

ANALYZING THE EFFECT OF ATTITUDE IN FRIENDSHIP NETWORKS TO IMPROVE INFORMATION AND COMMUNICATION TECHNOLOGY KNOWLEDGE SHARING: A GENDER APPROACH

Jose Esteves
IE Business School, Madrid, Spain

jose.esteves@ie.edu

Abstract: Based in 14 focus groups, this exploratory study attempts to analyze the way women and men perceive talking about information and communication technology in their same sex friendship networks and the way it impact in information and communication technology (ICT) attitude and knowledge sharing. Our research findings reveal that friendship networks play an important role in ICT knowledge sharing. There are differences between men and women, thus gender is a critical factor in ICT knowledge sharing. Also, social, cultural and educational factors have a strong negative impact in their behavior. Furthermore, we posit that the attitude predisposes a favourable (men) and unfavourable (women) reaction to talk about ICT and this affects ICT knowledge sharing.

Keywords: Friendship networks, attitude, information technology, knowledge sharing, gender

1 INTRODUCTION

Different studies have shown that the digital divide is a reality: women are underrepresented in their use and ownership of computers (Wilson et al. 2003, Pinkard 2005), women take fewer technology classes in high school (Pinkard 2005), in college women are far less likely to graduate with degrees in ICT fields, and enjoy interacting with computers less than men do (Mitra et al. 2001). The gender bias is especially critical in terms of ICT education and the development of ICT skills and ICT knowledge sharing. Many training/educational programs do not take into account the different ways men and women share ICT knowledge and how individual perspectives may impact ICT knowledge sharing. Training programs and guidelines needed to improve the success of ICT transfer are lacking for organizations and project staff. This is critical since it is intrinsically linked with research into technology-related issues affecting both men and women. Some studies suggest that women have a more strategic vision of ICT, harnessing its use to obtain benefits at an educational level, to reduce efforts and learn, while men associate it with competition, status, and innovation.

Simon (2006) investigated the views of women on technological change within a society driven by access to information. The sample included women from different backgrounds, of differing employment status, and with a variety of job roles (although almost half the sample had a background in library or information work). Simon's investigation discovered that their attitude towards ICT largely expressed itself in both positive terms - born of practical experience - and in those of either ambivalence or outright negativity. The less positive reactions were for the most part, generated by their recognition of the pervasive nature of ITC in society juxtaposed to their own feeling of 'being left out', based either on personal experience or their identification with others subjected to such exclusion. A confirmed tendency by empirical work is the smaller

disposition of the female gender to take technical classes in school or university, which has direct implications on the nature of their future work (Gaskell 1992, Cohoon 2001, Joshi and Khun 2001). Men and women, regardless of their age, background, or competence with ICT, know that the general public believes that men and boys are more interested in, and are more competent in, the use of computers (Cooper 2006). While gender differences in ICT related attitudes and cognitions disappeared at scale level, they seem to persist at factor level (McIlroy et al., 2001). In addition, male and female students are likely to be different in terms of type of computer use rather than in all areas of ICT application (Colley, 2003; Mitra et al., 2001).

The network has been a powerful paradigm in management theory, as well as the impetus for prolific literature streams in network methodology and network theory (Nebus 2006). However, IS research has not investigated the impact of networks in IS adoption and usage. For instance, one area which has not received sufficient attention, however, is the role of friendship networks in the attitude towards ICT and ICT knowledge sharing. This exploratory study attempts to analyze how men and women perceive the dialog and communication related on ICT in their friendship networks, and its impact on knowledge sharing. This paper is structured as follows. First, we present a literature review. Next, we described the research methodology. Then, we present the findings and we discuss the main issues. Finally, we present same conclusions and future work.

2 THEORETICAL BACKGROUND

2.1 Friendship Networks

Greeley (1971) defined friendship as a trustbased exchange relation in which we give ourselves to induce the other person to do the same. Friendship is defined as a voluntary, reciprocal, equal relationship which is seen as unique and special, and which enhances the sense of self and of the partners (Wright 1985). The influence of friendship on team is demonstrated in many facets of group research (Guzzo and Shea 1992, Jehn and Shah 1997). Much of this research rests on the assumption that good interpersonal team dynamics result in high performance. Although there are many different types of social networks within and between groups (i.e., advice, trust, communication, etc.), we build upon prior group and interpersonal relationship research by focusing on friendship networks within groups (Jehn and shah 1997, Krackhardt and Stern 1988, Salas et al. 1999, Shah and Jehn 1993, Thompson et al. 1996). Friend relationships are frequently categorized as communal relationships where individuals are concerned for the welfare of others, they desire to fulfill the needs of others and expect responsiveness toward their own needs (Clark and Mills 1979). In contrast, stranger or acquaintance relationships are most frequently categorized as exchange relationships in which benefits are allotted in direct response to benefits received, as opposed to a focus on the fulfillment of needs (Clark and Mills 1979).

