

# The Relationship Between Online Video Game Involvement and Gaming-Related Friendships Among Emotionally Sensitive Individuals

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## Abstract

Some researchers believe that online gaming spaces can be socially accommodating environments for socially inhibited individuals, such as the socially inept, socially anxious, or shy. While previous research has examined, and found, significant links between these populations and online video game play, it remains unknown to what extent these spaces are contributing to tangible social benefits for the socially inhibited. The current study addresses this question by evaluating the link between gaming-related friendships and shyness, as quantified by emotional sensitivity. Drawing from a representative sample of German game players, the results indicate that emotionally sensitive players are using online gaming spaces differently from their less emotionally sensitive counterparts and reporting tangible differences in their in-game friendship networks. This suggests that online games hold the potential to be socially advantageous for shy individuals by allowing them to overcome their traditional social difficulties and generate new friendships as well as strengthen old ones.

## Introduction

WITH THE ADVENT OF NEW SOCIAL TECHNOLOGIES, researchers have become increasingly interested in the functionality of mediated social spaces as environments where individuals can meet new people and gather with old friends.<sup>1,2</sup> Due to their accessibility and the range of social affordances provided by these spaces (i.e., visual anonymity, asynchronicity), mediated social environments (i.e., chatrooms, online forums, online games) are believed to be particularly valuable for socially vulnerable populations, including the lonely,<sup>3–5</sup> depressed,<sup>6</sup> socially anxious,<sup>7–9</sup> and socially unskilled.<sup>10–12</sup> Of particular interest has been the potential for these spaces to provide tangible social benefits to shy individuals.<sup>7,13–18</sup>

Shyness is an anxiety to meet people and social discomfort in the presence of others that derives from a fear of being evaluated and rejected.<sup>19,20</sup> There are a range of behavioral components that correspond with shyness, including excessive monitoring of behavior, social hesitation, over-rehearsal of potential verbal communication, and a reluctance to engage in social discourse.<sup>20,21</sup> These behavioral components can hinder socialization and lead to numerous negative consequences, such as less social support and smaller friendship circles.<sup>22–24</sup>

Some researchers have postulated that mediated social outlets are socially compensating spaces, and are able to help individuals compensate for, and overcome, these social diffi-

culties that have typically hindered face-to-face communication.<sup>25–27</sup> Through the provision of visual anonymity and an asynchronous text-based communication system, Internet-based social spaces can reduce social inhibitions,<sup>12–14,16,18,28</sup> which can remove social obstacles and allow for effective communication within these spaces.<sup>26</sup> Supporting this contention, researchers have found shyness to hold significant relationships with social uses of the Internet.<sup>13,14,16,18,26,29</sup> However, it remains unknown whether the increased involvement within these spaces is contributing to tangible social benefits, such as increased social support or an expansion of their social circles.

The current study aims to address this question by examining one behavioral manifestation of shyness—emotional sensitivity (ES)—and its relationship to online video game involvement and gaming-related friendships. The three main variables of interest, ES, in-game friendships, and online video game play are discussed in more detail below.

## ES

ES was chosen as the primary variable of interest, as it is a social skill and a behavioral component of shyness.<sup>30,31</sup> By quantifying shyness as a skill, rather than a disposition, one is better able to evaluate shyness in terms of the impact it has on effective socialization (e.g., “I can accurately tell what a person’s character is upon first meeting him or her”) rather

than perceptions of one's temperament (e.g., "I would describe myself as shy").

