IJIET, e-ISSN 2548-8430, p-ISSN 2548-8422, Vol. 7, No. 2, July 2023, pp. 158-171

International Journal of Indonesian Education and Teaching
http://e-journal.usd.ac.id/index.php/IJIET
Sanata Dharma University, Yogyakarta, Indonesia

THE INFLUENCE OF DISTINCT TYPES OF MEDIA INTERACTION AND GENDER ON THE PRODUCTIVITY OF UNIVERSITY STUDENTS AS MEASURED BY THE NUMBER OF MEANINGFUL WORDS

Agustinus Rudi Winarto
Sanata Dharma University, Indonesia
correspondence: agrudiwinarto@gmail.com
https://doi.org/10.24071/ijiet.v7i2.5904
received 12 March 2023; accepted 10 June 2023

Abstract
This analysis seeks to discover how the richness of meaningful words is affected by the diversity of media and gender. The two separated forms of media in computer-mediated communication, which are real names (CMR) and anonym (CMA), are connected to the production of meaningful interaction in problem-solving exchanges among pupils. Furthermore, computer-based communication has added a layer of invisibility which has caused an increase in daring word usage in conversations using computers. To assess this issue, the research will look into criminal puzzles discussed in clubs, to determine if there is any impact from the various types of media and gender variation. The research used empirical analysis methods to review the effect of different media and sex on the number of meaningful words produced by 30 participants, 20 female and 10 male. Through analysis of conversations in the conversation room, a two-way ANOVA test was administered to figure out the impact of media and gender on the number of meaningful words. The investigation presented that there was no meaningful impact of media diversity and gender on the number of words produced by students in the investigation. The data suggested that any changes in media or gender had no notable effect on productivity.

Keywords: computer-mediated, gender variation, media diversity

Introduction

Information technology has entered human life and is used by humans in various fields of life. Gender inequality in digital media is not the same as direct interaction because in virtual communication there is no physical presence, but people use language as a sign or code for a particular meaning (Pohl & Michaelson, 2005). In a survey conducted by Cubukcu (2012), a new type in the revitalization of information technology is computer-mediated communication (CMC) which results in human behaviour and perception in various ways. One important question that arises is the effects of this alternative form of a communication system on speaking styles and the substance of communication (Adrianson & Hjlemquist, 1991). Suler (2004) said there are six online disinhibition effects in communicating via computers, namely: disconnection anonymity, imperceptibility, non-

simultaneity, self-referential projection, disintegrated creativity, and limiting of influence.

Research shows that in reaching joint consensus in group discussions, CMC groups are more time-consuming than FTF groups, whereas in the emergence of new ideas, there is no difference between the two groups as well as the quality of the decisions produced there is no difference between the two (Olaniran, 1994) CMC also supports people to come into contact with anonymous discussions because CMC offers anonymity in it so that it has the potential to increase group polarization (Connolly et al, 1990). This is due to the limitation of social cues. Anonymity often also supports uncontrolled performance (Jessup et al, 1990) and raises captivating debates during group discussions (Connolly et al, 1990).

The question being investigated is whether the use of different types of media communication (CMR and CMA) and gender have an impact on the productivity of university students in conditions of the number of meaningful statements produced in the course of problem-solving discussions. This research is useful in contributing to scientific knowledge associated with distinctions in communication media and sexual differentiation in communicating and solving problems in group discussions.

Studies have found that in male-dominated computer-mediated communication, men direct to share more and longer notes than women in coed conversations (Herring, 1993; McConnell, 1997; Ross, 1996; Vanfossen, 1996) Research has found that female students who use computer-based collaborative learning are more free to behave if they are grouped into groups of all women than if women are placed in mixed groups while men work equally well when placed in homogeneous or mixed groups (Ding et al, 2011) Studies have shown that in collaborative games, all-female groups tend to work more efficiently than all-male groups. This is believed to be because women are better at collaborative learning tasks as they rely more on their verbal abilities and ask more questions (Prinsen et al., 2009). Additionally, research on sex differences in CMC has found that men are inclined to dominate discussions and send more notifications, while women are more cooperative and inclined to reach an agreement (Sun, 2008).

Research examining the connection between computer-mediated communication (CMC) and gender differences found that men tend to control CMC meetings, posting more announcements (Carr et al., 2004) whereas women are more cooperative and inclined to reach a compromise (Sun, 2008). Other research says that gender differences affect computer-based collaborative work where the difference lies in communication strategies, visual feedback and when misunderstandings occur (Kolouri et al., 2017). Women go to apply conservative strategies while men be likely to employ exploratory behavior. This results in women tending to adjust to existing consensus than men who tend to find new solutions or solutions. Various evidence says that men tend to be more enthusiastic when compared to women in playing games on computers (Gorriz & Medina, 2002) and men tend to speak directly and show their strength and influence others (Archer, 1992; MaCcoby, 1998).