Recent, rapid internet developments such as MySpace, Facebook, Bebo and Friendster are databases which allow people to explore their friendship networks, as well as map the user's various relationships to others.

Network researchers found that social ties can be used for different purposes (Adler and Kwon 2002, Coleman 1988). Specifically, friendship ties can be used to garner information or advice. The significant correlations between friendship and advice and

information networks in past research supports this perspective (Shah 1998, 2002). Specifically, Shah (2000) reported a significant positive correlation between friendship and advice networks and Shah (1998) reported a significant positive correlation between friendship networks and general information networks (who people receive information regarding organizational culture, norms and policies) and between friendship networks and job-relevant information networks (who people receive information regarding work responsibilities).

Furthermore, Friends' social similarities, both real and perceived, further enhance the development of beliefs through comparison and imitation (Erickson 1988).

2.2 Gender and Friendship issues

While the importance of family and primary relationships in women's development has been stressed for some time (e.g. Baruch et al., 1983; Gilligan, 1982; Miller, 1976; Neugarten, 1975), more recently theorists and researchers have explored the role of non-familial friendship relationships. Although the nature of these relationships for women and men have been found to be similar in many respects, (see Wright, 1988), some notable differences have emerged (Elkins and Peterson, 1993; Rubin, 1985; Veniegas and Peplau, 1997; Winstead, 1986; Wright, 1989; Wright and Scanlon, 1991). These studies pointed to the following broad differences between friendship patterns of women and men. Women's friendships are described as "face-to-face", "expressive", or "communal". These relationships are characterized by greater amounts of self-disclosure, emotional supportiveness, extensiveness, and complexity than those of men. Men's friendships are described as "side-by-side", "instrumental", or "agentic". They tend to be organized around shared interests and structured activities, and to be action-oriented rather than person-oriented.

Ibarra (1993) stresses a general tendency frequently and reliably found in research on interpersonal relationships, the inclination of persons to seek out and to prefer others who are similar to them. Ibarra (1993, p. 61) defines "homophily" as "...the degree to which pairs of individuals that interact are similar in identity or organizational group affiliations". Sex is an important source of identity group affiliation. She points out that homophilous ties tend to be stronger, more intimate, and more sought-out in times of stress and uncertainty.

2.3 Attitude Overview

Taking into consideration current attitude research, Breckler and Wiggins (1992) define attitudes as "mental and neural representations, organized through experience, exerting a directive or dynamic influence on behaviour" (p. 409). Allport (1966) defines attitude as "individual mental processes which determine both the actual and potential responses of each person in the social world." (p 19). "Mental processes" infers thoughts and feelings towards an object such as information and communication technology. Allport's definition also indicates that attitude could determine "responses" or reaction to occurrences around the individual. Such a reaction can be positive or negative.

Attitudes are part of the brain's associative networks, the spider-like structures residing in long term memory (Higgins 1996) that consist of affective and cognitive nodes linked through associative pathways (Anderson 1983, Fazio 1990). These nodes contain affective, cognitive, and behavioural components (Eagly and Chaiken 1995). Many

research studies have defined attitude as a significant personal attribute that tends to predict behavior. Ajzen and Fishbein (1980) concluded in their study that provided attitudes are appropriately measured, they are sufficient to predict intentions (behavior). Moghaddam (1998) presents both sides of research and arguments as to whether attitude predicts behavior. He tends to conclude that we can use attitude to measure behavior provided (a) we are relatively specific in our measure; and (b) we measure all the components to provide a better chance of capturing all the facets of the attribute.