ES refers to one's ability to interpret the nonverbal and emotional cues of others.<sup>31</sup> ES is a fundamental social skill and is essential for understanding a range of nonverbal cues, such as the connotations expressed by tone of voice or the emotional states communicated through gestures and facial expressions. However, high levels of ES can also be indicative of a hypersensitivity to the nonverbal signals of others.<sup>30</sup> Being overly emotionally sensitive to nonverbal and emotional cues can lead to a discomfort and/or inhibition in interpersonal situations, and behaviorally manifest itself in ways analogous to traditional manifestations of shyness, such as social self-consciousness or social avoidance.<sup>32</sup> Individuals high in ES have also been found to exhibit personality factors related to sensitivity (i.e., tender-minded, intuitive) and apprehensiveness (i.e., self-doubt, worried, insecure).<sup>31</sup>

### *"In-game" friendships*

A friendship is a relationship of mutual affection between two or more people. While some researchers argue that friendships between related and nonrelated persons are quantitatively different,<sup>33</sup> the term "friendship" often subsumes nonkin, long-term associations, and acquaintances.<sup>34</sup> Friendships are integral for physical and psychological well-being through their provision of social support.<sup>34-36</sup> Failure to acquire friendships can lead to a lack of social support, which has been associated with worse psychological well-being and higher mortality rates.<sup>37-40</sup>

For the purpose of this study, friendship was approached from a social embeddedness perspective<sup>41-43</sup> and was not specifically defined. As friendships have different forms and meanings in different life stages,<sup>44-46</sup> an ambiguous conceptualization of friendship allows participants to self-define they consider a friend rather than assigning qualifications for these relationships.

As the current study is interested in the tangible social benefits accrued through engagement within mediated spaces, the focus will be placed on interpersonal relationships that have either formed (i.e., individuals first met online) or are maintained (i.e., individuals who first met offline but now engage online) within an online gaming space.

### *Online video games*

Online video games were chosen as the mediated social environment of interest due to their unique integration of a social space within an interactive playful environment. Like other computer mediated social spaces, such as online chatrooms, online video games are social environments where friendships often develop. One's co-players can be more than just individuals who help achieve in-game instrumental goals; they can be close, trusted friends and valued sources of online advice.<sup>47-50</sup> In this sense, online video games converge with other Internet-based social outlets, where the development of acquaintances, friendships, and romantic relationships as a result of involvement has been well documented.<sup>51-53</sup>

However, unlike these spaces, online video games are also characterized by play. The unique integration of a social, and predominantly playful, space has created a distinctive, and highly accommodating, social environment. In addition to providing the range of social accommodators associated with

all mediated social outlets (i.e., visual anonymity, asynchronicity), online games provide a shared, playful activity. The presence of a shared activity helps to facilitate the development and maintenance of social relationships,<sup>54,55</sup> as well as further socially accommodate its users, as social communication can become intertwined with the activity itself, reducing the pressure to maintain and guide direct socialization.<sup>56</sup> This can grant considerable communicative flexibility, as the shared activity takes the forefront of attention and largely guides the content of the conversation and mediates the pace.

While no known research has explored the social utility of online games in relation to other mediated social outlets (such as social networking websites or chatrooms), researchers have linked shy individuals,<sup>12,14,16,28</sup> and those displaying the behavioral components of shyness,<sup>11</sup> with increased online video game use.

### *Current study*

The current study will evaluate the relationships between ES and gaming-related friendships within online gaming environments. It will also examine the relationship between ES and social online video game play, which, in this context, refers to playing with at least one other person through a networked Internet connection.

As researchers have consistently found shyness to hold significant relationships with social uses of the Internet<sup>13,14,16,18,26</sup> and online games are believed hold the potential to compensate for the social difficulties,<sup>26,27,54,55</sup> the following prediction was made:

**H1: High-ES players will report greater social online video game play than Low-ES players.**

While no known research has explored the relationship between online video game use, shyness, and friendship formation, researchers have noted the potential for online games to provide a space where shy individuals can overcome their difficulties with friendship formation and gain access to new social contacts.<sup>25-27</sup> Thus, the following prediction was made:

**H2: High-ES players will report a greater number of online friends, met offline and not met offline, than Low-ES players.**

Additionally, due to the social affordances provided by communication in online gaming environments, it is possible that shy individuals are not only using these spaces to generate friendships but also to maintain "offline" friendships in a space that is more socially accommodating than face-to-face communication. This is reflected in the following prediction:

