violence, aggressive behaviour and addiction are some of the negative associations of online gaming while positive effects such as relaxation, social support and stress relief are suggested in favour of the trend.

Past research into online poker gambling suggests that addictive behaviour can actually begin as a stress reducing behaviour and over a period of time leads to dependence as

an attempt to combat negative emotions. But it also suggests that risk involved in high wage gambling may actually increase stress in users. (Jacobs, 1986 as cited by Hopley et al, 2012). Recent Research into internet addiction and choice of games (Floras & Siomos, 2012) suggests that adolescent gamers spent more time online, felt unhappy and seek to forget everyday life. With the expansion of online gaming and its availability through Social Network sites such as Facebook the current study will attempt to expand on this by sampling a group of adults aged 18 years and over, who frequent social network games regularly. While previous research into stress focused on large scale negative events such as bereavement and divorce more recent research acknowledges that the everyday hassles of life can account for perceived stress reported (Reinecke, 2009).

Social Network gaming is a relatively new trend which has emerged, resulting in people engaging in online activities for a variety of reasons including social interaction and escapism. Past research by Freddolino & Balschke (2008) suggests that social network gaming can be used to alleviate stress amongst users and provides a list of 8 categories which gamers can be assigned to such as stress relievers, newcomers, time killers, social players, enthusiasts, professionals, devotees and addicts (Game Research, 2002, as cited by Freddolino & Blaschke, 2008). Other research by Reinecke (2009) carried out an investigation into online gaming as a recovery after stressful situations. The study was carried out online on 1614 participants and suggests that computer games and video games are used as an effective recovery from stress and strain. The study also found that those who engaged in emotion focused coping engaged in video and computer gaming for recovery more so than those who use problem focused coping. Mental disengagement for recovery and relaxation after exposure to stressful situations is beneficial to those who engage in computer games according to the study. (Reinecke, 2009).

A comparative study by Kamble (2011) which was carried out on medical students and resident doctors found that many medical students preferred virtual gaming over outdoor gaming. The study also suggests that if social network sites are used wisely that they can in fact aid social stress management. (Kamble, 2011). It has been reported that mobile games such as the popular game candy crush can be a relaxing experience for users and act as a stress relief. (Cindy Krischer Goodman, T, 2014). It seems logical to suggest in line with previous findings that a link may exist between time spent online gaming and perceived stress. Those who engage in online gaming for long periods of time each day may also have high levels of perceived stress. The current study hypothesises that longer hours spent playing Facebook games will be positively associated with higher stress scores.

### **Coping Strategies - Behavioural Disengagement and self-distraction**

Coping is defined as the thoughts and behaviours used to manage the internal and external demands of situations that are appraised as stressful (Folkman & Moskowitz, 2004; Taylor & Stanton, 2007 as cited by Taylor, 2012).

People find different ways to cope with the stress they encounter in their life and may employ individual coping styles. Some people may use an approach coping style which refers to taking on the stressor by taking direct action while others may engage in avoidant coping which refers to minimising the stressful event. (Taylor, 2012).

Coping styles can be further distinguished as problem-focused coping and emotion focused coping (Folkman, Schaefer, & Lazarus, 1979; Leventhal & Nerenz, 1982; Pearlin & Schooler, 1978 as cited in Taylor, 2012). Problem focused coping generally refers to attempts to constructively deal with potential stress while emotion focused coping tends to involve regulating of emotions to help one cope. Both styles are effective ways to manage stress

although it is suggested that problem-focused coping is associated with better health and well-being. (Taylor, 2012)

It has been reported that Escapism can be a healthy way of dealing with the daily stress of life providing that it is not negatively affecting one's life (Scott, 2007, retrieved). There can be many forms of escapism that can be used like reading books, watching television, sports, exercising & going to the cinema which can be deemed healthy. Escapism in the form of alcohol abuse or recreational drug use and even binge eating are all unhealthy and dangerous ways of coping with pain, anxiety or depression. Healthy forms of escapism can actually help to relax and recoup a person's health after exposure to a stressful day or incident. More recent forms of escapism can be seen in internet use and computer gaming and it is reported that having a world to retreat to for a few hours can help people to cope better with life (Scott, 2007, Retrieved).

For the purpose of the current study escapism will be measured using subscales behavioural disengagement and self-distraction of the Brief Cope Inventory (Carver, 1985).

Research indicates that behavioural disengagement coping and self-distraction coping fall under the umbrella of emotion focused coping. (Marsella & Gratch, 2003). People have different ways to deal with the stress in their lives in order to help them adequately cope. Behavioural disengagement can be described as a tendency to give up or withdraw efforts from any attempt to cope. (S. Blackburn, L Johnston, N Blampied, 2006). Self-distraction is measured in the brief Cope by looking at how people turn to other activities in an attempt at coping. (Carver, 1997).

Past research carried out on 161 adolescent gamers from secondary school which looked into the Influence of Actual –Ideal Self Discrepancies (AISD), Depression, Escapism and Pathological Gaming suggests that AISD and escapism have direct effects on

pathological gaming. It suggests that gamers who have high AISD and depression tend to have high escapism and were more likely to engage in pathological gaming. (Dongdong Li, M.A., Albert Liao, Ph.D., and Angeline Khoo, Ph.D., 2011).