There is considerable research on "implicit" attitudes, which are unconscious but have effects (identified through sophisticated methods using people's response times to stimuli). Implicit and "explicit" attitudes seem to affect people's behaviour, though in different ways. They tend not to be strongly associated with each other, although in some cases they are. The relationship between them is poorly understood. Emotion is a common component in persuasion, social influence, and attitude change. Much of attitude research emphasized the importance of affective or emotion components (Breckler and Wiggins 1992). Emotion works hand-in-hand with the cognitive process, or the way we think, about an issue or situation. Emotional appeals are commonly found in advertising, health campaigns and political messages. Recent examples include no-smoking health campaigns and political campaign advertising emphasizing the fear of terrorism. It is widely agreed by attitude theorists that the concept of attitude can be broken into cognitive, affective and behavioral components (Krech et al. 1962). Leone et al (1991) are examples of modern researchers who based their work on the premise of the cognitive component of attitude. Edwards (1990) research findings underscored the theoretical as well as the practical importance of distinguishing between affect- and cognitive-based attitudes. The same conclusion was reached by Millar, M and Millar K (1990) though their conclusion as to how each of the two components can be influenced differs from that of Edwards (1990). Kay (1990) is an example of a researcher whose researched focused on behavior as a distinct aspect of attitude. However, the predictive power of the behavior component of attitude is under dispute and therefore some researchers prefer to leave it out of the attitude scale (cf Moghaddam 1998). Empirical data confirms that attitude toward behaviors is a better prediction of intention than attitude toward objects (ICT); attitude toward objects has positive influence on attitude toward behaviors (Zhang and Aikman 2008). For instance, attitudes toward a previous version of the software and its use have significant impacts on the current attitudes. However, little is known about the impact and effects of individual and social attitudes in ICT knowledge sharing and if gender plays an important role in this knowledge sharing. Thus, this exploratory study attempts to analyze how women and men perceive their attitude (both individual and social attitudes) to ICT and how it may impact their ICT knowledge improvement.

2.4 ICT Attitude

Research has indicated the existence of a gender gap in computer use (e.g. Broos 2005). An overview of research published in the last 20 years draws to the conclusion that females are at a disadvantage relative to men when learning about computers or learning other material with the aid of computer-assisted software (Cooper 2006). Men and women, regardless of their age, background, or competence with ICT, know that general public believes that men and boys are more interested in, and are more competent at, the use of computers (Cooper 2006). While gender differences in ICT related attitudes and cognitions disappeared at scale level, they seem to persist at factor level (McIlroy et al., 2001). In addition, female and male students are likely to be different in terms of the

types of computer use rather than in all areas of ICT application (Colley, 2003; Mitra et al., 2001).

A study conducted by Broos (2005) shows that in general, female had more negative attitudes towards computers and the Internet than did men. Results indicate a positive relationship between ICT experience and ICT attitudes. Males were found to have less computer anxiety than females; respondents who have used computers for a longer period of time and respondents with a higher self-perception of experience also show less computer anxiety. Do women suffer more from technophobia than men? According to McIlroy et al. (2001), technophobia is an “anxiety about present or future interactions with computers or computer-related technology; negative global attitudes about computers, their operation or their societal impact; and/or specific negative cognitions or self-critical internal dialogues during actual computer interaction or when contemplating future computer interaction”. Besides individual attitudes to ICT, gender stereotypes have created some misconceptions. There is good reason to believe that gender-based stereotypes can have the power of the self-fulfilling prophecy, creating further evidence for the stereotype (Cooper 2006). Furthermore, Word et al. (1974) showed that stereotypes about groups of people can also impact peoples’ performance. Research on stereotype threat has shown that the mere knowledge of a negative stereotype applying to a person’s group can cause that person to perform poorly at a particular task (e.g. Steele and Aronson 1995, Spencer et al. 1999).

2.5 Friendship Networks and Attitude

In one of the earliest treatises on social influence, French (1956) proposed using social network analysis to predict changes in attitudes. He asserted that the attitudes of less powerful individuals shift toward the attitudes of their more powerful social contacts at a rate proportional to the discrepancy between their attitudes. Because social influence is presumed to occur simultaneously throughout a social system, this model predicts eventual consensus. Subsequent work (e.g., DeGroot, 1974; Salancik and Pfeffer, 1978; Carley, 1991) leads to the same conclusion: when all members of a social system are included in a network of social relations, their attitudes will converge.

These premises are expressed in the following propositions:

Proposition 1: Existing female friendships networks affect ICT attitude and do not promote ICT knowledge sharing.