**H3: High-ES players will report a greater number of offline friends transferred to online environments than Low-ES players.**

### **Measures**

#### *ES*

To assess ES, three items from the ES subscale of the Social Skills Inventory<sup>31</sup> (SSI) were used. According to Riggio,<sup>31</sup> ES refers to one's skill in receiving and interpreting the nonverbal communications of others. Individuals who are emotionally

sensitive can accurately interpret the subtle emotional and nonverbal cues of others. High levels of ES are believed to represent a hypersensitivity to the nonverbal signals of others,<sup>30</sup> as being overly emotionally sensitive to nonverbal and emotional cues can lead to a discomfort and/or inhibition in interpersonal situations and behaviorally manifest itself as social self-consciousness or social avoidance.<sup>32</sup>

As this study was conducted within a larger omnibus study on online game players, a shortened version of the ES subscale of the SSI was enlisted.<sup>57</sup> The ES short-scale was created by choosing the three highest loading items from a previous study in which the full SSI was administered to more than 600 participants (for more details, see Oldmeadow et al.<sup>57</sup>). Taken together, these three items (i.e., “I always seem to know what peoples’ true feelings are no matter how hard they try to conceal them,” “I can accurately tell what a persons character is upon first meeting him or her,” and “I can instantly spot a ‘phony’ the minute I meet him or her”), demonstrated an acceptable level of reliability ( $\alpha=0.65$ ), considering the number of items.

#### *Online video game involvement*

In line with other research,<sup>10,58,59</sup> a measure of play frequency was employed as the measure of video game involvement, with a higher rate of play indicating greater interaction, or involvement, within online gaming environments. Play frequency was recorded as average daily play time (minutes) of social online game play (i.e., playing with at least one other through a networked Internet connection). Prior to analysis, play frequency was recoded to represent hourly play time per week.

#### *Friendship measures*

To assess game-related friendships, participants answered a series of questions about their offline and online social relationships. Specifically, participants were asked to report the number of online friends (ONF) they had not met offline (ONF only) and the number of ONF with which they play online games and had also met offline (ONF met offline). As offline and online gaming-related contacts can be linked through modality switching, or “the shifting of interactions from one communication channel to another,”<sup>60</sup> participants were also asked to report the number of offline friends they know from daily life that they had transferred to online gaming environments (Offline friends transferred to ONF).

An examination of these different kinds of friendships will provide insight into the characteristics of one’s online co-players, and generate a greater understanding of the social relationships between one’s online co-players. As, in some cases, participants provided friendship information that strongly strayed from the average value, an outlier control was necessary. Following the guidelines of Field,<sup>61</sup> the friendship questions’ boxplots were examined, and all values whose distance from the mean was more than three times the standard deviation were replaced by this value:  $M + 3 \times SD$ .

## **Results**

### *Participants*

The present study draws from a large representative sample of 50,000 individuals aged 14 years and older who were asked

about their gaming behavior in an omnibus telephone survey using the German standard computer-assisted telephone interviewing (CATI) sampling procedure. The current sample contains computer and console game players in Germany who participated in the third-wave of the survey between March and April 2013 ( $N=1045$ ). As this study is interested in the relationship between ES and friendship, only those participants who reported active social online game play and who had made friends online and/or transferred offline friends into online environments were retained ( $n=396$ ).

Among this subsample of participants, ages ranged from 14 to 68 years ( $M=31.85$ ,  $SD=12.72$ ), and 73% (289 participants) of the sample were male. On average, the participants reported engaging in 1.24 hours ( $SD=1.21$ ) of daily total video game play, with 48.6 minutes ( $M=.81$   $SD=1.01$ ) devoted to social online game play.

### *Between-group analyses*

To assess differences in game-related friendships and play frequency between high- and low-ES game players, participants were grouped into High-ES ( $n=186$ ) and Low-ES ( $n=210$ ) categories via a median split (*Median*=9.00). As gender<sup>62,63</sup> and age<sup>64</sup> differences are often found on game-related issues, and can influence the size of one’s friendship circle,<sup>65,66</sup> these variables were held as covariates in all of the following analyses.