This study found amplification in the amount of contributions in internet-based learning (Secreto, 2013). This indicates that there is an increase in participation in online-based communication. While research in groups uses computer media to its low status in the group (Weisband, Schneider & Connoly,

1995). And also nothing happens in group use by using computer media anonymously.

Sex differences in computer communication used to enjoy or use computers at all levels of education (Colley, Gale, & Harris, 1994). Keywords to say that women have more experience and knowledge about computers. Pay for women using computers and negative behaviour with computers (Stowers, 1995). This can result in perceptions of computers in communicating and using computer media. Women also feel she is uncomfortable if she is in an environment where she feels a minority (Stowers, 1995). Therefore, women will be easier to communicate if they do not know how many women are in the group.

The increasing use of CMC assumes that the CMC reduces gender-caused communication as arises in direct communication through minimizing physical movements and social cues that reflect gender verses (Wojahn, 1994).

Literature review

In social psychology, communication is an important thing as social psychology is a study or study of the ways in which a person is affiliated or infected by others (Krauss, 2002). Social psychology is more about interpersonal communication. Actions taken are actions that carry messages or information between or send messages and goals or recipients of the message (Krauss, 2002). Communication systems always have two kinds of signals, namely signs and symbols (Krauss, 2002 Four communication paradigms include functions used as information used for messaging (Krauss & Fussel, 1996). These four models are Sender-Receiver Model, Intensionalist Patterns, Empathize Paradigm and Dialogical Paradigm).

According to Bailenson and Yee (2008), there are three different types of means of communication which are in-person human-to-human interaction, digital interactive communication, and conversation through public communication. Communication theory says that communication is a kind of meaning to knowing how they can communicate with them that can expand or distance from others and from society that is done next (Littlejohn & Foss, 2008).

Several study studies show that the experience of males and females in online environments is distinct, especially in several ways, for example, appearance, motivation, perception, learning practices and interaction behaviour (Chyung, 2007; Gun et al., 2003, Price, 2006; Rovai & Baker, 2005; Sullivan, 2001; Tapin & Jegede, 2001). Sullivan (2001) discovered notable disparities between male and female pupils in determining the advantages and disadvantages of a virtual environment that necessitates adaptability and limited face-to-face interaction. According to Merchant (2012), the biggest difference between men and women in terms of communication is the perception they have regarding the aim of discussion or communication. Psychological observations on sex distinctions in academia highlight that females lean to employ interaction as a means to build social cohesions and affiliations, whereas males utilize conversation as a tool to assert their power and dominance and obtain tangible results (Maltz & Borker, 1982; Wood, 1996; Mason, 1994).

It has been suggested that females are generally more emotional and friendly in their dialogue style, while males be likely more assertive and power-hungry

(Barrow & Rubenfield, 2003). However, these are general tendencies and may not apply to all individuals.

Women also incline to be more friendly in their conversations, while men tend to emphasize their autonomy (Eagly, 1987; Grilligan, 1982). This difference in social orientation can also affect the way that women and men communicate, and can impact the effectiveness and productivity of communication in various contexts. Women also tend to prioritize cooperation and are oriented towards mutual interests, selflessness and desire to join together to be one with the other (Mason, 1994). For women, the act of communication is often seen as a meaningful process in and of itself (Chodorow, 1989; Hartmann, 1991; Statham, 1987; Surrey, 1983). Research has also shown that females be disposed to interrupt conversations more often than men, which is thought to be due to their lower awareness of their status in comparison to men (Thorne & Henley, 1975). Research also found that the high and low status in a group is assumed to be more competent and receive many opportunities to make contributions in groups and men tend to be seen as higher in status than women (Berger, Rosenholtz, & Zelditch, 1980).

