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Online recreation: The relationship between loneliness, Internet self-efficacy and the use of the Internet for entertainment purposes

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Abstract

In this study, 150 undergraduates answered questions about their Internet usage and completed a loneliness and an Internet self-efficacy questionnaire. A factor analysis of the Internet usage items revealed three facets of online recreation, including, using the Internet for: computer-based entertainment, to facilitate offline entertainment, and for information about the entertainment world. 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. Individuals higher in Internet self-efficacy were more likely to use the Internet for computer-based entertainment and to facilitate offline entertainment. Implications for the study of the psychological influences of the Internet are discussed in this paper.

Key words: Online recreation; Internet; Leisure; Entertainment; Loneliness; self-efficacy

1. Introduction

Researchers over the last few years have been very interested in whether the Internet is detrimental to one's psychological health or whether, instead, it might enhance one's well-being. In the early stages, researchers emphatically argued that greater use of the Internet was associated with negative effects on an individual (Kraut et al., 1998). More recently, studies have found that the Internet, in contrast, can contribute positively to psychological well-being (Shaw & Gant, 2002). Arguably, these variations in results could be attributed to the changing nature of the Internet, the greater numbers of individuals who use it, as well as its increased accessibility, affordability and availability. However, it might also be the case that we are asking the wrong questions. Researchers have contended that cyberspace is not a generic space (Whitty & Carr, 2003) and that instead of considerations of the Internet as a whole we should focus our attention on the individual aspects of the Internet. In line with this way of thinking, we were interested in what types of leisure services lonely individuals are more likely to access online. However, in addition to loneliness, we were interested in people's ability and confidence in using the Internet.

In what has become a well known study, Kraut and his colleagues (1998) made the claim that greater use of the Internet was associated with negative effects on an individual, such as decreases in the size of one's social circle, and increases in depression and loneliness. In Kraut et al.'s longitudinal study, households who had never accessed the Internet prior to the study were provided with a computer, a free telephone line and free access to the Internet. During the course of the study, they tracked changes in psychological states over time. As stated above, this study found a significant relationship between heavy Internet usage and loneliness. Kraut et al. argued that since initial loneliness failed to predict subsequent loneliness, the most likely explanation was that the increased use of the Internet was what caused the increase in loneliness. In other words, Internet usage was taking up time that could be better used for more psychologically

beneficial interactions offline. Kraut et al. made the claim that online weak ties were being established which were of poorer quality compared to the types of relationships and strong ties already established offline.

Kraut et al.'s (1998) 'HomeNet Study' has been widely criticized. One of the major criticisms made was that they only used 3-items from the UCLA to measure loneliness and their Cronbach's alpha of .54 was clearly poor (Grohol, 1998). Morahan-Martin (1999) also points out that the sample size was too small and not randomly selected. Perhaps a more important criticism, however, is that Kraut et al.'s findings might only explain novice Internet users (LaRose, Eastin, Gregg, 2001). Moreover, as LaRose et al. (2001) have maintained, self-efficacy might be an important variable to consider. The individuals that spent more time online in Kraut et al.'s study might have been simply ineffective users of the Internet and the stress in trying to work out how to use this new technology might have caused them to become more depressed.

Interestingly, in the 3-year follow-up to the HomeNet study the same researchers found that almost all of the previously reported negative effects had dissipated (Kraut et al., 2001). Instead, higher levels of Internet use were positively correlated with measures of social involvement and psychological well-being. Perhaps such results might be explained by LaRose et al.'s (2001) claim that it is also important to consider self-efficacy. Could it be that the participants in the HomeNet study became more Internet savvy over time which, in turn, altered the way they used the Internet?

The contrasting view to the Internet causing loneliness is that lonely people have a greater desire to use the Internet and can even benefit from doing so. As Morahan-Martin & Schumacher (2003) have stated:

The Internet provides an ideal social environment for lonely people to interact with

others. Not only does it provide a vastly expanded social network, but also it provides altered social interaction patterns online that may be particularly attractive to those who are lonely. (p.662)

Research has focused on this alternative view to examine whether lonely people access the Internet to improve their psychological well-being. Shaw and Gant (2002), for instance, found that increased Internet usage was associated with decreased levels of loneliness and depression and increased levels of social support and self-esteem. More recently, Oldfield and Howitt (2004) found that those who spent more time on emails were less likely to be lonely. These authors contend that this is possibly because emails were used by individuals in their sample to support and maintain friendships, rather than as an alternative to offline friendships. Importantly, Oldfield and Howitt (2004) considered the various spaces online, such as chat, shopping, entertainment and banking, rather than treating the Internet as one entity.