**Play frequency.** A univariate analysis of variance (ANOVA) was conducted to examine the differences in play frequency across gaming environments between High- and Low-ES groups. Controlling for gender and age, the ANOVA analysis revealed no significant differences in social online play frequency between High-ES ( $M=0.76$ ,  $SD=0.89$ ) and Low-ES ( $M=0.85$ ,  $SD=1.11$ ) players ( $p=0.49$ , n.s.).

**Game-related friendships.** To assess differences in game-related friendships, a multivariate analysis of variance (MANOVA) was conducted (controlling for age and gender) between High- and Low-ES social online game players. As can be seen in Table 1, significant differences were found between High- and Low-ES for ONF met offline ( $p<0.01$ ) and Offline friends transferred to ONF ( $p<0.001$ ), but not for ONF only ( $p=0.37$ , n.s.).

### *Within-group analyses*

As social skills can be a binary distinction or conceptualized as existing on a continuum, the relationship between ES and game-related friendships was further assessed with regression analyses. To examine the linear relationship between ES and gaming-related friendships, three separate regression analyses were conducted whereby ES was entered as a predictor of ONF only, ONF met offline, and Offline friends transferred to ONF. As no broad differences in play frequency were found between High- and Low-ES participants, this variable was excluded from the final analysis.<sup>a</sup>

It was predicted that ES would show a positive linear relationship with ONF only, ONF met online, and Offline friends transferred into ONF, indicating that High-ES corresponds with a greater number of in-game friendships. Prior to analysis, age and gender (dummy coded) were entered into Step 1.

TABLE 1. MEAN (STANDARD DEVIATION) OF FRIENDSHIP OUTCOMES AMONG HIGH- AND LOW-ES SOCIAL ONLINE GAME PLAYERS

	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>ONF only</i>				
Low-ES	6.82	15.73	2.67	0.10, n.s.
High-ES	9.53	22.28		
<i>ONF met offline</i>				
Low-ES	2.25	6.23	8.26	<0.01
High-ES	4.61	11.01		
<i>Offline friends transferred to ONF</i>				
Low-ES	3.19	3.45	14.55	<0.001
High-ES	5.03	5.04		

ES, emotional sensitivity; ONF only, number of online friends not met offline; ONF met offline, number of online friends met offline; Offline friends transferred to ONF, number of offline friends known from daily life that transferred to online gaming environments.

As can be seen in Table 2, the predictions were supported. A linear correspondence between ES and in-game friendships was found, with significant, positive relationships emerging between ES and ONF only, ONF met online, and Offline friends transferred into ONF.

## Discussion

Researchers have long suggested that Internet-based social spaces may be particularly socially advantageous for shy individuals.<sup>7,13–18</sup> To examine the possibility that the use of mediated social spaces can lead to tangible social benefits for shy individuals, the current research investigated the relationship between emotional sensitivity, online video game involvement, and gaming-related friendships.

It was predicted that High-ES players would report greater social online video game play than Low-ES players (H1). This prediction was not supported, as High-ES players were not found to engage in more social online game play than did low-ES participants. However, the predictions that High-ES players would report a greater number of online friends—met offline and not met offline (H2)—and a greater number of offline friends transferred to online environments (H3) than Low-ES players were supported. Broad differences between High- and Low-ES players for ONF met offline and

Offline friends transferred into ONF were found, with High-ES players reporting significantly more friendships of this kind. High-ES players also reported substantially more ONF-only friends than Low-ES players. However, this difference likely failed to reach significance due to the substantial amount of variance between respondents. Higher rates of ES were also found to correspond linearly with the acquisition of ONF-only friends, ONF transferred into offline contexts, and the transfer of offline friends to online spaces.

