The Global Leadership of Virtual Teams in Avatar-Based Virtual Environments

Paul Hayes Jr.

Indiana Institute of Technology
hayepj01@gmail.com

Abstract. This research is part of an ongoing study of the usefulness of avatar-based collaborative environments in comparison to software platforms that mostly utilize audio and video in two dimensional settings like those used in GoToMeeting/Traning. Second Life is explored as a viable option for avatar-based collaborative teams and other telework. This research investigated a potential relationship between engagement, in terms of leader-member exchange and team interaction in software platforms that utilized an avatar-based collaborative environment in relation to one that did not. This initial pilot study examining feedback gathered from user experience of engagement and leader-member exchanges is used to develop insight into the proper instrument selection that will be utilized to conduct a larger quantitative study. A mixed methods approach consisting of inquiry from past instruments that measure engagement (Gajendra et al., 2012), satisfaction (Camman et al., 1998), social presence within a virtual environment (Witmer & Singer, 1998) and the technology acceptance model (TAM)(Shroff, Deneen, & Ng, 2011) is used. The findings suggest that avatar-based environments may impact leader-member exchange through increased engagement.

Keywords: 3D web and virtual worlds, Computer-supported collaboration, Gamification in business, Ubiquitous commerce.

1 Introduction

There is research that suggests there is a large population of Chinese citizens that are very fond of (information technology) IT and SNSs and are seeking to maximize integration potential for business collaboration. Clark, Nooruddin, and Zhang (2012) write that No-one loves social media like the Chinese. In fact, research firm Forrester has dubbed them "hypersocial".

China controls close to a tenth of the online/virtual game global market, which makes China the third largest market in the world, and second only to South Korea in Asia (South Korea has 32%): the United States has about 21% and all of Europe combined only represents 23% of the market (Yue & Stuart, 2009). The growth implication are huge not only for game designers and social networking applications, but also for any business that can successful bridge their business experience with this “hypersocial” love for gaming. There is no doubt China will be the strongest consumer of innovative use of avatar-based game-like collaborative products for the foreseeable

F.F.-H. Nah (Ed.): HCIB/HCII 2014, LNCS 8527, pp. 390–400, 2014.

future. It is strategic for businesses looking to conduct business in China to create customer interactions that include social media and engaging avatar mediums that cater to the sense of play consistent with a video game.

Schackman (2010) discusses the implications for India and the engaged use of avatars in Second Life (Linden Lab, 2011). His discourse includes that India is the second most populated country in the world, and also has one of the top five GDP's in the world as well.

1.1 The Virtual Landscape

In order to maximize organizations ability to quickly become the next globally integrated enterprise (GIE), leaders need to understand how these evolving environments work in order to maximize their resources and stay competitive in a world where organizations are beginning with becoming "global" in mind (Cateora, Gilley, & Graham, 2011; White & Rosimilia, 2010). Research by top Stanford communication professor and virtual reality researcher, Dr. Jeremy Bailenson explains that "The brain often fails to differentiate between virtual experiences and real ones. The patterns of neurons that fire when one watches a three-dimensional re-creation of a supermodel, such as Giselle or Fabio, are very similar-if not identical- to those that fire in the actual presence of the models" (Bailenson & Blascovich, 2011, p. 1). That suggests that there is a blur between things that are virtually there and those things that are real. This blurred distinction between the "real" and the virtual explains the expansion of the study of virtual environments into the disciplines of leadership and business due to the increased frequency. Computer-mediated collaborative work environments, telework, geographically dispersed teams, and computer-mediated communication among workers that are geographically collocated is prominent in global business practice, and understanding what keeps these virtual workers engaged is critical (Richardson, 2013).

Leaders must remain flexible while planning for the integrations of technological advances that innovative software and mobile applications are demanding in the globalized world. Global leaders must utilize strategy in combination with research, development, knowledge management and information management to ensure they are moving at the speed of technology to adjust for a rapidly shrinking global market. Critical concerns in maximizing the impact of global leaders' efforts in managing geographically dispersed teams are managing the intersection of digital technology, and culture with globalization.

1.2 Technology Advancing

Digitally-based technologies are the most important driving force behind the continued interconnectedness of people as they transition into a true global village (Bartlett & Beamish, 2011). Digital-based technologies are leading businesses to operate and explore the virtual global market that is quickly becoming the hideaway of choice for consumers disenchanted with the typical shopping experience that involves travel, lines and time that could be dedicated to other home-based responsibilities resulting in nothing less than a "virtual Diaspora" (Schackman, 2010). The consequences of this Diaspora, is the evolution of a new way of communicating and connecting.