We also believe that it is important to consider individual aspects of the Internet. Consequently, we decided to focus in this study on the use of the Internet for entertainment. Interest in the development of the World Wide Web as a leisure resource, and its use as such, has grown significantly in the past decade. High-speed connections have facilitated advances in this interactive medium (Cho, Byun & Sung, 2003). The 'Pew Internet and American Life Project' has highlighted the increase in Americans' use of entertainment-related Internet applications (Madden, 2003). Seeking out information about a hobby, browsing the Internet for fun, downloading music, viewing sports online and playing games have all increased (Madden, 2003). An increase in popularity of playing games online has also been reported in Europe, arguably because of increased access and the affordability of Broadband (Nielson//NetRatings, 2003).

Most of the work on leisure and the Internet has focused on online gaming (e.g., Griffiths, Davies, & Chappell, 2003) and porn (e.g., Mehta, 2001). Much of this research has focused on the detrimental effects of overindulging in online entertainment. While, of course, research on topics such as Internet addiction is important, this current study was more interested in the types of people who are more likely to access various forms of entertainment. Importantly, Trew and Malle (2004) have made the distinction between active and passive entertainment online. As they state: "[p]assive entertainment allows only minimal interaction between the program and the user" (p.24). Examples, which they give, of passive entertainment include; movies, music and most web pages. According to these same theorists, active entertainment "requires the player to interact with virtual objects and characters in a virtual world" (p.24). In our current study, we were also interested in categorizing entertainment online, rather than considering entertainment as a whole. For instance, people can use the Internet to be entertained, such as playing games; however, they can also use it to find information about entertainment offline. It might be the case that lonely people are more interested in accessing the former than the latter.

As stated earlier, in addition to considering what spaces lonely people are more likely to access online for entertainment, we were interested in whether self-efficacy also helps determine what aspects of the Internet individuals are more likely to utilize. According to Eastin and LaRose (2000), there are a number of psychological barriers associated with Internet use, some of which include prior experience, self-efficacy and self-disparagement. They believe that each mediates the extent to which people use online resources.

Bandura (1999) states that self-efficacy is a belief in one's ability to perform a given task. Individuals with high assurance in their abilities often approach difficult tasks as challenges to be mastered, while those who doubt their capabilities shy away from such tasks. A number of

studies have focused on the effects of self-efficacy on the acceptance of computer technology. For example, Compeau and Higgins (1995, 1999) found a positive relationship between computer self-efficacy and computer usage. Arguably, use of the Internet requires further skills (Eastin & LaRose, 2000). For example, individuals must learn how to establish and maintain an Internet connection, learn how to effectively surf the World Wide Web, as well as be able to use the multitude of applications it offers. This may be daunting, particularly for novices with little computer experience (Igbaria & Iivari, 1995). Early research on Internet self-efficacy concentrated primarily on the execution of particular tasks, such as entering Web addresses and creating bookmarks. Ren (1999), for example, conducted a study that measured levels of Internet self-efficacy specific to searching for government information resources. Ren found a positive correlation between perceptions of self-efficacy and levels of Internet use. This current study intends to add to this growing literature by considering the relationship between Internet self-efficacy and the use of the Internet for entertainment.

While previous research has examined the relationship between loneliness and Internet usage and self-efficacy and Internet usage few have considered these together. Moreover, there is currently a dearth of research available on the types of people who are more likely to use the Internet for entertainment. It is the aim of this paper to examine the relationship between loneliness, Internet self-efficacy and using the Internet for various forms of entertainment. Based on the previous research outlined above, we expected that lonely people would be more likely to use the Internet for entertainment and that those higher in Internet self-efficacy would be more likely to use the Internet for entertainment.

2. Method

2.1. Participants

The participants were 150 undergraduate students (75 male and 75 female) enrolled at Queen's University, Belfast. Ages ranged from 18 - 25 years, with a mean of 20.61 years ($SD =$ 1.68). All participants had access to free Internet facilities on campus, whether they chose to use them or not. The majority of the sample (80%) also had the Internet at home. Thirty-one percent of participants were also able to connect to the Internet via their mobile phones. Other points of access included local libraries and Internet cafes. Forty-two percent of the sample reported having access to a Broadband connection.