More recent research (Cheng & McCarthy, 2013) examined how people managed the different roles in their lives. The study discusses the theory of psychological detachment by switching off from ones roles which suggests that it can aid in replenishing strained resources. The study goes on to suggest that in order to recover psychologically it is important to take a break or time out, supporting research by Sonnentag et al, (2008) of the importance of mental distancing as a way of replenishing depleted resources. This ties in with the current study that Social Network Gaming could in fact be just that for many users, a distraction and means of disengagement from life for a period of time.

### **Social Network Gaming & Self-distraction / Behavioural Disengagement Coping**

Previous research suggests that online gamers used gaming as a means of excitement, emotional coping, as a challenge and as an escape from reality (Wan & Chiou, 2006 as cited by Li et al, 2011). More recent research which supports this also suggests that it can be for fun for some individuals or as a means of escape from reality for others (Lee et al, 2012).

As mentioned life can be extremely demanding on one's resources and as well as the positive experiences people have they are also faced with negative ones too. It is important that they can find effective ways to help them cope. Some positive approaches can be seen in activities such as engaging in exercise, yoga, meditation, reading and music. However in the world of technology we live in today and due to time constraints and hectic life schedules social network gaming which is easily accessible and readily available may be providing people with an alternative form of self-distraction. An article which looks at the popular

Facebook game Candy Crush which can be accessed through Facebook suggests that users play for a number of reasons especially for the element of self-distraction and stress relief. (Dockterman, E, 2013).

As well as being a possible method of self-distraction and relaxation for some, social network gaming can have many benefits. Although a lot of previous research has focused on the negative aspects of the gaming industry and that many games can entice violence in young gamers more recent research sets out to promote the benefits to gamers. Some research suggests that online games can in fact promote cognitive skills such as attention and spatial skills. Just as exercise is beneficial for physical and mental well-being, some studies suggest gaming can be mental exercise for the mind. (Granic et al, 2013).

A recent study by Lee et al (2012), found that there are six motivational factors as to why people engage in social network games. The study looked at a group of 324 college students and found that among these factors was the need for an escapism from reality. Interestingly a study by (Leung, 2007) which examined internet use motivations in children and adolescents (8-18 years) found that internet use can have positive influences on stress and could be a source of social support during difficult life events. The study also suggests that internet use can reduce stress and anxiety for a period of time. It found that significant associations exist between internet use and mood management among students. (Leung, 2007). A report into online gaming as a stress reducer, which surveyed 1000 people suggested that over half play online games during the day on average for about 15 minutes which could be beneficial to them (J.W. Elphinstone, A. (2006, October 9).

A recent study by Wu, Pi-Chu, (2013) which looked at addictive behaviour in relation to the Happy Farm Facebook Application game suggests that materialism can be a factor in attracting gamers to it. If a user is financially burdened in reality these games allow them to enter into a virtual world where they can accumulate virtual wealth for a period of time. If

they are socially excluded in reality or involved in unhealthy interpersonal relationships, by engaging in these social network games they can establish virtual friendships / relationships and have much more control over them. (Wu, Pi-Chu, 2013).

The current study will attempt to add to this by examining if those who are regularly engaging in Facebook games may be using them as a method of behavioural disengagement coping. There will be a positive relationship between hours spent per day playing Facebook games and self-distraction and behavioural disengagement coping.

### **Social Network Gaming & Satisfaction with Life**

Social Network games can give users the resources to build virtual worlds in which they can interact with others. If a person is feeling dis-satisfied with life they may seek to engage in Social network games such as the popular Facebook game Farmville to feel more satisfied even if it is only temporary. They can create new virtual identities and anything they are not happy with in their real world they can fabricate in these virtual arenas. Social network sites provide people with the means and ways to share only the information they are happy to disclose and hide their imperfections and fallacies if they wish.

A recent study examining game enjoyment and avatar creation measured satisfaction with life in users and found that players made up for unsatisfactory structures in their lives by creating online identities more satisfactory to their ideal personality. (Trepte & Reinecke, 2010). This means that they can create online identities more close to what they would like people to perceive them to be by creating what they think is their ideal self. For example a person who is unhappy with the way they look or their weight can create an online profile or avatar projecting a more slimmer or attractive version of themselves.

Another study (Castranova & Wagner, 2011) looked at the motives attracting users to the popular virtual game, known as Farmville. This gaming experience is accessible through the social network site Facebook and is also downloadable on mobile devices such as tablets or phones and provides users with a world where it is possible to design your own farm and accumulate wealth and other virtual resources and chat with other users and interact socially. It suggests that users create this virtual world and may find it more satisfying if their “real world” poses a lot of challenges (Castranova & Wagner, 2011). If users spend a lot of time on social network gaming sites to distract themselves from reality, it might be because they are experiencing low satisfaction with life. This study will attempt to examine this by looking at associations between hours spent online gaming and life satisfaction to see if those who spend longer hours playing Facebook games have low satisfaction with life.

### **Stress & life satisfaction**

Life satisfaction is the perception of how one sees their life. It can be a measure of one’s well-being and can be measured in relation to how well one has the ability to cope with daily life. (Bailey et al, 2007).