2 Team Member Interaction

Communication scholars have compartmentalized NVC into nine distinct categories; i.e. kinesics, more commonly referred to as body language; physical appearance; chronemics, or communication through time; proxemics, or communication using space; paralanguage, communication through tone of voice; artifacts, communication by physical objects; haptics, communication through touch; facial expressions; olfactics, communication by means of smells; and oculesics, more commonly referred to as eye contact (Richmond, McCroskey, & Hickson, 2008). An informed understanding of virtuality and an effective use of computer-mediated communication through the use of avatar-based platforms will allow leaders to maximize confidence, control of virtual outcomes and decision-making (Nardon & Aten, 2012).

Virtual teams are not traditional face-to-face teams over technology (Nicholson, Sarker, Sarker, & Valacich, 2007). Many of the same problems that affect face-to-face teams persist on virtual ones; specifically poor communication and trouble with decision-making. The newer avatar based software systems could allow for more specific interpersonal communication, but without solutions to some of the other leadership and planning problems they could be easier to criticize (Cash-Baskett, 2011). Bad agenda and planning problems, as a result of poor leadership execution, could just expedite and magnify the recognition of frustration and disapproval by team members and create more conflict within the group. Thorough research conducted on current business oriented systems could provide more insight into whether or not problems are more a result of poor virtual leadership or lack of understanding of the use of progressive medium (Bosch-Sijtsema & Sivunen, 2013). Also, seeking face-to-face solutions to virtual problems could prove challenging and ineffective. The use of avatars should be researched

2.1 Effective Communication

There is something intrinsic about the way that the human experience facilitates the development of trust and closeness (Lohle, 2012). Communication theorists believe that closeness is developed through interpersonal communication, which covers theories based around the reduction of uncertainty, social construction, social information processing and shared contexts based around narrative (Griffin, 2009; Mehrabian, 2008; Poole & Hollingshead, 2005). Also, Mehrabian (2008) has researched that between 65 and 93 percent, of communicative depth comes from nonverbal richness. Avatars provide one of the easiest ways to increase communicative effectiveness and develop human interaction skills that will take virtual participants to higher levels of meaningful interaction (Gillath, McCall, Shaver, & Blascovich, 2008). These trends collectively suggest that there is merit in studying the effective use of avatars in developing strategies pertinent to the future of global leadership and management.

2.2 Virtual Worlds Enhance Nonverbal Communication

The patterns of neurons that fire when one watches a three-dimensional re-creation of a supermodel, such as Giselle or Fabio, are very similar-if not identical- to those that fire in the actual presence of the models" (Blascovich & Bailenson, 2011, p. 1). This

implies that there is a blur between that which is virtually there and that which is real. Increases of virtual work and the distribution of work load to virtual team members geographically separated, of increasing amounts of distance, leaves team members feeling disassociated and unhappy due to stress, time management and a missing component of attachment (Bosch-Sijtsema, Fruchter, Vartiainen, & Ruohomäki, 2011). The focus behind using virtual world environments for virtual team workplaces is that the simulation of the actual world may allow virtual workers to identify with the shared context and themselves in the form of a three dimensional (3D) graphical representation or human simulation of an actual person; often referred to as avatars (Yee & Bailenson, 2009). This mixed methods research study proposal is primarily concerned with how individual members of global virtual teams experience different degrees of engagement when interacting in 3D virtual collaborative environments versus when they interact in audio and video meeting software/programs through the understanding of a shared context within a social constructivist's understanding of semiotic and symbolic interaction (Johansen & Larsen, 2002)