2.2. Materials

Demographic Questions: Participants were firstly asked a number of demographic details such as age, gender, and where they accessed the Internet.

Online Entertainment Survey: An 'Online Entertainment Scale' was developed specifically for this research project. Previous research, in particular work carried out in the 'Pew Internet & American Life Project' (Madden, 2003), was drawn upon to aid in selecting items for this survey. A range of entertainment available online was considered, including, online gaming, using chat rooms, downloading music, viewing porn, reading online magazines, shopping, surfing the web, finding information about celebrities, and so forth. Moreover, we included items on accessing the Internet to either be informed about or to access entertainment offline, such as purchasing tickets, information about offline hobbies, and information about current sporting events. We piloted the survey twice before coming up with the final survey of 14 items. Each item of the scale was rated by frequency of use on a five-point scale, with higher scores indicating greater use of the Internet for entertainment purposes.

Internet Self-Efficacy Scale: Eastin and LaRose's (2000) 'Internet Self-Efficacy Scale' was used in this study. Participants were asked to respond to a series of eight statements based on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). This measure included statements such as 'I feel confident troubleshooting Internet problems' and 'I feel confident using the Internet to gather data'. Higher scores indicated higher levels of Internet self-efficacy. In respect of reliability, this scale produced an internally consistent Cronbach's alpha of .93, which is identical to the score reported by Eastin and LaRose (2000).

UCLA Loneliness Scale: The 'UCLA Loneliness Scale' (Russell, 1996) was also employed in this study. This simplified measure of loneliness included a total of 20 items, 11 or which are negatively worded (lonely) and 9 of which are positively worded (non-lonely). Higher total scores indicated greater degrees of loneliness. A reliability analysis of this scale revealed a Cronbach's alpha of .92, which is similar to Russell (1996) who reported internally consistent alpha coefficients of .89 to .94.

2.3. Procedure

After obtaining the approval of the ethics committee at Queen's University Belfast, participants were recruited from a library on campus. In order to gain access to these facilities, library staff were contacted and briefed about the investigation. Testing only began when the informed consent of the library manager had been secured. An opportunistic sampling technique was employed to recruit participants over a two-day period. Although a number of students were approached, only undergraduates aged 18 – 25 years were invited to participate. This was controlled for a number of reasons. Firstly, young adults are the heaviest recreational users of Internet technology and have been the primary expediters of the development of entertainment-

related Internet applications (Madden, 2003). Students are also thought to be particularly vulnerable to pervasive feelings of loneliness, often attributed to the changes associated with this stage of development (Nurmi & Salmela, 1997). Test materials were administered to suitable candidates who were instructed to seal completed questionnaires in the envelopes provided. Responses were then collected for further analysis.

3. Results

Ratings on the 'Online Entertainment Scale' were subjected to an exploratory factor analysis. Before subjecting the scale to principal axis factoring the data were assessed to ensure suitability for analysis. None of the assumptions were violated. The correlation matrix revealed a number of coefficients of .3 and above. The Kaiser-Meyer-Olken measure of sampling adequacy was .73 which exceeded the recommended value of .6 (Tabachnick & Fidell, 2001). The Bartlett's Test of Sphericity also reached statistical significance, supporting the factorability of the correlation matrix.

Principal axis factoring revealed the presence of 5 components with eigenvalues exceeding 1. Together, they accounted for 44.1% of the total variance (23.7%, 6.9%, 6.0%, 4.3% and 3.1% respectively). A closer look at the data suggested that not all of the extracted factors should be retained for rotation. The fourth and fifth components appeared to be statistically weaker than the others, with borderline eigenvalues of 1.10 and 1.00 respectively. Together they accounted for a meager 7.4% of the total variance. Moreover, although two items loaded onto each of these components, the factor matrix showed evidence of crossloading. Inspection of the screeplot confirmed suspicions that only the first three factors should be retained for rotation. These components were separated obliquely by Direct Oblimin, which allowed for the possibility of intercorrelation among factors. Only items with loadings of .4 and above were considered for

further analysis. This eliminated crossloading and helped to made the rotation more

parsimonious. The rotated factor solution took 6 iterations to produce and is reported in Table 1.