Stress can impact on how satisfied people are in their lives. If they are finding it hard to manage or are not coping very well, this could be negatively impacting on their overall satisfaction with life. Ellison et al (2007) suggested that students with low life satisfaction use social network sites to increase well-being.

A study by Lily Shui –Lien et al, (2008) found some personality traits are significantly associated with life satisfaction in a group of online gamers in particular neuroticism negatively influences life satisfaction while openness to experience and conscientiousness are positive influences on satisfaction with life. Although personality can

be linked to life satisfaction there can be other factors affecting this such as stress which the current study will attempt to explore. A study exploring stress and life satisfaction in university students (Paschali & Tsitsas, 2010) suggests that those with low anxiety tend to have higher satisfaction with Life.

Other research carried out on students examining life satisfaction and perceived stress (Alleyne & Alleyne, 2010) further supports this by also finding significant associations between high levels of perceived stress and low life satisfaction.

A recent study by Bandayan et al (2013) found that high levels of stress negatively correlated with low satisfaction with life meaning that as stress scores increases, satisfaction with life decreases. The current study will attempt to expand on this research by looking at associations between stress and satisfaction with life scores and also add to this research by exploring if associations exist between hours spent playing Facebook games and satisfaction with life scores. Thus the current study suggests those who spend long hours playing Facebook games will have low life satisfaction scores.

There is little research to date which looks at the relationship between hours spent playing Facebook games and the psychological variables perceived stress, behavioural disengagement/self-distraction coping styles and Satisfaction with Life. Much more research is needed in the area of social network sites and the gaming world which can be accessed through them. This study aims to shed some light on this.

Is online gaming an escape from reality for users for a period of time? Can it be attributed to a behavioural disengagement and self-distraction coping styles? Are those who engage in online gaming through Facebook experiencing high levels of perceived stress and are they possibly less satisfied with life? The current study intends to explore these questions.

Therefore the rationale for the current study is to examine if those who spend more time playing Facebook games have high perceived stress and use self-distraction and behavioural coping as a form of escapism from the stress in their lives.

Those who spend a lot of time playing Facebook games will have low satisfaction with life. Those who score high on perceived stress will be less satisfied with life. Those who use self-distraction and behavioural disengagement coping more will be less satisfied with life. In order to examine these relationships the following hypothesis have been formulated:

### **Hypothesis 1**

There will be a positive relationship between time spent on Facebook games and perceived stress.

### **Hypothesis 2**

There will be a positive relationship between time spent on Facebook games and self-distraction.

### **Hypothesis 3**

There will be a positive relationship between time spent on Facebook games and Behavioural disengagement.

### **Hypothesis 4**

There will be a negative relationship between time spent on Facebook games and Satisfaction with Life.

### **Hypothesis 5**

There will be a negative relationship between perceived stress and satisfaction with life.

**Hypothesis 6**

There will be a negative relationship between self -distraction coping and satisfaction with life.

**Hypothesis 7**

There will be a negative relationship between behavioural disengagement coping and satisfaction with life.

## Method Section

### **Participants**

A convenience sample of 88 participants was collected in the current study. Some of the participants shared the link to the online questionnaire on their own personal pages which resulted in a snowball sample. Of the total sample gathered 17% of respondents were male while the majority (73%) were female. The age range of participants reported was as follows: 17% were in the 18-24 category, 56.8% were 25-39 age category and 26% were 40 years of age or older. Of the total participants 67 were actively engaged in online gaming through Facebook and the remaining 21 said they did not actively engage in online gaming through Facebook. From the group of active gamers 36 of them reported spending 1 hour or less playing Facebook games, 22 spent 2-3 hours playing Facebook games and only 6 reported spending more than 6 hours per day engaging in Facebook games. Participants were drawn from the general population of Facebook users by posting a link to a confidential and anonymous questionnaire on the researchers own Facebook page requesting volunteers to take part in the study. A link was also shared on a Facebook page set up exclusively for those who engage in Facebook games. Participation in the study was voluntary and no incentives were offered to take part.

### **Design**

A between subjects quantitative correlation research design was carried out in order to examine the associations between the variables time spent online gaming, perceived stress, behavioural disengagement coping, self-distraction coping styles and life satisfaction. The predictor variables were hours spent per day playing Facebook games and the criterion variables included perceived stress, behavioural disengagement coping, self-distraction coping and satisfaction with life.

## Materials

A questionnaire was put together in order to measure perceived stress, behavioural disengagement coping, self- distraction coping & satisfaction with life. Also included were the researchers own questions to determine if participants engaged in online gaming through Facebook (Do you actively engage in online gaming through Facebook? This was a simple yes/no answer) and if so how much time they actually spent doing so (How many hours per day do you spend online gaming through Facebook?). Here participants were given a choice of answers as follows 0-1 hours, 2-3 hours, 3-6 hours and 7+ hours. Other demographic questions were also included in order to gather information such as age range, gender, employment status and relationship status.

### Perceived Stress Scale (PSS, Cohen et al. 1983)

In order to measure perceived stress the perceived stress scale (PSS, Cohen et al, 1983) was used. The questionnaire is comprised of 10 questions which required participants to answer questions on how they felt and thought during the last month. This is a valid and reliable global measure of perceived stress which requires participants to select from a Likert scale from 0-4, 0=Never and 4 = very often to describe their perception of stress felt. In order to obtain the levels of perceived stress scores are reversed ( 4, 5, 7 & 8) for the positively answered items (0=4, 1=3, 2=2, 3=1, 4=0), and then by adding these to the original scores for the remaining items (1, 2,3,6,9 &10). The higher the overall total score the greater the amount of perceived stress the person is experiencing.