Males and females apply distinct approaches to control other members of the group, and instructing subjects in influencing other members further increases gender differences in the style of interaction (Carli, 1989). Research also shows that participants in communicating using computer media choose the information that is relevant to them rather than those that are not relevant (Oeberst & Moskaliuk, 2016). The influence of gender differences in confidence in using computers also varies. Cassidy and Eachus (2002) initiate that males have greater competence in computing than females. But Anderman and Young (1994) found no effect of gender differences on self-efficacy in using computers. Other studies say that men spend more time playing games, social lessons, programming and things that are not useful, while women are more interested in things related to mathematics, English, and reading (Demetrulias, 1985)

One theory that talks about media is the Media Richness Theory (Daft & Lengel, 1986) which says that media is distinguished based on the ability of each media in managing information or the ability to reduce uncertainty and unclear information. Media characteristics determine the wealth of information that is processed. Media that has a high level of information richness is thought to be better suited for complex tasks, as it offers a wider range of communication options that support the completion of multiple tasks effectively (Allmendinger, 2010). CMC is also used within the organization in developing persuasive communication that aims to achieve progress in speed, cost and accuracy (Wilson & Lu, 2008). Computer-mediated communication affects the operation of computer networks to exchange data by assigning, keeping, and bringing back it (Berge & Collins, 1995). Research shows that the number of changes in opinion in person-to-person communication is significantly higher compared to changes in opinion in computer-based communication (CMC) (Blasio & Milani, 2008). The four unique contextual factors that exist in computer-based communication (CMC) that affect processes in groups are anonymity, isolation, identification and presence (George & Sleeth, 2000).

Suler said there were six effects of release behaviour in online communication or known as the online disinhibition effect. According to Suler (2004), there are six effects of anonymity in online communication: disconnection anonymity,

imperceptibility, non-simultaneity, self-referential projection, disintegrated creativity, and limiting of influence. These effects can shape online behaviour and the dynamics of online interactions. Anonymity which is also referred to as an identity that is hidden from group/group members can lead to group homogeneity, increased participation, and increased expression of identity either alone or socially (Spears & Lea, 1992). Anonymity also supports an environment that can increase more objective participation and communication and more honest ideas and evaluations and increase group productivity and group decision-making processes (Pinnsonneault & Heppel, 1997). Additionally, previous research has shown that anonymity in group communication can increase criticism, but it does not have an effect on disinhibition and therefore does not impact group performance (George, J.F.; Easton, G.K.; Nunamaker Jr., J.F. & Northcraft, G.B., 1990).

Method

Dependent variable (Y): Productivity the number of meaningful words, independent variables (X1): Variety of Media namely Computer-Mediated Communication with Anonym (CMA) and Computer-Mediated Communication with Real name (CMR). Independent variable (X2): Gender differences. The study participants were 30 university students of Gadjah Mada University Yogyakarta who volunteered in an experimental study with the title "Group Processes in solving two problems: Face to Face and computer-mediated communication". This study replicates the research conducted by Lillemor Adrianson and Erland Hjelmquist. Data Collection Tool: Data for Gender Differences, Data for the productivity of meaningful words.

The study uses a pre-and post-test experimental design to control for the independent variables of media variability and gender differences, intending to determine any differences in the productivity of university students in the name of the number of meaningful notes produced. The inquiry itself took data from an experimental study that replicated Adrianson's and Hjelmquist's research with the title "Group Processes in solving two problems: Face-to-face and computer-mediated communication. This study employs a two-way ANOVA analysis to determine the effect of media variability and gender differences, as independent variables, on the productivity of university students measured by the number of meaningful words produced, which is the dependent variable.

Findings and Discussion

The two-way ANOVA analysis method is used to determine the impact of assorted media on the productivity of academy students, as measured by the number of meaningful words produced in discussions using different media. The media used is computer-based communication with names or anonymous (CMR and CMA).

For female participants who used CMA media the mean value was 358.60 with a standard deviation of 134.54 with the number of participants 10. While female participants used CMR media with a mean value of 534.70 with a standard deviation of 193.65 with the number of participants 10. The mean for participants men who used CMA media were 535.40 with a standard deviation of 163.44 with the number of participants 5. While male participants who used CMR media had a

mean of 708.60 with a standard deviation of 299.53 with the number of participants 5.

The total mean for the CMA group was 417.53 with a standard deviation of 163.44. The total mean for the CMR group was 592.66 with a standard deviation of 238.62. The overall score for female participants was 446.65 with a standard deviation of 185.74 with a total of 20 participants and for male participants with a mean of 622.00 with a standard deviation amounting to 245.11 with a total of 10 participants. The total mean is 505.10 with a standard deviation of 219.81.

It is known that the F value is 2.933 with a significance value (probability) of 0.052. Because the probability value is greater than 0.05, the null hypothesis is obtained and the alternative hypothesis is dismissed which means that the dependent variable variant is the same or homogeneous so that it meets the requirements for variant analysis.