Proposition 2: Existing male friendships networks affect ICT attitude and promote ICT knowledge sharing.

3 RESEARCH METHODOLOGY

The research technique to collect this data was a focus group technique. Focus group methodology has emerged as an important research tool employed by many academic disciplines, including marketing, public policy, strategic planning, and communication (Fern 2001, Goldenkoff 2004, Hartman 2004). Focus group research is based on facilitating an organized discussion with a group of individuals, selected because they were believed to be representative of some class (e.g., the class of consumers of a product, the class of voters). Discussion is used to bring out insights and understandings in ways which simple questionnaire items may not be able to discover. The sample was

random, with men and women who voluntarily decided to participate, after learning about the existence of our project. In the discussion group, we conducted 14 focus groups (eight focus groups of female executives and six focus groups of male executives with a total of 58 women and 47 men). Their ages ranged from 30 to 50. Before we started the focus group discussion, we explained the research objectives, we also requested to tape the discussion and we provided them with a confidentiality agreement. After the literature review, we decided to focus in same-sex friendship networks.

4 FINDINGS

The research findings confirm both research propositions. Our research findings reveal that there are differences between male and female; hence, gender could be a critical factor in ICT knowledge sharing. The findings suggest that men like to talk and ICT in both professional and social worlds, while women avoid to dialogue and discuss about ICT issues in their social and friendship networks. Also, social, cultural and educational factors, associated with many preconceptions of gender stereotypes, have a strong negative impact on behavior of men and women as well as on their ICT attitude.

Furthermore, we posit that this attitude predisposes a favorable (men) and unfavorable (women) reaction to talking about ICT and this affects ICT knowledge sharing. Thus, it is important that ICT education takes this gap into account and changes the education of young people to eliminate these aspects. Figure 1 tries to conceptualize the different factors that have emerged from the data analysis of the focus groups.

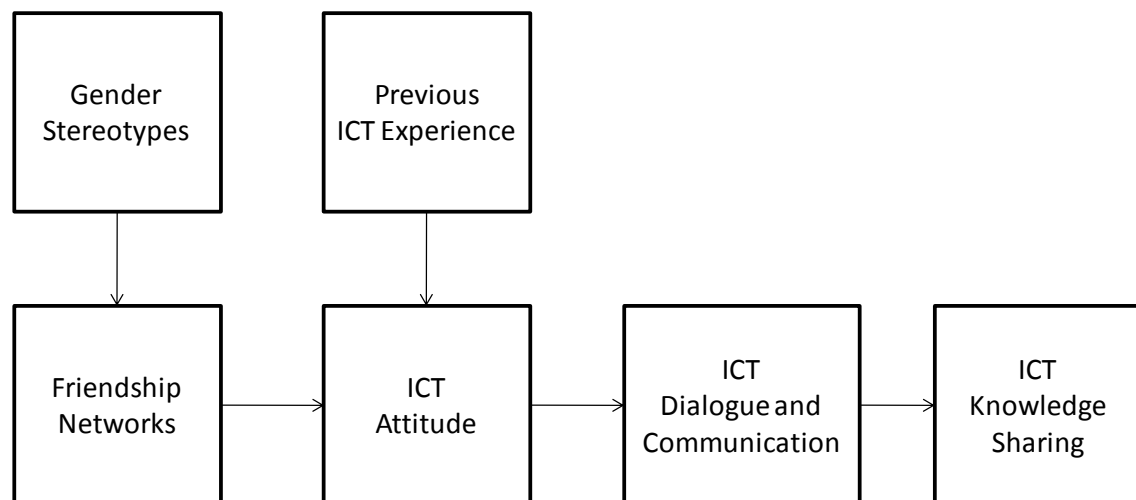


Figure 1: An exploratory model of friendship networks and gender attitude effects on ICT knowledge sharing.

In this exploratory conceptual model, we posit that ICT attitude is affected by gender stereotypes (which are created by educational and social factors) and previous ICT experiences. Thus, ICT attitude affects ICT dialogue and communication, which in turn will affect ICT knowledge sharing. Other theoretical studies have already confirmed the relationship between gender stereotypes and ICT attitude, and between ICT attitude and knowledge sharing. However, there is a lack of research in the reasons to ICT attitude impact on knowledge sharing. In this study, we have hypothesized that ICT predisposes

a favorable (male) or unfavorable (female) reaction to talking about ICT and this affects ICT knowledge sharing.