### Brief Cope Scale (Carver, C.S, 1997)

The BRIEF Cope scale (Carver, C.S, 1997) was used to determine how participants coped with stress in their life. The items included are divided into subscales to measure how a

person uses various coping methods to deal with stress. Of the fourteen subscales included in the scale only two of the subscales were deemed appropriate for the current study. The subscales self-distraction which is made up of questions 1+19 (1. I've been turning to work or other activities to take my mind off things. & 19. I've been doing something to think about it less, such as going to movies, watching television, reading, daydreaming, sleeping, or shopping) and for behavioural disengagement, made up of question 6+16 were selected (6. I've been giving up trying to deal with it & 16. I've been giving up the attempt to cope). Participants selected answers from 1-4 (1= I haven't been doing this at all, 4= I've been doing this a lot) to determine levels of coping styles. In order to calculate the total for each subscale, the scores from the items listed were added together. The higher the total the greater the use of that coping style. It should be noted that the scale does not yield an overall total but instead rates how much the person uses that particular coping method.

Satisfaction with Life (SWLS, Diener et al, 1985)

The satisfaction with life scale (SWLS) was used to measure how satisfied with life the person is. The scale is made up of five statements, which require the participant to answer on a scale of 1 – 7, how much or how little they agree with the statement. (7= Strongly Disagree, 1 = strongly disagree). In order to determine how satisfied with life they are, scores are added together from the 5 items for an overall total. Higher scores indicate greater degree of satisfaction with life. This is a globally valid and reliable source of measuring general satisfaction with life.

## **Procedure**

A link to an online questionnaire (see appendices) was posted on the researcher's personal Facebook page requesting volunteers to take part in the study. Here it was briefly stated that participation was anonymous and confidential and data protection information was

included. Once the link was clicked the participant was taken to the cover page which provided information regarding the nature of the study and how long it should take to complete. Participants were informed that the study would be looking at psychological factors influencing online gaming through Facebook.

Participation in the study was voluntary and a requirement of participation was to be actively engaged in online gaming through the social networking site Facebook. In order to comply with DBS ethics, it was stated in the cover page of the questionnaire that only those 18 years of age and over were permitted to take part in the study and the participants were informed of their rights regarding participation. Here it was also stated that once the questionnaire was submitted, as this was an anonymous study, it would not be possible to withdraw from the study.

Participants were then asked to confirm their consent to be included in the study by ticking on a check box and once they did this they were taken to the first of two questions added by the researcher to determine online gaming activity. The next section of the questionnaire was to determine how satisfied participants were with their life. This was followed by questions to determine levels of stress they perceived and finally the last set of questions asked about how participants coped with stress in their lives.

On completion of all of the questions they were taken to a confirmation page which gave them a contact point should they have experienced any distress or discomfort in completing the questionnaire and also the contact information for the researcher should they wish to follow up on the results of the study or if they had any questions relating to the study.

## Results Section

### **Descriptive Statistics**

This section will highlight the results of the current study. All statistics were computed using the latest version of SPSS for windows – Version 21. The main focus of the study was to establish if any significant associations exist between time spent playing Facebook games, stress, behavioural disengagement and self-distraction coping and life satisfaction. There were 88 respondents who took part in the study (N=88), 17% were male and 73% were female. Table 1 shows the percentage breakdown for participants in categories determined by demographic information collected.

The majority of participants were in the 25-39 age range (N=50). Only 15 participants were in the 18-24 age group and then remaining participants reported being in the over 40 range. (N=23). Of the sample collected 76.1% reported being in a relationship, (N=67) while 23.9% reported they were not in a relationship. (N=21). The majority of participants (N=56) reported being in employment while 17 participants reported being unemployed and 15 reported being neither employed / unemployed (N= 17). These were in the category other. See table 1:

**Table I Demographic and characteristics of data sample**

	<i>N</i>	<i>%</i>
<i>Gender</i>		
<i>Male</i>	15	17
<i>Female</i>	73	83
<i>Age Range</i>		
<i>18-24</i>	15	17
<i>25-39</i>	50	56.8
<i>40+</i>	23	26.1
<i>Relationship</i>		
<i>Not in relationship</i>	21	23.9
<i>Employment Status</i>		
<i>Employed</i>	56	63.6
<i>Unemployed</i>	17	19.3
<i>Other</i>	15	17

*\*frequency and percentage scores for demographic questions*

Descriptive Statistics were used to calculate mean scores and standard deviations. These were divided into those who actively engage in Facebook games and those who do not. Those who reported being actively engaged in Facebook games (Mean = 24.37, SD = 7.75) had lower Life Satisfaction than those who did not actively engage in Facebook games (Mean = 25.28, SD =4.56). There was very little difference in the scores for perceived stress between the groups, actively engaged in FB games (Mean = 19.29, SD = 5.38) and Not actively engaged in FB games (Mean =19.33, SD =5.67).