From the analysis, the F ratio for the media variance factor is 5,472. When compared with the F table with a significance level of 0.05 (5%) where dk 1 (numerator) and 26 (denominator) obtained a number = 4.22 and a significance level of 0.01 (1%) = 7.72, then looks F ratio is greater than F table (0.05) then the second hypothesis is obtained that there is the influence of the variety of media on the productivity of the sum of meaningful arguments formed in the discourse. F ratio values for gender or gender differences were found at 5,616. When compared with the F table with a significance level of 0.05 (5%) where dk 1 (numerator) and 24 (denominator) obtained several 4.22 and a significance level of 0.01 (1%) = 7.72 looks more F ratio big compared to F table (0.05) then the alternative hypothesis is admitted, suggesting that gender has an impact on the productivity of academy students in terms of the number of meaningful words produced during discussions. So it can be said that gender differences affect the productivity of the number of meaningful arguments formed in the discourse using various CMA and CMR media. Whereas the F ratio for the variety of media interacting with gender is 0.00.

When compared with the F table with a significance level of 0.05 (5%) where dk 1 (numerator) and 24 (denominator) obtained several 4.22 and a significance level of 0.01 (1%) = 7.72 looks more F ratio small compared to F table (0.05) therefore, related to the conclusions of this study, the null hypothesis accepted, indicating that there is no significant influence of the use of different media or gender differences on the productivity of university students in name of the sum of meaningful notes formed through conversations when the two variables are considered together.

This means that both the use of different types of media and gender differences can have an impact on the productivity of university students in the name of the sum of essential arguments produced through conversations. However, when the two variables are combined and considered together, the conclusion of this investigation shows that neither the variety of media nor sex differences have a significant impact on productivity.

Researchers also realize that there are risks to internal validity that are common in preliminary analysis. Factors that influence validity are History, Maturity, Selection, Test procedures, instruments, mortality and regression toward the average value. The factors above are controlled as much as possible so that the experiment is done well and validity can be achieved. Some things that threaten internal validity and are difficult to control are selection questions. Participants in

groups are often dominated by women because there are more women volunteers than men.

Besides that, some participants cancelled the experiment due to illness or without notice, so this disrupted the course of the experiment. Men tend to commit to thematic conversations and they tend to be happy to dominate the discussion by sending many opinions (Sierpe, 2001). Researchers say that domination in discussions in discussion groups using computer media is often dominated by men (Moldafsky & Kwon, 1994). Those who can type quickly feel more able to express themselves, and those who feel uncomfortable by being part of an online group find it difficult to express socio-emotional feelings online and also differences in traditions or customs also emulate in the application of CMC such as trust in other members in groups (Hiltz & Johnson, 1990).

The number of word productivity is related to the emergence of ideas in each individual. The emergence of ideas is a cognitive and communal mechanism (Denis et al, 1999). The production of these rules is activated and naturally by stimulation, and external awareness authority (Anderson, 1992). Idea production depends on the strength and not the production of rules on the individual. One theory that explains human action is the Theory of Reasoned Action (Ajzen and Fishbein, 1980), which posits that a human's action is ruled by their attitudes towards the behaviour. Following the scheme, the more favourable a personal attitude is towards a special action, the more likely they are to employ that behaviour. In Korea for example, male and female students apply computers as a device to build social networks and also form knowledge independently (Lim & Meier, 2011).

Conclusion

Fixed the conclusion of the investigation, found the use of different types of media did not have a significant impact on the productivity of university students in the name of the sum of meaningful words produced through discussions. Additionally, when gender differences were included as independent variables, found no substantial distinction between the two, and gender did not affect the productivity of the number of meaningful words produced when using different media. Therefore, it can be concluded the conclusion of this research indicates the application of different types of media does not have a significant impact on the productivity of university students in the name of the sum of meaningful arguments formed through problem-solving discussions. Furthermore, gender differences do not come to emulate the effectiveness of various media used by students in producing meaningful words.

Some things that can be done for the next research are as follows: Experiments are carried out more rigorously so that extraneous variables can be more controlled by researchers. Topics chosen in the discussion can be chosen topics that are not too heavy or difficult, for example on issues that are happening around participants so that participants have more data and insight into the issues being discussed. The timing should be adjusted and recommended in the morning so that participants 'fitness levels are assumed to be the same because the issues discussed in the Criminal Puzzle case are enough to drain participants' minds.

The room setting for the experiment is made as good as possible so that each participant cannot communicate with each other other than with a computer or see each other so that the experiment gets better. The discussion process can be

extended again because the idea-creation process of each individual is different so it is expected that more word productivity will emerge.

References

Abrams, Z. I. (2003). The effect of synchronous and asynchronous CMC on oral performance in German. *Modern Language Journal, 87*(2), 157–167.

Adelskold, G., Alklett, K., Axelsson, R., & Blomgren, G. (1999). Problem-based distance learning of energy issues via computer network. *Distance Education, 20*(1), 129-143.