Taken together, the current results indicate that emotionally sensitive users are using online gaming spaces *differently* from their counterparts. High-ES online game players appear to be successfully using these spaces to expand the size of their social circle. As shy individuals typically report lower social support and smaller friendship circles than individuals who are not shy,<sup>22–24</sup> online gaming spaces could be an important venue for emotionally sensitive individuals to meet new social contacts to integrate into their offline lives. Furthermore, the evidence of modality switching (i.e., transferring offline contacts into online gaming spaces) indicates that online game play is also being used to support pre-existing friendships. High-ES users are likely enlisting these environments to help maintain their offline friendships due to the considerable social flexibility and social accommodation provided by them. These social affordances (i.e., visual anonymity, asynchronicity) allow socially inhibited users to overcome the inhibitions that are typically experienced in face-to-face communication<sup>25–27</sup> and, through modality switching processes, help to strengthen pre-existing friendships and potentially generate additional levels of social support that may not have been possible without the social accommodations provided by the online gaming space.<sup>60,67</sup>

## Limitations and future research

While this work has provided a greater understanding of the social benefits of online game play among emotionally sensitive individuals, there are several limitations to consider. First, the current sample was limited to residents of Germany. Therefore, replications are needed to determine if these relationships are also evident in other populations. Second, due to the limitations of CATI and the omnibus nature of the survey, it was only possible to evaluate one facet of shyness—ES. Future researchers should consider evaluating the relationships between online video game involvement and gaming-related friendships with different assessments of shyness (i.e., dispositional, other behavioral

TABLE 2. TOTAL  $R^2$  AND UNSTANDARDIZED BETA WEIGHTS FOR INDIVIDUAL PREDICTORS IN THE FINAL MODEL

	<i>ONF only</i> $\beta$ ( <i>SE</i> )	<i>ONF met offline</i> $\beta$ ( <i>SE</i> )	<i>Offline friends transferred to ONF</i> $\beta$ ( <i>SE</i> )
<i>Step 1</i>			
Age	0.073 (0.078)	0.018 (0.036)	–0.066 (0.018)***
Gender	2.44 (2.25)	1.78 (1.03)	0.328 (0.501)
<i>Step 2</i>			
ES	<b>0.996 (0.514)*</b>	<b>0.771 (0.236)**</b>	<b>0.373 (0.115)**</b>
$R^2$ ( $R^2$ change)	<b>0.016 (0.009)*</b>	<b>0.036 (0.026)**</b>	<b>0.061 (0.025)**</b>

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

ES, emotional sensitivity; ONF only, number of online friends not met offline; ONF met offline, number of online friends met offline; Offline friends transferred to ONF, number of offline friends known from daily life that transferred to online gaming environments.

manifestations) to determine if the effects found here are limited to the emotionally sensitive or are representative of shy individuals more generally. Additionally, as it was only possible to administer an abridged measure of the ES subscale of the SSI, a replication should be conducted using the full ES scale.

While allowing participants to self-define friendship likely provided a more accurate assessment of an individual's social circle than assigning arbitrary qualifications to these relationships (such as friendship history, rate of interaction, etc.), it is possible that individuals used widely different qualifications to determine who is and who is not considered a friend. This could have contributed to extraneous variation in outcomes, particularly among those high on the ES scale. A more in-depth examination of the different kinds of friendships held by social game players would have helped to account for this potential variance and clarified the relationships between ES, friendships, and online gaming. For instance, in addition to documenting the size of a user's social circle, the quality of these relationships could have been examined by assessing the degree of instrumental and emotional support generated by the different friendship networks. This would have generated a clearer understanding of the differences in online friendship networks among High- and Low-ES players. For example, uncovering that High-ES players generate greater emotional support from online friendship networks than their Low-ES counterparts would have lent further support to the idea that online gaming spaces are socially advantageous for this particular population and support the acquisition of quality friendships. Future researchers are encouraged to assess both the quantity and quality of friendships when examining the relationship between ES, friendships, and online video game play.