2.3 Global Leadership

Global leaders are often found in working in groups over large divides of geography with virtual workers in environments dominated by audio and email (Cash-Baskett, 2011; Meyer, 2010). Those teams speak of virtuality as if it were all or nothing. Research explains that organizations have varying levels of virtuality (Mihhailova, Oun, & Turk, 2009), but there is a need for additional research that can support whether more money should be invested in the development and continued use of virtual worlds as vehicles for distributed work. "According to KZERO, a consulting company focusing on virtual worlds and virtual goods, the total market for virtual items created and exchanged between users was worth around 5 billion USD in June 2010 and the value is expected to more than double within the next two years. The Asian market is the largest with around USD 3.8 billion being generated in 2009 (OECD, 2011, p. 14) Global business leaders should recognize that Asian markets are not the only global regions interested in the continued development and investment of virtual worlds. European countries are conducting business research and information gathering in virtual environments (Atlas & Putterman, 2011). According to one of the leading providers of business information on technology information gathering, the French market research firm Repères, the cost for a qualitative focus group within a virtual setting is about 33% lower, and quantitative surveys can be conducted at half the cost of a comparable real life project (Kaplan & Haenlein, 2009). The investment of large sums of money could be indicative of the type of returns foreign countries plan to receive, which would make these very expensive "games."

2.4 Global Leaders and Technology

Clark Aldrich (2009) makes his call to action clear. The Complete Guide to Simulations and Serious Games is "nothing less than a manifesto intended to overthrow the intellectual legacy of civilization to date" (p.iv). Aldrich is signaling the end of the age of Gutenberg, a time of great learning, no doubt, but of linear learning—learning

"how to know" rather than "how to do" or "how to be" in a complex, interactive world. Why should you care? If you are an education reformer, Aldrich's revolution could transform the way we learn. If you are a CEO, this is the way the next generation will want to be addressed. And if you are an entrepreneur, the intersection of serious games and simulations may signal one of the greatest investment opportunities in a generation" (Aldrich, 2009, p. xxi).

2.5 Leadership and Technology

The existing research on virtual teams focuses on the roles of leaders, and the emergence of leadership as an important factor to the success of virtual teams. Leadership has traditionally been conceptualized as an individual-level skill. Review of global leadership theory covers individual traits, behaviors, opinions and self-efficacy (Jex & Britt, 2008; Osland, 2008; Yukl, 2010). However, recent research speaks to the shared aspects of leadership and how they are more playful and innovative than traditional interpretations of leadership phenomenon (Hoch, 2013; Kark, 2011). There is a call for action to investigate technologies that advance social context within groups using innovative technologies.

There are many businesses that have worked or are currently in avatar-based collaborative environments like Second Life or other similar virtual worlds, like Learning Immersive Virtual Environments (LIVE), that are exploring the usefulness of avatar-based collaborative environments. Research suggests that there are significant advantages and increased engagement from the teams that use avatar-based virtual collaborative environments for innovative work and prototype creation (OECD, 2011). A mixed methods study of how present education, business, IT professional experts and future employees would give new direction to research and development sections of new technologies interested in using virtual worlds for virtual/dislocated teams, while simultaneously providing them strategic environments that gives them every opportunity to succeed, save money, stay engaged and communicate as clearly as possible (Boughzala, de Vreede, & Limayem, 2012; OECD, 2011).

3 Research Rationale

The research for this study explores the viability of theories that support in-creased interest and engagement of workers in these worlds are true or not. If they are found to be unsupported, then researchers can spend more time developing other methods of virtual team interaction that is not focused around the graphic heavy conception of a virtual environment. If the theories are supported then that would provide research and development a vector towards improving these environments for more effective use. The next step of research could be to provide insight into useful strategies for global leaders of virtual teams to employ when working with foreign nationals in foreign countries. The business, professional and educational institutions would be able to create a more uniform program with true unilateral continuity and uniformity and more intuitive controls for computer users not so skilled with the virtual world technologies that presently exist. The research would be used by industry and businesses that could produce software that could be purchased by university officials and then use it

to provide better education for the evolving job market and future employees. There are over 150 universities with a presence in Second Life and over 80 with their own island in Second Life (OECD, 2011). The proposed research will prove invaluable to the planning and development of those institutions. It is in the best interest of continued education and instructional design that universities and business build more solidarity on the most effective ways to use the virtual world and cyberspace for the purpose of advancing global cooperation and intercultural understanding.

3.1 Leadership Constructs to Be Evaluated

This mixed methods research study proposal is primarily concerned with how individual members of global virtual teams experience different degrees of engagement when interacting in 3D virtual collaborative environments versus when they interact in audio and video meeting software/programs through the understanding of a shared context within a social constructivist's understanding of semiotic and symbolic interaction (Griffin, 2009). Other interests include the manifestation of shared leadership within avatar-based virtual environments, leader/team member cross-cultural communicative exchange, if individual member engagement is altered through the use of avatar-based virtual environments used for virtual team collaboration in the pursuit of achieving team goals, and if using these environments bring significant value to the efforts of the leaders of global/virtual teams with distributed workloads? Ultimately, this research will provide much needed insight into the possibility of using avatar-based collaborative environments to understand individual engagement and contribution to global virtual teams.