A bar graph (see figure 1.0) illustrates a comparison by groups. The scores of Self-distraction coping showed a small difference with those who use FB games (Mean=4.56, SD =1.77), scoring slightly higher than those who do not use FB games (Mean = 4.04, SD 1.68). This same trend can be seen when comparing scores of Behavioural Disengagement coping styles of the groups. Those who do engage in FB games (Mean = 3.01, SD =1.43) scored

higher than those who do not engage in FB games (Mean = 2.76, SD 1.09). See table 2 below:

**Table 2** Comparisons of Means and standard deviations of scores on Perceived Stress, Life Satisfaction, Self- Distraction Coping and Behavioural Disengagement Coping.

Variables	Actively engaged In Online Gaming	Mean	SD
Life Satisfaction	Yes	24.37	7.75
Totals	No	25.28	4.56
Perceived Stress	Yes	19.29	5.38
Totals	No	19.33	5.67
Self-distraction	Yes	4.56	1.77
Totals	No	4.04	1.68
Behavioural	Yes	3.01	1.43
Disengagement Totals	No	2.76	1.09

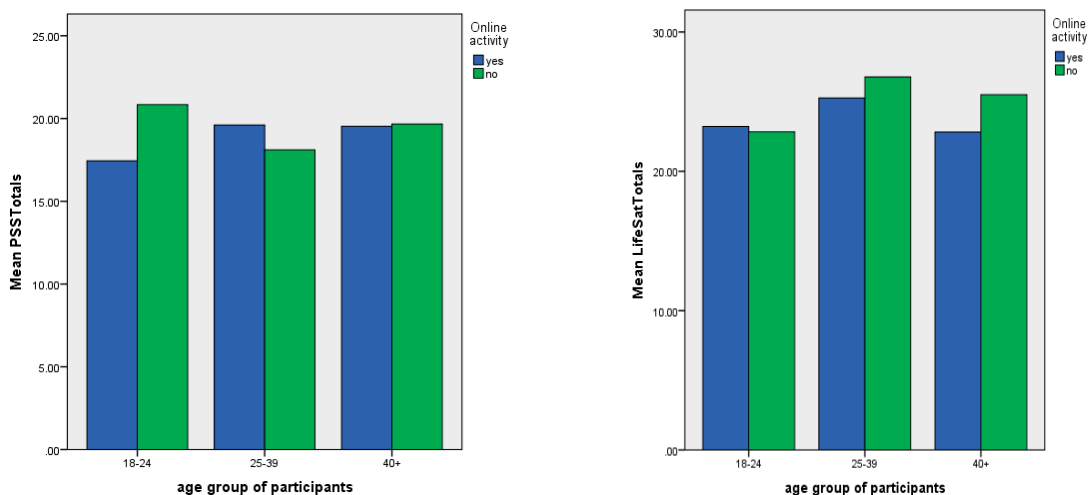


Figure 1.0 Perceived stress scores and Life Satisfaction scores by age / online activity

Analysis of data was used to establish if any trends or associations could be identified in hours spent per day playing Facebook games and perceived stress, life satisfaction, behavioural disengagement and self-distraction coping styles. Table 3 shows all the means and standard deviations of participant scores on the Perceived Stress Scale, Life Satisfaction scale and Brief cope subscales Behavioural disengagement / self-distraction coping by the hours spent per day playing Facebook games.

Those who spent the least amount of hours per day (0-1) playing Facebook games had lower stress scores than those who spent the most hours per day (7+) playing Facebook games but they also scored lower for satisfaction with life. Those who reported spending 3-6 hours however had the lowest stress scores and highest life satisfaction scores, however only 3 were in this group. Highest scores for self-distraction were seen in those who spent more than 6 hours per day than those who spent 1 hour or less. Those who spent 2-3 hours per day scored higher on behavioural disengagement than those who spent less than 1 hour per day.

See Table 3 below:

*Table 3: Means and standard deviations of variables by hours per day spent playing Facebook Games*

Hours per day	N		Perceived Stress	Life Satisfaction	Self- distraction	Behavioural Disengagement
0-1 hours	36	Mean	19.19	23.97	4.52	2.91
		SD	5.36	7.46	1.64	1.44
2-3 hours	22	Mean	19.95	24.81	4.59	3.22
		SD	4.68	8.09	1.99	1.57
4-6 hours	3	Mean	14.00	26.00	4.33	2.66
		SD	7.00	4.58	1.99	1.15
7+ Hours	6	Mean	20.16	24.33	4.83	3.00
		SD	7.08	10.83	2.22	1.09

---

Further analysis explored the stress scores amongst the different age ranges and found that those in the actively engaged in Facebook games group, in the age range 18-24 (Mean=17.44, SD=6.61) had lower stress scores than those in the 25-39 range (Mean = 19.60, SD =4.9) and those aged 40+ (Mean = 19.52, SD=5.94). Interestingly those in the Not actively engaged in Facebook games group, aged between 18-24 (Mean=20.83, SD =5.07) had higher stress scores than those in the 25-39 range (Mean=18.11, SD =5.46) and those in the 40+ age range (Mean = 19.66, SD = 7.06).