Adler, R. B., Rosenfeld, L. B., & Proctor, R. F. (2010). *Interplay: The process of interpersonal communication*. New York: Oxford University Press.

Adrianson,L & Hjelmquist,E. (1991). Group processes in face-to-face and computer-mediated communication. *Behaviour & Information Technology, 10*(4), 281-296.

Adrianson,L & Hjelmquist,E. (1999). Group processes in solving two problems: face to face and computer-mediated communication. *Behaviour & Information Technology, 18*(3), 179 -198.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs: Prentice Hall.

Alkan, C. (2005). *Educational technology*. Ankara: Anõ Press

Allmendinger, K. (2010). Social presence in synchronous virtual learning situation: The role of nonverbal signals displayed by avatars. *Educational Psychology Review, 22(*1). 41-56. https://doi.org/10.1007/s10648-010-9117-8

Akyuz, H. I., & Kurt, M. (2010). Effect of teacher's coaching in online discussion forum on student's perceived self-efficacy for the educational software development. *Procedia-Social and Behavioral Sciences 9*(2010). 633-637.

American Psychological Association (6th ed.). (2010). *Publication Manual of the American Psychogical Association*. Washington DC: Author.

Anderson, J. R. (1992). Automaticity and the ACT theory. *The American Journal of Psychology*, *105*(2), 105 165-180.

Archer, J. (1992). Childhood gender roles: Social context and organization. In: H. McGurk, (Ed.), *Childhood social development:Contemporary perspectives* (pp. 31–61). Hove: Erlbaum

Azwar, S. (2010). *Metode penelitian*. Yogyakarta: Pustaka Pelajar.

Balliet, D. (2010). Communication and cooperation in social dilemmas: A Meta-Analytic Review. *The Journal of Conflict Resolution ,54*(1). 39-57.

Basow, S. A., & Rubenfeld, K. (2003). "Troubles talk": Effects of gender and gendertyping. *Sex Roles, 48*, 183–187. https://doi.org/10.1023/A:1022411623948

Berge, Z., & Collins, M. (1995). *Computer-mediated communication and the online classroom: Overview and perspectives* (Vol. 1). Creskill, NJ: Hampton

Berger, J., Rosenholtz, S.J., & Zelditch, M., Jr. (1980). Statusorganizing processes. In A. Inkeles, N. J. Smelser, &R. H. Turner (Eds.), *Annual review of sociology* (pp. 479-508). Palo Alto, CA: Annual Reviews

Bruckman, A. S. (1993). Gender swapping on the Internet. *Proceedings of INET '93*. Reston, VA: The Internet Society.

Carli, L.L. (1989). Gender differences in interaction style and influence. *Journal of Personality and Social Psychology,56*(4). 565-576.

Carr, T., Cox, L., Eden, N., Hanslo, M., 2004. From peripheral to full participation in a blended trade bargaining simulation. *British Journal of Educational Technology, 35*(2), 197–211. https://doi.org/10.1111/j.0007-1013.2004.00381.x.

Chodorow, N. (1989). *Feminism and psychoanalytic theory*. New Haven, CT: Yale University Press.

Clark, H. H., & Brennan, S. E. (1991). Grounding in communication. In L. B.Resnick, J. M. Levine, & S. D. Teasley (Eds.), *Perspectives on socially shared cognition*. Washington, DC: APA.

Colley, A. M., Gale, M. T., & Harris, T. A. (1994). Effects of gender role identity and experience on computer attitude components. *Journal of Educational Computing Research, 10*(2), 129-137.

Collins, C, & Collins, S. (1996). *The internet as a tool*. Retrieved Nov 22, 2016, from ERIC database (ED398 883).

Connolly, T., Jessup, L.M., and Valacich, J.S.(1990). Effects of anonymity and evaluativon idea generation in computer-mediated groups. *Management Science, 36*(6). 689 – 703.

Cooper, J. (2006). The digital divide: The special case of gender. *Journal of Computer Assisted Learning, 22*(5), 320-334.

Corno, L., & Mandinach, E. (1983). The role of cognitive engagement in classroom learning and motivation. *Educational Psychologist, 18*, 88-100.

Creswell, J W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed). Boston: Pearson Education.

Creswell, J W. (2014). *Research design: Qualitative, and mixed methods approaches* (4th ed). California: SAGE Publication.