3.2 Research Questions

The specific Research questions for this research are:

1. Do individual members of global virtual teams experience different levels of engagement when interacting in 3D virtual collaborative environments versus when they interact in audio and video meeting software?
2. Can global leaders use avatar-based simulations in professional virtual worlds as a leadership tool for knowledge workers?
3. How do simulations within virtual worlds support global and professional communication in a virtual/geographically distributed context?
4. How does the environment that knowledge work takes place in, both physically and virtually, affect distributed work?

This research could lead to measures that could be validated in terms of effectiveness through the use tools that are created from past instruments that measure engagement (Gajendra et al., 2012), satisfaction (Camman et al., 1998), and social presence within a virtual environment (Witmer & Singer, 1998). The lack of validated instruments that properly measure the virtual team and leadership experience exclusively would limit the effects of the groups experience as it would only be described in relating terms that did not capture the effect of the specific experiences of the participants as it is capture in time and dynamic occurrence. However, current research (Shroff,

Deneen, & Ng, 2011) has focused on "the technology acceptance model (TAM) because the research seeks to understand the relationship between perceptions (such as perceived usefulness and perceived ease of use of technologies) and usage behavior" (p. 601).

4 Pilot Study

A pilot study was conducted with undergraduate college freshman students randomly selected to participate in either the control (GoToMeeting) or the avatar-based (Second Life) environment first before they switch to the other. The participants had no experience with either Second Life or GoToMeeting. Instructors recommended students to the study that did not have experience in either platform. A list of participants was determined and then randomly arranged. A randomly selected student was assigned the role of the group leader. There were 8 teams of four to six individuals on each team. Four of the teams started with Second Life and four started with GoToMeeting/Training. Then when both groups completed the experiment, they were interviewed. For the purposes of the experiment the GoToMeeting groups represented more traditional teleconferencing software because it has audio, video and screen-sharing capabilities as well as text and private text. The participants were from several different countries and background and brought a substantial amount of credibility to the weight of the results as there wer(Van Pelt, 2009)e cross-cultural implications with the findings. The participants were separated before they have a chance to interact with each other in group work or with one another in any other virtual setting. The participants were diverse with nationalities ranging from China, USA, Cameroon, Venezuela, Bermuda, Singapore, Colombia and Russia. The teams simulated virtual work in these environments by being separated and then completing assigned tasks that represented the type of work typical in virtual team settings like collaboration, negotiation and problem solving (Davis, Murphy, Owens, Khazanchi, & Zigurs, 2009; Van Pelt, 2009).

5 Findings

The feelings were mixed and the order did not change the fact that members of both of the groups felt more engaged when they were in Second Life than they reported when they were in GoToMeeting/Training. The groups that felt stronger affinity and connection with the leader of the group also reported higher levels of engagement.

5.1 The Second Life Starters

The teams that started with Second Life first and then switched to GoToMeeting/Training Second reported higher levels of affinity towards the leader of the groups in both environments. The groups who started with Second Life first seemed to describe GoToMeeting/Training with less enthusiasm. The participants explained that the initial experience was overwhelming and that feeling made it difficult to focus on the tasks. The group also explained that it became easier to focus on the tasks as the time went on. The group that started with Second Life first explained that they had a

better sense of where the other team members were located and that made it easier to associate names with voices than when they later interacted in GoToMeeting/Training.

5.2 The GoToMeeting/Training Starters

The teams that started with GoToMeeting/Training reported that it was much easier to get started on tasks and process with team communication because they were not overwhelmed with heavy technological skill requirements that became instantly apparent after they switched to Second Life. These teams also reported that the members would often disconnect from each other to work on separate computing endeavors even though they were all in the same virtual place. The teams that started with GoToMeeting/Training also reported that it was not as disrupting to not have a headset and microphone in GoToMeeting/Training unlike Second Life where it was very challenging to prevent audio overlap and redundancy of communicative efforts.