### **Inferential Statistics**

Checks for normality were carried out to determine what statistical tests to use. As all the criteria for parametric tests were not met in some instances, it was necessary to use the Non-parametric alternatives. Due to a number of participants (N=21) answering No to the researchers question – (Do you actively engage in online gaming through Facebook?), additional analysis was computed using SPSS to determine if any differences in scores could be identified that was not previously included in the study.

#### Hypothesis 1

As all the conditions were not met to run parametric tests, it was necessary to conduct a non-parametric alternative. A Spearman's Rho correlation found there was no relationship between hours spent per day playing Facebook games and perceived stress.

( $r_s(67) = .018, p = .442$ , one-tailed).

#### Hypothesis 2

As all the conditions to run parametric tests were not met it was necessary to run a non-parametric alternative. A Spearman's Rho correlation found that there was no relationship between hours spent per day playing Facebook games and self-distraction coping. ( $r_s(67) = .020, p=.435$ , one-tailed).

### Hypothesis 3

As all the conditions to run parametric tests were not met a non-parametric alternative was computed. A spearman's Rho correlation found that no statistically significant relationship exists between hours spent per day playing Facebook games and behavioural disengagement coping. ( $r_s(67) = .081, p=.258$ , one-tailed).

### Hypothesis 4

As all the conditions were not met to run parametric tests, a non-parametric alternative was used. A spearman's Rho found no relationship between hours spent per day playing Facebook games and Satisfaction with life scores. ( $r_s(67) = .105, p=.198$ , one-tailed).

### Hypothesis 5

A Pearson's r correlation was computed and found a significant negative correlation between perceived stress scores and satisfaction with life. ( $r = -.457, N=67, p<.0005$ , one-tailed).

### Hypothesis 6

A Pearson's r correlation was computed and found a significant negative relationship between Self-distraction scores and satisfaction with life. ( $r = -.394, N=67, p<.0005$ , one-tailed).

### Hypothesis 7

A Pearson's  $r$  correlation was computed and found there is a significant negative relationship between behavioural disengagement scores and satisfaction with life. ( $r = -.399$ ,  $N = 67$ ,  $p < .0005$ )

### **Post-hoc Analysis**

A Mann Whitney U was used to test the hypothesis that there will be a significant difference between life satisfaction scores of those in the group that actively play Facebook games and those in the group that do not play Facebook games. The active gaming group had a mean rank of 44.56 compared to the not actively gaming group which had a mean rank of 44.31. There was no significance difference found ( $z = -0.39$ ,  $p = .969$ )

A Mann Whitney U was used to test the hypothesis that there will be a significant difference between perceived stress scores of those in the group that actively play Facebook games and those in the group that do not play Facebook games. The active gaming group had a mean rank of 44.46 compared to the not actively gaming group which had a mean rank of 44.62. There was no significant difference found ( $z = -0.25$ ,  $p = .980$ )

A Mann Whitney U was used to test for differences in the scores for behavioural disengagement coping for those who are actively playing Facebook games with a mean rank of 44.91 compared to those who are not actively playing Facebook games with a mean rank of 43.19. There was no significant difference found. ( $z = -.306$ ,  $p = .760$ )

A Mann Whitney U was computed to test for differences in the self-distraction scores of those who actively play Facebook games with a mean rank of 46.31 and those who do not actively play Facebook games with a mean rank of 38.74. There was no significant difference found ( $z = -1.203$ ,  $p = .229$ )

## Discussion

The aim of this study was to investigate if hours per day spent playing Facebook games is positively associated with perceived stress, and whether it is a form of escapism through emotion-focused coping measured by self-distraction and behavioural coping styles and if this is negatively associated with overall Life Satisfaction. The purpose of this chapter is to highlight areas for discussion in the current study. It will also provide strengths and weaknesses of the study, how it impacts on previous research and what implications there are for future research based on the current findings.

### **Summary of Hypothesis**

A lot of past research into online gaming and stress suggests that it can be a relief from stress for gamers which may suggest they could exhibit high levels of stress. The current study wanted to add to this by exploring if a positive relationship exists between amount of hours per day spent playing online games in particular this study looked at stress scores of those who engaged in Facebook games. It was hypothesised that a relationship would be found between hours per day spent playing Facebook games and stress, and in particular those spending more time playing Facebook Games would have higher perceived stress scores than those who spent less time per day playing Facebook games. Although some of the findings indicated that those who engage in online gaming through Facebook have

higher stress levels than those who do not on further analysis no statistically significant relationship was found.

Previous research in to online gaming suggests that some users engage in online gaming as a form of escapism and the second hypothesis was that those who spent more hours per day playing Facebook games would use self-distraction coping. The current study found no statistically significant relationship although a trend of this coping style was seen to be used more amongst those who actively played Facebook games when compared with those who do not actively play Facebook games which could suggest that those who actively play Facebook games use this coping style as a means of escape from reality for a period of time.

The third hypothesis was to find a positive relationship between hours per day spent playing Facebook games and behavioural disengagement coping style to determine if longer hours spent per day playing Facebook games was positively associated with behavioural disengagement coping. This was not supported in the current study as no statistically significant relationship could be found.