5 ICT ATTITUDE CHANGE

Some participants explained that their previous experience with an ICT has a strong impact in their willingness to share it with the other peers and friends. If the experience was positive, usually, both men and women like to share it with others but if the experience was negative then they may have two attitudes. Some participants expressed that if they felt that the failure to use an ICT was because of their lack of knowledge, they prefer to not share it with other peers, but if they think that the reason is because the ICT itself, then they like to say it. From a gender perspective, most women participants mentioned that sometimes they were afraid of failing in ICT use because of their lack of ICT knowledge while most of the men participants blamed against ICT itself. In the case of women, we noted their tendency to deprecate their own skills but assert confidence in females' skills in general as the "I can't, but we can" paradox. This tendency has already been documented by Collis (1985). Regarding women self-evaluation of their ICT competence, Hendwood (1999) states that "the task of changing the outcomes of women's education in computer technologies is more complicated than simply teaching them how to use computers... It is also necessary to change how the women (and the men around them) understand and talk about the presence and competence of women". Several authors consider that males who denigrate females' computer skills are a source of females' low self-confidence (MIT Computer Science Female Graduate Students and Research Staff, 1983; Temple and Lips, 1989; Wasburn and Miller, 2005). Our findings follow previous results in gender attitude towards ICT. For instance, Volman and Eck (2001) have pointed out that gender differences in computer attitudes are both a cause and a consequence of gender differences in ICT participation and performance. The overall conclusion from the research is that females consistently under-estimate their technology skills regardless of what their skills really are.

Participants mention that it is important to create campaigns to develop close environments where women and men, but especially women, perceive ICT like something daily and closer to themselves. However, we would like to mention that give access to ICT is not enough for women to adopt ICT. All the women in this focus group have Internet broadband access in their homes and work, and most of them have a laptop. Although, ICT access is an issue maybe it is not the main barrier and would not solve the whole problem. Stereotypes are social constructions and, therefore, are flexible; they can be changed by giving them a different meaning (Kelan 2008). There is the need to work in parallel in a change of mentality, trying that women recognize the need to improve these technological capabilities so needed in this modern and digital world. However, as Kelan (2008) states, we have to be careful not to repeat and reverse stereotypes, the goal is to make them irrelevant in the long run.

Furthermore, the participants agree that governments, education institutions and companies should change this view of ICT by providing and enforcing the importance of talk about ICT topics within social networks or groups to improve the way we adopt and use ICT. Informal social networks are important instruments to improve ICT education and adoption. Future research should continue to examine this potentially important contribution of universities as facilitators of social networks creation and use these informal social networks to improve learning experiences. We expect that the results of this study provide a very useful reference for scholars and managers to

identify and investigate the importance of including gender social attitudes to ICT knowledge sharing.

6 CONCLUSIONS AND FUTURE WORK

Based on an extensive literature review and 14 focus groups, this study analyzes the impact friendship networks in ICT knowledge sharing. Our findings reveal that friendship networks play discrete and significant roles in ICT attitude shaping ICT knowledge sharing. Also, our research findings suggest that attitude may have a great impact due to the negative perception of talking about ICT issues, especially by female, in ICT knowledge sharing. This attitude seems more related with cultural and social factors associated with many preconceptions of gender stereotypes and behavior. Thus, it is important that ICT education takes into account this gap and changes and educates young people to eliminate these aspects. One of the limitations of this study is that we have focused only in friendship networks. The next step is to extend this work to advice networks. Advice networks are comprised of relations through which individuals share resources such as information, assistance, and guidance that are related to the completion of their work (Sparrowe et al. 2001) Thus, advice networks are an important source of information about business, technical and social issues. Another aspect to investigate is the usage of Theory of Planned Behavior (TPB) to better understand ICT attitude and behavior. The Theory of Planned Behavior specifies the nature of the relations between beliefs and attitudes. According to these models, people's evaluations of, or attitudes toward behavior are determined by their accessible beliefs about the behavior, where a belief is defined as the subjective probability that the behavior will produce a certain outcome. Specifically, the evaluation of each outcome contributes to the attitude in direct proportion to the person's subjective possibility that the behavior produces the outcome in question (Fishbein and Ajzen, 1975).

The next stage of this research study will be the validation with more focus groups and we will develop a confirmatory study using a questionnaire. Furthermore, we will extend the network analysis to advice networks.