5.3 Miscellaneous Findings

A strong majority of the participants, regardless of which medium they started with, expressed that it was difficult for them to think of GoToMeeting/Training as an actual environment. The two-dimensional nature of if seemed more like an accessory, but operating in Second Life seemed more like an interaction.

6 Discussion

These introductory findings have fashioned an underpinning for the completion of additional, and significantly larger quantitative research study that is being conducted to investigate the relationship between leader-member exchange, engagement and computer-mediated platforms that serve as virtual environments for virtual teams. The projected route for this research includes the different levels of engagement experienced by leaders and team members as experienced in different virtual circumstances and different reported levels of leader-member exchange. There are indications made buy this preliminary work that would suggest some answers to the research questions.

Do reported levels of engagement differ between teams interacting in 3D virtual collaborative environments compared to audio and video meeting software?
The interviews of the participants are indicative of individuals who are more involved with sharing the Second Life experience. Those participants have longer and more detailed responses to questions. There was a broad array of engagement levels reported, but they were mostly more supportive of continued use and exploration of the use of Second Life as a place for meaningful collaboration. Comments like: *The interaction that I had with one of the members in my group was very engaging. It definitely broke some communication boundaries between us even though we were in an online environment* and *I liked the use of second life because you have a visual indicator of the guys on your team.*

Can global leaders use avatar-based simulations in professional virtual worlds as a leadership tool for knowledge workers?
The leadership qualities of the participants were not readily available. The emergence of leaders in many situations is not always scripted and leaders with many different levels of knowledge, experience and formal training can emerge as leaders. These findings suggest that leaders of engaged virtual teams can use an avatar-based simulated worlds, like Second Life, to keep workers engaged and inclined to communicate more effectively with the leadership.

How do simulations within virtual worlds support global and professional communication in a virtual/geographically distributed context?
The participants of this research reported higher levels of exchange, engagement and leader-member exchanged. The participants did not put as much pressure on the leader when they were operating inside of Second Life as compared to when they were operating in GoToMeeting/Training. The research would suggest that the heightened sense of the individual's awareness of both themselves and the other team members made for more meaningful communication engagement and interaction.

How does the environment that knowledge work takes place in, both physically and virtually, affect distributed work?
The research addressed an interesting aspect to what exactly an environment is and what it means to team members to be in an "environment" or not. Some of the participants did not recognize GoToMeeting/Training as an environment and discussed it as if it were like using a telephone. The findings could support that maybe environments are places were meaningful rapport is built and tools are more processing information and solving problems.

7 Future Research Implications

The research conducted here suggests that there are many different components to understanding team communication and nonverbal interaction. The findings suggest that a study with more teams provide quantitative data that can provide clarity about the qualitative results. Would instruments that gage the relationships and levels of engagement experiences by virtual team members support what was observed with this pilot? More research should be conducted on the effects of avatars on team collaboration not only in terms of engagement, but in relation to the appearance of the avatars used. In Second Life the users have the option to not only be humanoid in appearance, but they can also be animals and fictitious characters like vampires and vehicles.

8 Conclusions

The results of this study and the continued research being conducted can be joined to question the practicability and maximization of the utilization of avatar-based collaborative environments for the purposes of meaningful virtual team building and telework

(Boughzala et al., 2012; Lohle, 2012) The next phase of the research into the differences between avatar-based collaborative environments and audio/video environments like GoToMeeting/Training is a larger scaled study that will include more small teams of international participants across the globe. The researcher will limit the use of having both groups of teams switch mediums and only have users report on experiencing the first medium. The quantitative measures will include the Pearson correlation to determine relationships between engagement and leader-member exchange.