Lastly, while the linear models were significant, the proportion of variance explained was relatively small. Further research is needed to explore additional variables that may contribute to the relationship between ES, online video game play, and friendship outcomes. For example, sociability variables (i.e., social skills, social self-esteem, etc.) could be potential moderators of the relationship between ES and online video game play, as sociability outcomes have shown to hold relationships with shyness<sup>68-70</sup> and online video game play.<sup>10-12</sup>

## Conclusion

Taken together, the results indicate that High-ES online game players are using online gaming spaces differently from their less emotionally sensitive counterparts, and that they are experiencing tangible differences in their friendship networks. This suggests that mediated social spaces, particularly online games, hold the potential to be socially advantageous for emotionally sensitive individuals by allowing them to overcome their traditional social difficulties, generate new friendships, and strengthen old ones. For emotionally sensitive players, online gaming spaces do seem to be new "third places" where individuals can meet new people and gather with old friends.

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## Notes

a. Initial analyses conducted with play frequency as a predictor confirmed these predictions, as play frequency was not found to be a significant individual predictor of friendships ( $p > 0.23$ ). As such, play frequency was excluded from the final model.

## Author Disclosure Statement

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## References

1. Oldenburg R. (1999) *The great good place: cafés, coffee shops, community centers, beauty parlors, general stores, bars, hangouts, and how they get you through the day*. New York: Marlowe & Company.
2. Steinkuehler C, Williams D. Where everybody knows your (screen) name: online games as "third places." *Journal of Computer-Mediated Communication* 2006; 11:885-909.
3. Caplan S, Williams D, Yee N. Problematic Internet use and psychosocial well-being among MMO players. *Computers in Human Behavior* 2009; 25:1312-1319.
4. Lemmens J, Valkenburg P, Peter J. Psychological causes and consequences of pathological gaming. *Computers in Human Behavior* 2011; 27:144-152.
5. Morahan-Martin J, Schumacher P. Loneliness and social uses of the Internet. *Computers in Human Behavior* 2003; 19:659-671.
6. Bessiere K, Kiesler S, Kraut R, et al. (2012) Longitudinal effects of Internet uses on depressive affect: a social resources approach. Presented at the American Sociological Association, Philadelphia, PA.
7. Kim E, Namkoong K, Ku T, et al. The relationship between online game addiction and aggression, self-control, and narcissistic personality traits. *European Psychiatry* 2008; 23:212-218.
8. Lo S, Wang C, Fang W. Physical interpersonal relationships and social anxiety among online game players. *Cyber Psychology & Behavior* 2005; 8:15-20.
9. Peters C, Malesky A. Problematic usage among highly-engaged players of massively multiplayer online role playing games. *CyberPsychology & Behavior* 2008; 11: 481-484.
10. Griffiths MD. Computer game playing and social skills: a pilot study. *Aloma* 2010; 27:301-310.
11. Kowert R, Oldmeadow J. (A)Social reputation: exploring the relationship between online video game involvement and social competence. *Computers in Human Behavior* 2013; 29:1872-1878.
12. Liu M, Peng W. Cognitive and psychological predictors of the negative outcomes associated with playing MMOGs (massively multiplayer online games). *Computers in Human Behavior* 2009; 25:1306-1311.
13. Caplan S. Problematic Internet use and psychosocial well-being: development of a theory-based cognitive-behavioral measurement instrument. *Computers in Human Behavior* 2002; 18:553-575.
14. Chak K, Leung L. Shyness and locus of control as predictors of Internet addiction and Internet use. *CyberPsychology & Behavior* 2004; 7:559-570.