7 REFERENCES

- Adler, P. S., and Kwon, S. (2002). "Social capital: prospects for a new concept", *Academy of Management Review*, vol. 27, pp. 17–40.
- Baruch, G., Barnett, R. and Rivers, C. (1983), *Lifeprints: New Patterns of Love and Work for Today's Women*, McGraw-Hill, New York, NY.
- Carley, K.M. (1991). "A theory of group stability", *American Sociological Review*, vol. 56, pp. 331-354.
- Clark, M. S., and Mills, J.R. (1979). "Interpersonal attraction in exchange and communal relationships", *Journal of Personality and Social Psychology*, vol. 37, pp. 12–24
- Cohoon J. (2001). "Toward improving female retention in the computer science major", *Communications of the ACM*, Vol. 44, n°. 5, pp. 108-114.
- Coleman, J.S. (1988). "Social capital in the creation of human capital", *American Journal of Sociology*, vol. 94, pp. 95–120.

- Colley, A. (2003). "Gender differences in adolescents' perceptions to the best and worst aspects of computing at school", *Computers in Human Behavior*, Vol. 19, pp. 673-682.
- Collis, B. (1985). "Psychosocial implications of sex differences in attitudes towards computers: Results of a survey", *International Journal of Women's Studies*, Vol. 8, n°. 3, pp. 207-213.
- Cooper J. (2006). "The digital divide: the special case of gender", *Journal of Computer Assisted Learning*, Vol. 22, n°. 5, pp. 320-334.
- DeGroot, M.H. (1974). "Reaching a consensus", *Journal of the American Statistical Association*, vol. 69, pp. 118-121.
- Elkins, L.E. and Peterson, C. (1993). "Gender differences in best friendships", *Sex Roles*, Vol. 29, pp. 497-508.
- Erickson, B.H. (1988) "The relational basis of attitudes", In B. Wellman and S. D. Berkowitz (eds.), *Social Structures: A Network Approach*: pp. 99-121. New York: Cambridge University Press.
- Fern, E. (2001). "Advanced focus group research", Thousand Oaks, CA: Sage Publications.
- Fishbein, M. and Ajzen, I. (1975). "Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research", Addison-Wesley, Reading, MA.
- French, J. R. (1956). "A formal theory of social power", *Psychological Review*, vol. 63, pp. 181-194.
- Gaskell J. (1992). "Gender Matters from School to Work", Milton Keynes: Open University Press.
- Gilligan, C. (1982), *In a Different Voice*, Harvard University Press, Cambridge, MA.
- Goldenkoff R. (2004). "Using focus groups", In J. Wholey, H. Hatry, K. Newcomer (Eds.), *Handbook of practical program evaluation*, 2nd edition, pp. 340-362. San Francisco: Jossey-Bass.
- Greeley, A.M. (1971). "The Friendship Game". New York: Doubleday.
- Guzzo, R.A. and Shea, G.P. (1992). "Group Performance and intergroup relations in organizations", in M.D. Dunnette and L.M. Hough (eds.), *Handbook of industrial and organizational psychology* (pp. 262-313), Palo Alto, CA: Consulting Psychologists Press.
- Hartman J. (2004). "Using focus groups to conduct business communication research", *The Journal of Business Communication*, Vol. 41, No. 4, pp. 402-410.
- Henwood, F. (1999). "Exceptional women? Gender and technology in U.K. higher education", *IEEE Technology and Society Magazine*, Vol. 18, No.7, pp. 21-27.
- Ibarra, H. (1993). "Personal networks of women and minorities in management: a conceptual framework", *Academy of Management Review*, Vol. 18, pp. 56-87.

Jehn, K.A. and Shah, P.P. (1997). "Interpersonal relationships and task performance: an examination of mediating processes in friendship and acquaintance groups", *Journal of Personality and Social Psychology*, vol. 72, pp. 775-790.

Joshi, K., and Kuhn K. (2001). "Gender differences in IS career choice: examine the role of attitudes and social norms in selecting IS profession", 2001 ACM SIGCPR conference on Computer personnel research, pp. 121-124.

Kelan, E. (2008). "Bound by stereotypes?", *Business Strategy Review*, Spring 2008, pp. 4-7.