It was also hypothesised that there would be a negative relationship between hours per day spent playing Facebook games and Life Satisfaction. The current study found that satisfaction with life scores were lower amongst those who actively played Facebook games when compared to those who don't but again on further analysis no statistically significant relationship was found. This study is inconsistent with previous findings that those who engage in online gaming have low satisfaction with life and therefore seek to create alternative more satisfying virtual lives online. (Trepte & Reinecke, 2010, Castranova & Wagner, 2011)

A negative association between perceived stress and satisfaction with life was hypothesised and this was supported by the findings and a statistically significant negative

correlation was found between the variables supporting previous research relating to negative associations between stress and life satisfaction. (Paschali & Tsitsas, 2010, Alleyne & Alleyne, 2010, Bendayan et al, 2013).

The sixth hypothesis was to find a negative relationship between self-distraction coping and satisfaction with life and this was supported by the current study meaning that those who scored higher on the self-distraction scale scored lower on life satisfaction which may suggest that emotion-focused coping is being employed as a form of self-distraction for participants from reality for a period of time.

The seventh hypothesis was to find a negative relationship between behavioural disengagement coping and life satisfaction and this was found meaning that those who scored high on behavioural disengagement scored low on life satisfaction which could suggest that they are using emotion focused coping as a temporary escape from reality or stressors for a period of time.

Post-hoc analysis was used to further investigate if any significant differences could be found in scores of perceived stress, life satisfaction and behavioural disengagement and self-distraction coping between the groups who was actively playing Facebook games in comparison to the group who did not actively play Facebook games. Although some slight differences were identified there was no statistical significance found when further tests were computed. Inconsistency in group sizes may have impacted in results here.

### **. Limitations**

The current study like other empirical research, has its limitations. The sample size was relatively small (N=88) in comparison to previous studies samples and if perhaps if a larger sample was gathered it may be a better indication of the larger population. The majority of respondents were female (N=73) compared to male respondents (N=15) which

created a substantial gender imbalance. This could be rectified in future studies by putting in measures to recruit specific participants to enable for more equal numbers. Future research may benefit from a larger sample size which includes more male participants. In the options for selecting hours spent per day there was overlap of hours in the choice for selection (0-1 hours, 2-3 hours, 3-6 hours and 6+). This could be rectified in future designs. This may have been down to the design of the study and future research may benefit from looking at other variable measures of coping styles.

The researcher also notes that the design of the research could be improved. In the original design the questionnaire was aimed exclusively at those who actively played games through the social network site Facebook and as the data collected included answers from participants who did not engage in online gaming through Facebook, the researcher was able to compare scores post-hoc between those who played Facebook games and those who did not. Future research could benefit from exploring differences in these groups by using a larger sample size. Also the question added to determine hours per day spent online gaming could be modified to enable better statistical findings of the data when using SPSS.

Another limitation the researcher discovered was that although small differences in scores were found between the two groups, they all participated in the study online through Facebook. This factor could be linked to the similarities in overall total stress scores as although they are not gaming through Facebook they are still online on the site and could be spending a significant amount of time doing so. Previous research mentioned suggested that Facebook use was associated with high stress amongst users of the site (Campisi et al, 2012). It might be beneficial to conduct an experiment testing stress levels in participants under 2 conditions, before playing Facebook games and then after playing Facebook games to determine if any causal effect can be seen and if high perceived stress is present prior to engaging in Facebook Games.

### **Strengths and weaknesses of the current study**

The researcher notes that the sample size employed may have impacted on the results and the study may benefit from recruiting a larger sample size in the future. The current study did find a significant negative association between perceived stress scores and satisfaction with life scores. A significant negative correlation was found between life satisfaction and both self-distraction coping and behavioural disengagement coping. This could suggest that those who are experiencing high perceived stress, use emotion focused coping strategies and are less satisfied with life however no associations were found to link this to hours spent per day playing Facebook games.

Although as previously mentioned the sample size in the current study was small it did look at a wider age range of participants. Previous research primarily focused on younger samples and student samples, the current study comprised of a variety of age ranges 18-24(N=15), 25-39(N=50), 40+ (N=23). Therefore the current study highlights the importance of studying a variety of groups as appose to using only student samples.

Life satisfaction and perceived stress have been linked to personality types and so this variable could be a factor affecting the associations in the current study. It may be beneficial to factor in personality types in future research.

The current study also highlights the fact that stress is very much at a high level today and should be further investigated. Previously mentioned research found associations between Facebook use and perceived stress, however it does not give an indication as to whether they are spending time gaming through the site, and while the current study did not find any statistically significant relationships, it is important that further research in this area is carried out as these sites grow and become ever more popular.

As only 2 subscales from the Brief Cope Inventory were used to measure how participants coped with stress it may have impacted in the results. Future studies may benefit from using all subscales or an alternative measure of coping with stress.

As with a lot of self- report questionnaires, information from respondents may not always be accurately reported and can be subject to bias (Dodd-McCue & Taraglia, 2010; Donaldson & Grant-Vallone, 2002).

Another strength of the current study can be seen in that the sample employed was drawn from a real world group of participants and so results are somewhat reflective of real life.

There are different gaming experiences available to users through Facebook and this may have affected the results of the present study. Some games are more virtually interactive such as Farmville where wealth and status can be created in comparison to single player games such as Candy crush. Although both gaming experiences may help reduce stress in individuals, type of games could factor in overall life satisfaction scores amongst users and future research may benefit from measuring different aspects of gaming experiences for users and explore further attraction to and choice of game.