15. McKenna K, Green AS, Gleason MEJ. Relationship formation on the Internet: what's the big attraction? *Journal of Social Issues* 2002; 58:9–31.
16. Roberts LD, Smith L, Pollock C. (2000) "U r a lot bolder on the net": shyness and Internet use. In *Shyness, development, consolidation, and change*. New York: Routledge, pp. 121–135.
17. Sheeks M, Birchmeier Z. Shyness, sociability, and the use of computer-mediated communication in relationship development. *CyberPsychology & Behavior* 2007; 10:64–70.
18. Yuen CN, Lavin MJ. Internet dependence in the collegiate population: the role of shyness. *CyberPsychology & Behavior* 2004; 7:379–383.
19. Pilkonis PA. Shyness, public and private, and its relationship to other measures of social behavior. *Journal of Personality* 1977; 45:585–595.
20. Pilkonis PA. The behavioral consequences of shyness. *Journal of Personality* 1977; 45:596–611.
21. Crozier R. (2000) *Shyness: development, consolidation, and change*. London: Routledge.
22. Jones W, Carpenter BN. (1986) Shyness, social behavior, and relationships. In Jones W, Cheek JM, Briggs SR, eds. *Shyness: perspectives on research and treatment*. New York: Plenum Press, pp. 227–249.
23. Jones W, Briggs SR, Smith TG. Shyness: conceptualization and measurement. *Journal of Personality & Social Psychology* 1986; 51:629–639.
24. Sarason I, Sarason B. (1985) *Social support: theory, research, and applications*. Seattle, WA: Martinus Nijhoff.
25. McKenna K, Bargh J. Plan 9 from cyberspace: the implications of the Internet for personality and social psychology. *Personality & Social Psychology Review* 2000; 4: 57–75.
26. Scealy M, Phillips J, Stevenson R. Shyness and anxiety as predictors of patterns of Internet usage. *CyberPsychology & Behavior* 2002; 5:507–515.
27. Valkenburg P, Schouten AP, Peter J. Adolescents' identity experiments on the Internet. *New Media & Society* 2005; 7:383–402.
28. Peng W, Liu M. Online gaming dependency: a preliminary study in China. *CyberPsychology & Behavior* 2010; 13:329–333.
29. Ward C, Tracey T. Relation of shyness with aspects of online relationship involvement. *Journal of Social & Personal Relationships* 2004; 21:611–623.
30. Riggio R. (1987) *The charisma quotient: what it is, how to get it, how to use it*. New York: Dodd Mead.
31. Riggio R. (1989) *Manual for the social skills inventory*. Palo Alto, CA: Consulting Psychologists Press.
32. Zimbardo P. (1997) *Shyness: what it is, what to do about it*. Reading, MA: Addison-Wesley.
33. Ackerman JM, Kenrick D, Schaller M. Is friendship akin to kinship? *Evolution & Human Behavior* 2007; 28:365–374.
34. Fischer CS. What do we mean by "friend"? An inductive study. *Social Networks* 1982; 3:287–306.
35. Fischer CS. (1982) *To dwell among friends: personal networks in town and city*. Chicago: University of Chicago Press.
36. Smith ER, Mackie DM. (2007) *Social psychology*. New York: Psychology Press.
37. Cohen S, Syme SL, eds. (1985) *Social support and health*. New York: Academic Press.
38. Cohen S, Wills T. Stress, social support, and the buffering hypothesis. *Psychological Bulletin* 1985; 92:310–357.
39. Kessler RC, McLeod JD. (1985) Social support and mental health in community samples. In Cohen S, Syme SL, eds. *Social support and health*. New York: Academic Press, pp. 219–240.
40. Sias P, Bartoo H. (2007) Friendship, social support, and health. In L'Abate L, ed. *Low-cost approaches to promote physical and mental health: theory, research, and practice*. New York: Springer, pp. 455–472.
41. Burt RS. A note on strangers, friends and happiness. *Social Networks* 1987; 9:311–331.
42. Feld SL. Why your friends have more friends than you do. *American Journal of Sociology* 1991; 96:1464–1477.
43. Wang H, Wellman B. Social connectivity in America: changes in adult friendship network size from 2002 to 2007. *American Behavioral Scientist* 2010; 53:1148–1169.
44. Adams RG, Blieszner R. Aging well with friends and family. *American Behavioral Scientist* 1995; 39:209–224.
45. Bukowski WM, Newcomb AF, Hartup WW. (1998) *The company they keep: friendships in childhood and adolescence*. Cambridge: Cambridge University Press.
46. Nickerson AB, Nagle RJ. Parent and peer attachment in late childhood and early adolescence. *The Journal of Early Adolescence* 2005; 25:223–249.
47. Cole H, Griffiths MD. Social interactions in massively multiplayer online role-playing games. *CyberPsychology & Behavior* 2007; 10:575–583.
48. Pena J, Hancock JT. An analysis of socioemotional and task communication in online multi-player video games. *Communication Research* 2006; 33:92–109.
49. Williams D. Groups and goblins: the social and civic impact of online games. *Journal of Broadcasting & Electronic Media* 2006; 50:651–681.
50. Yee N. The demographics, motivations, and derived experiences of users of massively-multi-user online graphical environments. *Presence: Teleoperators & Virtual Environments* 2006; 15:309–329.
51. Parks MR, Floyd K. Making friends in cyberspace. *Journal of Communication* 1996; 46:80–97.
52. Peris R, Gimeno MA, Pinazo D, et al. Online chat rooms: virtual spaces of interaction for socially oriented people. *CyberPsychology & Behavior* 2004; 5:43–51.
53. Ridings C, Gefen D. Virtual community attraction: why people hang out online. *Journal of Computer-Mediated Communication* 2004; 10.
54. Feld S, Carter WC. (1998) Foci of activity in changing contexts for friendship. In Adams RG, Allan G, eds. *Placing friendship in context*. Cambridge: Cambridge University Press, pp. 136–152.
55. Schaefer DR, Simpkins SD, Vest AD, et al. The contribution of extracurricular activities to adolescent friendships: new insights through social network analysis. *Developmental Psychology* 2011; 47:1141–1152.
56. Sjöblom B. (2008) Language and perception in co-located gaming. Presented at Language, Culture, and Mind III, Odense, Denmark.
57. Oldmeadow J, Quinn S, Kowert R. Attachment style, social skills and Facebook usage among adults. *Computer in Human Behavior* 2013; 29:1142–1149.
58. Kowert R, Festl R, Quandt T. Unpopular, overweight, and socially inept: reconsidering the stereotype of online gamers. *CyberPsychology, Behavior, & Social Networking* 2013 Sep 21 [Epub ahead of print].
59. Shen C, Williams D. Unpacking time online: connecting Internet and massively multiplayer online game use with