Krackhardt, D., and Stern, R. N. (1988). "Informal networks and organizational crises: an experimental simulation", *Social Psychology Quarterly*, vol. 51, pp. 123-140.

McIlroy, D., Bunting B., Tierney K., and Gordon M. (2001). "The Relation of Gender and Background Experience to Self-reported Computing Anxieties and Cognitions", *Computer in Human Behavior*, Vol.17, pp. 21-33.

Miller, J.B. (1976), *Toward a New Psychology of Women*, Beacon Press, Boston, MA.

MIT Computer Science Female Graduate Students and Research Staff. (1983). "Barriers to equality in academia: Women in computer science at MIT", Cambridge, MA:Laboratory for Computer Science, MIT.

Mitra A., Lenzmeier S., Steffensmeier T., Avon R., Qu N., and Hazen M. (2001). "Gender and computer use in an academic Institution: report from a longitudinal study", *Journal of Educational Computer Research*, vol. 23, pp. 67-84.

Nebus, J. (2006). "Building Collegial Information Networks: A theory of advice networks generation", *Academy of Management Review*, Vol. 31, No. 3, pp. 615-637.

Neugarten, B.L. (1975), "Adult personality: toward the psychology of the life cycle", in Sae, W.C. (Ed.), *Human Life Cycle*, Jason Aronson, New York, NY.

Pinkard N. (2005). "How the perceived masculinity and/or femininity of software applications influences students' software preferences", *Journal of Educational Computing Research*, vol. 32, pp. 57-78.

Rubin, L.B. (1985). "Just Friends: the Role of Friends in Our Lives", Harper & Row, New York, NY.

Salancik, G.R., and Pfeffer, J. (1978). "A social information processing approach to job attitudes and task design", *Administrative Science Quarterly*, vol. 23, pp. 224-253.

Salas, E., Rozell, D., Mullen, B., and Driskell, J. E. (1999). "The effect of team building on performance: an integration", *Small Group Research*, vol. 30, pp. 309-329.

Simon, A. (2006) "Women's perceptions of technological change in the information society". *Aslib Proceedings*, Vol. 58, n°. 6, pp. 476-487.

Shah, P. P. (1998). "Who are employees' social referents?: using a network perspective to determine referent others", *Academy of Management Journal*, vol. 41, pp. 249-268.

- Shah, P. P. (2002). "Network destruction: the structural implications of downsizing", *Academy of Management Journal*, vol. 43, pp. 101–112.
- Shah, P., and Jehn, K. A. (1993). "Do friends perform better than acquaintances?: the interaction of friendship, conflict, and task", *Group Decision and Negotiation*, vol. 2, pp. 149–165.
- Sparrowe, R.T., Liden, R. and Kraimer, M. (2001). "Social Networks and the performance of individuals and groups", *Academy of Management Journal*, Vol. 44, No. 2, pp. 316-325.
- Temple, L. and Lips, H.M. (1989). "Gender differences and similarities in attitudes toward computers", *Computers in Human Behavior*, Vol. 5, pp. 215-226.
- Thompson, L., Peterson, E., and Brodt, S. E. (1996). "Team negotiation: an examination of integrative and distributive bargaining", *Journal of Personality and Social Psychology*, vol. 70, pp. 66–78.
- Veniegas, R.C. and Peplau, L.H. (1997). "Power and the quality of same-sex friendships", *Psychology of Women Quarterly*, Vol. 1, pp. 279-297.
- Volman, M. and Eck, E. (2001). "Gender equity and information technology in education: The second decade", *Review of Educational Research*, Vol. 71, No. 4, pp. 613- 634.
- Wasburn, M.H. and Miller, S.G. (2005). "Still a chilly climate for women students in technology: A case study", in Sue V. Rosser & Mary Frank Fox (Eds.), *Women, Gender and Technology*. Urbana-Champaign: University of Illinois Press.
- Wilson K., Wallin J., and Reiser C. (2003). "Social stratification and the digital divide", *Social Science Computer Review*, Vol. 21, pp. 133-143.
- Wright, P.H. (1985). "The acquaintance description form", in Duck, S. and Perlman, D. (eds.), *Understanding Personal Relationships: An Interdisciplinary Approach*, Sage publications, London.
- Wright, P.H. (1988). "Interpreting research on gender differences in friendships: a case for moderation and a plea for caution", *Journal of Social and Personal Relations*, Vol. 5, pp. 367-373.