Table 1
Factor Pattern Matrix

	Factor 1 (3.85)	Factor 2 (1.44)	Factor 3 (1.30)
Eigenvalues			
How often do you use the Internet to download/ listen to music?	**.782**	-.150	-.066
How often do you use the Internet to download/ view films/other entertainment-related broadcasts?	**.677**	-.058	.097
How often do you use the Internet to participate in online chat groups?	**.490**	.047	-.020
How often do you visit music-related websites to find out about music events/chart releases?	**.467**	.080	.057
How often do you download/play games online?	**.403**	.272	-.062
How often do you use the Internet to access material with pornographic content?	.299	.039	.101
How often do you use the Internet to search for information on sports/sports events?	.040	**.769**	-.188
How often do you go online to access information about your hobbies?	-.108	**.683**	.104
How often do you use the Internet to download/ read online books, newspapers or magazines?	.050	.367	.149
How often do you browse Internet as a means of entertaining yourself?	.204	.345	.136
How often do you go online to find out about the latest cinema releases?	.106	-.006	**.700**
How often do you use the Internet to access information about celebrities and showbiz events?	.015	.021	**.602**
How often do you 'surf the web' to find out about upcoming events/entertainment in your local area?	.195	.263	.278
How often do you purchase goods online (including items such as travel/concert tickets)?	-.019	-.009	.272

Note. The higher factor loading for each item appears in boldface type.

Factor 1 was labeled as 'Use of the Internet for computer-based entertainment'. This

factor included both social (e.g., chat) and potentially, but not necessarily, isolated (e.g.,

downloading films and music) forms of entertainment. However, what they had in common was that the entertainment was provided online (we argue that individuals are not necessarily isolated given that one can download movies or music with others offline). Factor 2 was labeled 'Use of the Internet to facilitate offline entertainment'. The third factor was labeled 'Use of the Internet for information about the entertainment world.' All three were moderately correlated with one another (see Table 2). Factor based scales were generated by summating the relevant items. All three were internally consistent, with Cronbach alpha values of .70 for Factor 1, .63 for Factor 2 and .64 for Factor 3.

Table 2

Correlation matrix

Factor	1	2	3
1. Use of the Internet for computer-based entertainment	-	-	-
2. Use of the Internet to facilitate offline entertainment	.417	-	-
3. Use of the Internet for information about the entertainment world	.412	.334	-

A series of regression analyses were conducted to explore the relationships between Internet self-efficacy, loneliness and the three factors. Prior to performing these analyses, the suitability of each data set was assessed. None of the assumptions were violated.

In the first regression analysis, 'Use of the Internet for computer-based entertainment' was entered as the dependent variable. The results (reported in Table 3) indicated that both Internet self-efficacy β = .38, t = 4.98, $p < .001$ and loneliness β = .15, t = 2.00, $p < .05$ were significant predictors of this variable, $F (2, 147) = 13.24$, $p<.001$. This supported our hypothesis. Together, they accounted for 15.3% of the total variance.

Table 3
Factor 1-'Use of the Internet for computer-based entertainment '

	R^2	Beta
Internet Self-Efficacy	.153	.38***
Loneliness		.15*

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

In the second regression, 'Use of the Internet to facilitate offline entertainment' was entered as the dependent variable. The result (reported in Table 4) indicated that only Internet self-efficacy β = .29, t = 3.68, $p < .001$, $F (2, 147) = 6.97$, $p < .001$ was a significant predictor of this variable. Hence, this only partly supported our hypothesis. This accounted for 8.7% of the total variance.

Table 4
Factor 2-'Use of the Internet to facilitate offline entertainment'

	R^2	Beta
Internet Self-Efficacy	.087	.293***
Loneliness		.090

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

In the third and final regression, 'Use of the Internet for information about the entertainment world' was entered as the dependent variable. The result (reported in Table 5) revealed that only loneliness β = .67, t = 11.08, $p < .001$, $F (2, 147) = 64.07$, $p < .001$. was a significant predictor of this variable. This again only partly supports the hypothesis. It did, however, account for an impressive 46.6% of the total variance.

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Table 5

Factor 3-'Use of the Internet for information about the entertainment world'

	R^2 value	Beta value
Internet Self-Efficacy	.466	-.046
Loneliness		.674 ***

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

4. Discussion

The factor analysis performed in this study revealed three forms of online entertainment. These were, using the Internet a) for computer-based entertainment, b) to facilitate offline entertainment, and c) for information about the entertainment world. The regression analyses found only partial support for our hypothesis that lonely people would be more likely to use the Internet for entertainment and that those higher in Internet self-efficacy would be more likely to use the Internet for entertainment. For the first factor, lonely people and people higher in Internet self-efficacy were more likely to use the Internet for computer-based entertainment. For the second factor, people higher in Internet self-efficacy were more likely to use the Internet to facilitate offline entertainment. For the third factor, lonely people were more likely to use the Internet for information about the entertainment world.