References

1. Aldrich, C.: The Complete Guide to Simulations and Serious Games: How the Most Valuable Content Will be Created in the Age Beyond Gutenberg to Google, p. xxi. Wiley, San Francisco (2009)
2. Bailenson, J.N., Blascovich, J.: Infinite Reality. Hape Collins, New York (2011)
3. Bartlett, C.A., Beamish, P.W.: Transnational management: text, cases, and readings in cross-border management, 6th edn. McGraw-Hill/Irwin, New York (2011)
4. Bosch-Sijtsema, P.M., Fruchter, R., Vartiainen, M., Ruohomäki, V.: A Framework to Analyze Knowledge Work in Distributed Teams. Group & Organization Management 36(3), 275–307 (2011), doi:10.1177/1059601111403625
5. Boughzala, I., de Vreede, G.-J., Limayem, M.: Team Collaboration in Virtual Worlds: Editorial to the Special Issue. Journal of the Association for Information Systems 13(10), 714–734 (2012)
6. Callen, D.: How intercultural teams drive success in global virtual teams. Graziadio Business Review 1(4) (2008)
7. Cash-Baskett, L.J.: Global virtual team members' perceptions of leader practices. Argosy University/Sarasota Ed.D., Argosy University/Sarasota, United States – Florida. ProQuest database (2011)
8. Cateora, P., Gilley, M., Graham, J.: International Marketing, 15th edn. McGraw-Hill, New York (2011)
9. Gillath, O., McCall, C., Shaver, P.R., Blascovich, J.: What can virtual reality teach us about prosocial tendencies in real and virtual environments? Media Psychology 11(2), 259–282 (2008), doi:10.1080/15213260801906489
10. Griffin, E.A. (ed.): Communication in our lives, 5th edn. Wadsworth/Cengage Learning, Boston (2009)
11. Hoch, J.: Shared Leadership and Innovation: The Role of Vertical Leader ship and Employee Integrity. Journal of Business & Psychology 28(2), 159–174 (2013), doi:10.1007/s10869-012-9273-6
12. Jex, S.M., Britt, T.W.: Organizational psychology: a scientist-practitioner approach, 2nd edn. John Wiley & Sons, INC., Hoboken (2008)
13. Kaplan, A.M., Haenlein, M.: The fairyland of Second Life: Virtual social worlds and how to use them. Business Horizons 52, 563–572 (2009), doi: 10.1016/j.bushor,07.002
14. Kark, R.: Games Managers Play: Play as a Form of Leadership Develoment. Academy of Management Learning & Education 10(3), 507–527 (2011)
15. Lohle, M.F.: Implications for Real Project Management Success: A Study of Avatar Identity as an Antecedent of Virtual Team Trust. Ph.D., Nova Southeastern University, United States – Florida (2012)
16. Mehrabian, A.: Communication without words. In: Mortensen, C.D. (ed.) Communication Theory, 2nd edn., pp. 193–200. Transaction Publishers, Piscataway (2008)

17. Meyer, E.: The four keys to success with virtual teams (2010), http://www.forbes.com/2010/08/19/virtual-teams-meetings-leadership-managing-cooperation.html (retrieved May 20, 2011)
18. OECD. Virtual Worlds: Immersive online platforms for collaboration, creativity and learning. OECD Economy Papers, 49 (2011)
19. Osland, J.S.: Leading global change. Routledge, London (2008)
20. Poole, M.S., Hollingshead, A.B. (eds.): Theories of small groups: interdisciplinary perspectives. Sage Inc., Thousand Oaks (2005)
21. Richardson, R.A.: The relationship between perceived social presence and development of interpersonal trust in a virtual environment. 3555180 Ph.D., Capella University, United States – Minnesota. ProQuest Dissertations & Theses A&I; ProQuest Dissertations & Theses Full Text database (2013)
22. Schackman, D.: Avatars in a virtual Diaspora: Developing a theory of cultural ties and identityin Second Life. Ph.D. 3459385, Syracuse University, United States – New York. ProQuest Dissertations & Theses A&I database (2010)
23. Shekhar, S.: Understanding the virtuality of virtual organizations. Leadership & Organization Development Journal 27(6), 456–483 (2006), doi:10.1108/01437730610687755
24. Shroff, R.H., Deneen, C.C., Ng, E.M.W.: Analysis of the Technology Acceptance Model in Examining Students' Behavioural Intention to Use an e-Portfolio System. Australasian Journal of Educational Technology 27(4), 600–618 (2011)
25. White, K., Rosimilia, T.: Developing global leadership: How IBM engages the workforce of a globally integrated enterprise (I. G. Business, Trans.) (2010)
26. Witmer, B., Singer, M.: Measuring Presence in Virtual Environments: A Presence Questionnaire. Presence, 7, 225–240 (1998), doi: citeulike-article-id:4444937
27. Yee, N., Bailenson, J.N.: The Difference Between Being and Seeing: The Relative Contribution of Self-Perception and Priming to Behavioral Changes via Digital Self-Representation. Media Psychology 12(2), 195–209 (2009), doi:10.1080/15213260902849943
28. Yukl, G.: Leadership in organizations, 7th edn. Prentice Hall, Upper Saddle River (2010)