Cubukcu, H., & Kutlu,O. (2012). Computer-mediated communication: An observation on gender in chat rooms. *Akdeniz Language Studies Conference, 70*, pp.724-730. https://doi.org/10.1016/j.sbspro.2013.01.116

Daft, R.L., & Lengel, R.H. (1984). Information richness: a new approach to managerial behavior and organizational design. In: Cummings, L.L. & Staw,B.M. (Eds.), *Research in organizational behavior 6*. Homewood, IL: JAI Press.

Denis, A R., Fuller, R M., & Valacich, J S. (2008). Media, tasks, and communication processes: A theory of media synchronicity. *MIS Quarterly, 32*(3). 575-600.

Dennis, A.R., Valacich, J.S., Connolly, T., & Wynne, B.E. (1996). Process structuring in electronic brainstorming. *Information Systems Research, 7*(2). 268-277.

Di Blasio, P., & Milani, L. (2008). Computer-mediated communication and persuasion: Peripheral vs.central route to opinion shift. *Computers in Human Behavior, 24*(2008), 798-815.

Di Leo, J. R. (2008). Anonymity, dialogue, and the academy. *Symplokē, 16*(1/2). 61- 73. https://www.jstor.org/stable/40550807

Ding, N., Bosker, R.J., & Harskamp, E.G. (2011). Exploring gender and gender pairing in the knowledge elaboration processes of students using computer-supported collaborative learning. *Computer Education, 562*, 325–336.

Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation*. Hillsdale, NJ: Erlbaum.

Fahy, P. J., Crawford, G., & Aely, M. (2001). Patterns of interaction in a computer conference transcript. *International Review of Research in Open and Distance Learning, 2*(1). https://doi.org/10.19173/irrodl.v2i1.36

Fischer, A.H., 2011. Gendered social interactions in face-to-face and computer mediated communication. *Face-to-face communication over the Internet*, 53–78.

George, G. & Sleeth, R. G. (2000). Leadership in computer-mediated communication : Implication and research directions. *Journal of Bussiness and Psychology,15*(2), 287-310.

. George, J.F, Easton, G.K., Nunamaker Jr, J.F., & Northcraft, G.B. (1990). A study of collaborative group work with and without computer-based support. *Information Systems Research, 1*(4).394-415.

Gilligan, C. (1982). *In a different voice: Psychological theory and womens development*. Cambridge, MA: Harvard University Press.

Goertler, S. (2009). Using computer-mediated communication (CMC) in language teaching. *Die Unterrichtspraxis/Teaching German, 42*(1), 74–84.

Gorriz, C. M., & Medina, C. (2002). *Engaging girls with computers through software games. Journal of the Association for Computing Machinery, 43*(1), 42–49.

Graham, S., & Harris, K.R. (2005). Improving the writing performance of young struggling writers: Theoretical and programmatic research from the center on accelerating student learning. *Journal of Special Education, 39*(1), 19-33.

Gray, J. (1992). Men are from mars, women are from venus: A practical guide for improving communication and getting what you want in a relationship. New York: HarperCollins.

Gritsenko, V. (2015). Interaction on online forums and group communication: A case study of an IT support community. *Procedia-Social and Behavioral Sciences, 236*(2016). 14-24.

Grusec, J E. (1992). Social learning theory and developmental psychology: The legacies of Robert Sears and Albert Bandura. *Developmental Psychology, 28*(5),776-786.

Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American Journal of Distance Education, 11*(3). 8-26.

Halpern, D.F., Benbow, C.P., Geary, D.C., Gur, R.C., Hyde, J.S., & Gernsbacher, M.A. (2007). The science of sex differences in science and mathematics. Psychol. *Sci.Public Interest, 81*, 1–5.

Harris, K. R., Graham, S., Mason, L. H., & Sadler, B. (2002). Developing self-regulated writers. *Theory into Practice, 41*, 110-115.

Hartmann, E. (1991). *Boundaries in the mind: A new psychology of personality*. New York: Basic Books

Hiltz,S. R & Johnson, K. (1990). User satisfaction with computer-mediated communication systems. *Management Science, 36*(6). 739-764.

Ho,S S. (2008). Social-psychological influences on opinion expression in face- to-face and computer-mediated communication. *Communication Research, 35*(2). 190-207.

Hogg, M A. & Vaughan, G M. (6th ed). (2011). Social psychology. Harlow: Pearson Education Limited.

Jeong, A. & Davidson-Shivers, G. (2006). The effects of gender interaction patterns on student participation in computer-supported collaborative argumentation. *Educational Technology Research and Development, 54*(6). 543-568.

Kahai, S. S & Cooper, R. B. (1999). The effect of computer-mediated communication on agreement and acceptance. *Journal of Management Information Systems, 16*(1). 165-188.