- psychological well-being. *Communication Research* 2010; 20:1–27.
60. Ramirez A, Zhang S. When online meets offline: the effect of modality switching in relational communication. *Communication Monographs* 2007; 74:287–310.
61. Field A. (2013) *Discovering statistics using SPSS*. 4th ed. London: Sage.
62. Lucas K, Sherry J. Sex differences in video game play: a communication-based explanation. *Communication Research* 2004; 31:499–523.
63. Ogletree S, Drake R. College students' video game participation and perceptions: gender differences and implications. *Sex Roles* 2007; 56:537–542.
64. Griffiths MD, Davies M, Chappell D. Online computer gaming: a comparison of adolescent and adult gamers. *Journal of Adolescence* 2004; 27:87–96.
65. Fischer CS, Oliner SJ. A research note on friendship, gender and the life cycle. *Social Forces* 1983; 62:124–133.
66. Fox M, Gibbs M, Auerbach D. Age and gender dimensions of friendship. *Psychology of Women Quarterly* 1985; 9:489–502.
67. Haythornthwaite C. Social networks and Internet connectivity effects. *Information, Communication, & Society* 2005; 8:125–147.
68. Arroyo A, Harwood J. Communication competence mediates the link between shyness and relational quality. *Personality & Individual Differences* 2011; 50:264–267.
69. Cheek JM. (1983) *The Revised Cheek and Buss Shyness Scale*. Wellesley, MA: Wellesley College.
70. Miller R. On the nature of embarrassment: shyness, social evaluation, and social skill. *Journal of Personality* 1995; 63:315–339.

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