### **Implications for future research**

The current study highlights the importance of further investigation into the positive and negative effects of online gaming and in social network sites such as Facebook which promote and encourage gaming. With technology advancing at an extraordinary rate and the introduction of so many new electronic devices the industry is set to grow even further and may have other implications for society. Studying stress in relation to online media is beneficial as much more research is needed with social media sites becoming more prominent. Although no significant linkage was found in this study further investigation is

still warranted in the area. Previous mentioned research into online gaming as an escapism stated that it can be beneficial for people to have a distraction from life but how much time should be spent being distracted and how much time is too much? Future research could focus on other factors such as health and socio-economic status of individuals. Other previously mentioned research suggests online gaming can be beneficial for recovery from stress and strain (Reinecke, 2009).

More research could be done to establish if playing Facebook games can reduce stress in users as previously mentioned by conducting an experiment. Past research suggests that Facebook use is used as both a stress relief and can be a cause of stress in users of the site. This could be an area where online gaming through the site could be a factor. Although no significant associations were found between hours per day spent playing Facebook games and stress there were some differences in scores identified between those who play games through Facebook and those who do not. Although no statistically significant results were identified, future research could benefit from a more detailed comparison of these groups with better variance of groups. Other factors such as employment status and happiness could impact on stress perception and satisfaction with life and could be looked at in future research.

## **Conclusion**

In summary the current study supports previous research that life satisfaction scores are negatively associated with perceived stress, behavioural disengagement and self-distraction coping, however this was not linked to hours spent per day playing Facebook games as was hypothesised. Some support was found to suggest that those who play Facebook games are more stressed than those who do not play Facebook games but a larger sample size would need to be employed to fully investigate this as no statistically significant result was found in this study. As mentioned there is very little research exploring the effects

of Facebook games and associations with stress and overall satisfaction with life. Could it be a form of mental exercise for the mind to aid stress management or is it simply a distraction and means of procrastination? This study highlights the need for further investigation in this area as technology evolves and more and more people engage further into an online world dominated by social networks and the gaming industry where the effects on health and well-being are not fully understood.

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## Appendix

### Online Gaming Survey

My name is Janice O'Toole and I am conducting research for my final year thesis in psychology. This research is being conducted as part of my studies and will be submitted for examination.

The research is exploring the psychological factors influencing online gaming via Facebook and you should only complete the survey if you actively play games through the site. The survey should take 5 to 10 minutes to complete. While the survey asks some questions that might cause some minor negative feelings, it has been used widely in research. If any of the questions do raise difficult feelings for you, contact information for support services are included on the final page.

Participation is completely voluntary and you must be over 18 years of age. Participation is anonymous and confidential. Thus responses cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been collected.

The questionnaires and data collected will be securely stored on a password protected computer.

It is important that you understand that by completing and submitting the questionnaire that you are consenting to participate in the study.

Thank you for taking the time to complete the survey.

#### \*Required

**Please tick the box to confirm your consent to being included in this study. \***

- I consent

**Do you actively engage in online gaming via Facebook? \***

**Gender \***

**What age are you?**

Please select from the following options:

- 18-24
- 25-39
- 40+

**Relationship Status \***

**Employment Status \***

**How much time do you spend online gaming per day? \***

This refers to all types of games played online e.g candy crush, farmville, pet rescue etc

- 0-1 Hour
- 2-3 Hours

- 3-6 Hours
- More than 6 Hours

**Please indicate how much you agree or disagree with the following statements. \***  
Please be open and honest in your response.

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
In most ways my life is close to my ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far I have gotten the important things I want in Life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could live my life over, I would change almost nothing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**The questions in this scale ask you about your feelings and thoughts during the last month. \***

For each question please choose one of the following options :

	0 = Never	1 = Almost Never	2 = Sometimes	3 = Fairly often	4 = Very often
How often have you been upset because of something that happened unexpectedly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you felt that you were unable to control the important things in your life?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you felt nervous and stressed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you felt confident about your ability to handle your personal problems?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you felt that things were going your way?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	0 = Never	1 = Almost Never	2 = Sometimes	3 = Fairly often	4 = Very often
you found that you could not cope with all the things you had to do?					
How often have you been able to control irritations in your life?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you felt you were on top of things?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you been angered because of the things that happened that were outside of your control?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you felt difficulties were piling up so high that you could not overcome them?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Use the choices below to indicate how much or how little you have been using these ways to cope with stressful events in your life. \***

Dont answer on the basis of whether it seems to be working or not - just whether you are doing it or not.

	1 = I haven't been doing this at all	2 = I've been doing this a little bit	3 = I've been doing this a medium amount	4 = I've been doing this a lot
I've been turning to work or other activities to take my mind off things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been giving up the attempt to cope.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been giving up trying to deal with it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've been doing something to think about it less, such as going to the movies, watching TV, reading, daydreaming, sleeping, or shopping.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Online Gaming Survey

Thank you for completing this survey.

All responses are anonymous and confidential.

If you have been affected by any of the questions you can contact The Samaritans: Tel/ Txt: 1850 60 90 90.

If you have any queries relating to the study or would like be informed of the results of the study please email me:

Submit

100%: You made it.

Never submit passwords through Google Forms.