Karayan, S., & Crowe, J. (1997). Student perspectives of electronic discussion groups. *THE Journal: Technological Horizons in Education, 5*. 319-332.

Kolouri, T., Lauria, S., & Macredie, R. D. (2016). The influence of visual feedback and gender dynamics on performance,perception and communication strategies in CSCW. *International Journal Human-Computer Studies 97*(2017). 162-181.

Krauss,R M. (2002). The psychology of verbal communication. *International Encyclopedia of the Social and Behavioral Sciences 4th*.

Krauss, R. M., & Fussell, S. R. (1996). Social psychological models of interpersonal communication. In E. T. Higgins, & A. Kruglanski (Eds.), *Social psychology: A handbook of basic principles* (pp. 655-701). New York: Guilford.

Lakoff, R. T. (1975). *Language and womans place*. New York: Harper & Row.

Lamerichs, J, & Te Molder, Hedwig F.M. (2003). *Computer-mediated communication: From a cognitive to a discursive model*. New Media & Society, 5(4), 451-473.

Leaper. C. (1991). Influence and involvement in children's discourse: Age, gender, and partner effects. *Child Development, 62*, 797-811.

Littlejohn, S.W. & Foss, K A. (2008). *Theories of human communication 9th*. Belmont, CA: Thompson Wadsworth.

Liu, E Z-F., Cheng, S S., Chen, S. Y., & Chen, B-I. (2012). The impact of q&a forums' level of elaboration on students' learning. *Procedia-Social and Behavioral Sciences, 64*(2012), 604-608.

Maccoby, E. E. (1998). *The two sexes: Growing up apart, coming together*. Cambridge, MA: Harvard University Press

Mahmud, M M. (2014). Communication aptitude and academic succes. *Procedia-Social and Behavioral Sciences,134*(2014), 125-133.

Maltz, D. N., & Borker, R. (1982). A cultural approach to male-female miscommunication. In J. J. Gumpertz (Ed.), *Language and social identity*. Cambridge: Cambridge University Press.

Mason, E. S. (1994). Gender differences in job satisfaction. *The Joumal of Social Psychology, 135*, 143-151.

Merchant, K. (2012). How men and women differ: Gender differences in communication style, influence tactics and leadership styles. CMC Senior Theses Paper, 513.

Miyazoe,T & Anderson, T. (2011). Anonymity in blended learning: Who would you like to be? *Journal of Educational Technology & Society,14*(2). 175-187.

Myers, D. G. (2010). *Psychology* (9th Ed.). New York: Worth Publisher.

Naidu, S. (1997). Collaborative reflective practice: And instructional design architecture for the Internet. *Distance Education, 18*, 259-271.

Nunamaker, J.F., Dennis, A.R., Valacich, J.S., Vogel, D.R., & George, J.F. (1991). Electronic meeting systems to support group work. *Communications of the ACM, 34*(7), 40-61.

Olaniran, B.A. (1994). Group performance in computer-mediated and face-to-face communication media. *Management Communication Quarterly,7*(3), 256-281.

Pallof, R M., & Pratt, K. (2007). Building online learning communities: Effective strategies for the virtual classroom. San Francisco: Jossey-Bass.

Paris, S G., & Paris, A H. (2001). Classroom applications of research on self-regulated learning. *Educational Psychologist,36*(2), 89-101.

Payne, J. S., & Whitney, P. J. (2002). Developing L2 oral proficiency through synchronous CMC: Output, working memory and interlanguage development. *CALICO Journal, 20*(1), 7–32.

Persico, D., & Pozzi, F. (2010). The three T's of the structure of online collaborative activities. *Procedia-Social and Behavioral Sciences, 2*(2010). 2610-2615.

Pinnsonnneault, A., & Heppel, N. (1997). Anonymity in group support systems research: A new conceptualization, measure and contingency framework. *Journal of Management Information Systems, 14*(3), 89-108.

Pohl, M., & Michaelson, G. (1997). "I don't think that's an interesting dialogue": Computer-Mediated Communication and Gender. *Women, Work and Computerization : Spinning a Web from Past to Future*, 87-97.

D. Oechtering, V. & Peterson, U. (Eds). *Proceedings of the 6 th International IFIP Conference*. Bonn: Springer.

Rahman, S.,Yasin, R. M.,Yasin, SFM., & Nordin, N. M. (2011). Examining psychological aspects in online discussion. *Procedia-Social and Behavioral Sciences, 15*(2011), 316-312.

Ramdhani, N., & Afiati, N. (2009). *The digital generation and quality of communication: Does media and the topic discussion determine the quality of communication upon the digital generation?* Yogyakarta: Faculty of Psychology GMU.