This study revealed that undergraduates with higher levels of Internet self-efficacy are more likely to use the Internet for computer-based entertainment. This result is not surprising when you consider the items that loaded onto this factor. For instance, specific skills (such as knowledge of how to use certain software) are required to download music and videos and to play games online. According to Bandura (1999), individuals with weak self-efficacy beliefs

often find novel tasks daunting. Focusing on personal deficiencies may hinder users from interacting with challenging web-based entertainment applications like those evident in Factor 1.

Although loneliness made less of a contribution towards predicting the use of the Internet for computer-based entertainment, the relationship, as predicted, was still significant. Morahan-Martin (1999) maintains that the Internet is 'custom tailored' for the lonely. The Internet represents a safe, low-risk social environment for lonely people. Some of the items which loaded on Factor 1, such as participating in chat rooms and playing games online, were exemplars of social aspects of the Internet. Others were potentially isolated activities (e.g., downloading music). However, each of these activities could be substitutes for engaging in face-to-face interactions.

This study also found that those higher in Internet self-efficacy were more likely to use the Internet to facilitate offline entertainment. Again, this result can be explained when you consider the items that loaded onto this factor. Searching for information about sporting events or information about one's hobbies requires further skills than simply aimlessly 'surfing the web'. For instance, one needs to know where to look and what specific search terms to type into a search engine. It might be easier for the less Internet savvy to utilize other media, such as newspapers or magazines, to find the same information. In addition, it is perhaps not so surprising that loneliness failed to predict the use of the Internet to facilitate offline entertainment, given that the more lonely people in our sample presumably have less social contacts and engage in less social activities offline.

We did, however, find that loneliness was associated with the use of the Internet to obtain information about the entertainment world. In line with claims made by previous researchers, the more lonely individuals in our study were perhaps more attracted to the Internet for entertainment as an alternative to offline entertainment (Shaw & Gant, 2002). Arguably, these individuals might

have engaged in such activities as an escape to the outside world.

Overall, this study adds an important contribution to the scant research currently available on the types of people who are more likely to use the Internet for entertainment. It also supports the notion put forth by previous researchers that there is a relationship between lonely people and the use of the Internet (e.g., Kraut et al., 1998). More importantly, it demonstrates that even when we consider solely entertainment online that we cannot treat the Internet as one generic space. Furthermore, other variables, such as Internet self efficacy play an important role in determining if an individual is going to utilize the resources available online. An implication of such a finding is that if researchers find that use of the Internet for entertainment is beneficial for lonely people, then we might want to train these individuals to use the Internet more effectively.

Of course, we recognize that there are some shortcomings to this present study. These results, for instance, can only be generalized to educated young people. Future research might reveal some age differences in individuals' preferences for using the Internet for entertainment. For example, using the Internet to download music and play games might be an activity preferred by younger people. A more important limitation is that we were unable to ascertain in this study whether lonely individuals were more likely to go to the Internet for entertainment as a replacement for offline activities or if engaging in these activities caused them to be lonely. As Morahan-Martin (1999) warns us, turning to the Internet to escape the discomfort of everyday life can sometimes lead to Internet addiction. Hence, we are yet to determine if it is a psychologically healthy activity for lonely people to use the Internet for entertainment. Moreover, it might be that engaging in certain online activities causes one to become high in Internet self-efficacy, rather than individuals high in Internet self-efficacy turning to the Internet for certain forms of entertainment. Longitudinal research is required to test out these claims. Future research might also consider how online activities are combined

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with offline activities. Even though it is possible for individuals to split the cyber-world off from the offline world (see for example, Whitty & Carr, in press), online communication is often not separate to the rest of one's life.

In conclusion, the Internet continues to increase in popularity, especially in respect to entertainment (Madden, 2003). Therefore, it is important for researchers to consider what types of people are more likely to access the Internet for entertainment and whether this has any psychological benefits or costs. Our study begins to do just that and adds to previous claims that lonely people and people higher in Internet self-efficacy are more likely to use some resources online. However, more research is required to determine if use of these resources has psychological benefits or, instead, is detrimental to one's psychological well-being.

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