Rains, S. A. (2007). The impact of anonymity on perceptions of source credibility and influence in computer-mediated group communication: A test of two competing hypotheses. *Communication Research, 34*(1), 100-125.

Rosengreen, K. S. (1985). An observational study of preschool children's computing activity. *Paper presented at Perspective on Young Child and the Computer, Austin*.

Schraw, G., & Moshman, D. (1995). Metacognitive theories. *Educational Psychology Review, 7*, 351-371.

Schneider, D., (2005). *The psychology of stereotyping*. New York: Guilford Press.

Shadish, W R., Cook, T D., & Campbell, Donald T. (2002). *Experimental and Quasi- experimental designs for generalized causal inference*. Boston: Houghton Mifflin Company.

Shang, H. F. (2007). An exploratory study of e-mail application on FL writing performance. *Computer Assisted Language Learning, 20*(1), 79–96.

Sia, C. L., Tan, B C. Y. & Wei, K. K. (2002). Group polarization and computer-mediated communication: Effects of communication cues, social presence, and anonymity. *Information Systems Research, 13*(1). 70-90.

Sierpe, E. (2001). Gender and participation in computer-mediated lis education topical discussion: An examination of JESSE, the Library/Information Science Education Forum. *Journal of Education for Library and Information Science, 42*(4).339 -347.

Spears, R., & Lea, M. (1992). Social influence and the influence of the 'social' in computer mediated communication. In M. Lea (Ed.), *Contexts of computer-mediated communication*. London: Harvester-Wheatsheaf.

Statham, A. (1987). The gender model revisited: Differences in the management styles of men and women. *Sex Roles, 16*, 409-429.

Stowers, G.N. (1995). Getting Left behind? Gender Differences in Computer Conferencing. *Public Productivity & Management Review,19*(2). 143- 159.

Sun, X., 2008. *Why gender matters in CMC: Gender differences in remote trust and performance with initial social activities Ph.D*. Thesis, Drexel University, Philadelphia, PA.

Surrey, J. L. (1983). The relational self in women: Clinical implications. In J. V Jordan, J. L. Surrey, & A. G. Kaplan (Speakers), *Women and empathy: Implications for psychological development and psychotherapy*. Wellesley, MA: Stone Center for Developmental Services and Studies.

Sutton,R. (1991). Equity and computers in the schools: A decade of research. *Review of Educational Research,61*(4). 475-503.

Tannen, D. (1990). *You just don't understand: Women and Men in Conversation*. New York: Ballantine Books.

Thorne, B, & Henley, N. (1975). Difference and dominance: An overview of language, gender, and society. In B. Thorne & N. Henley (Eds.), *Language and sex: Difference and dominance* (5-42). Rowley, MA: Newbury House Publishers.

Underhill, C & Olmsted, M G. (2003). An experimental comparison of computer-mediated communication and face-to-face focus groups. *Social Science Computer Review, 21*(4). 506-512.

Uzun,L. (2012). The Internet and computer-mediated artefacts for foreign language learning and practice, and intercultural communication: MOODLE, Second Life, and others. *Procedia-Social and Behavioral Sciences, 46*(2012), 3296-3300.

Vrasidas, C, & Mclsaac, M. S. (1999). Factors influencing interaction in an online course. *The American Journal of Distance Education, 13*(3), 22-36.

Wei, Chun-W., Chen, N., & Kinshuk. (2012). A model for social presence in online classrooms. *Educational Technology Research and Development, 60*(3), 529-545.

Weisband, S. P., Schneider, S. K., & Connoly, T. (1995). Computer-mediated communication and social information: Status salience and status differences. *The Academy of Management Journal, 38*(4),1124 -1151.

Wilson, V E. & Lu, Y. (2008). Communication goals and online persuasion: An empirical examination. *Computers in Human Behavior, 24*(2008), 2554-2577.

Wojahn, P.G. (1994). Computer-mediated communications: The great equalizer between men and women. *Technical Communications, 41*,747-752.

Wood, J. T (1996). *Gendered lives: Communication, gender and culture* (2nd Ed.). Belmont, CA; Wadsworth.

Yeh, Y. C. (2010). Analyzing online behaviors, roles, and learning communities via online discussions. *Educational Technology & Society,13*(1), 140–151.

Yu, H., Miao, C., Tao, X., Shen, Z., Cai, Y., Li, B., & Mio, Y. (2012). Teachable agents in virtual learning environments: A case study. Singapore: Nanyang Technological University.

Zhou, M., & Brown, D. (2015). *Educational learning theories*. Retrieve from http://oer.galileo.usg.edu/education-textbooks.