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# **Emergent leadership, Gender, and Culture: The Case of Sri Lanka**

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## **Abstract**

Organizations are increasingly making use of technology to put together people from different geographic areas to collaborate and communicate in order to accomplish assigned tasks. Such virtual work arrangements are not limited by country borders. These virtual team arrangements require many new work practices including more proactive individual participation – or emergent leadership. While emergent leadership has been studied extensively in North America, much less work has been done in other cultures. In this paper we report the findings from a longitudinal study of emergent leadership behavior in virtual project teams in Sri Lanka with special attention paid to the role of gender. Similar to North American studies we found that technology helped level the playing field for women enabling them to engage in emergent leadership behavior.

Key words: Emergent leadership, CMC, national culture

## INTRODUCTION

While a number of antecedents and consequences of leadership in co-located teams have been identified in the literature, successful computer-mediated leadership is likely different (Bell and Kozlowski, 2002). For instance, successful virtual leaders are likely to coach (O'Connell, Doverspike and Cober, 2002) or facilitate (Cascio, 1999) rather than direct team members' behavior. These styles may be more successful because virtual team leaders often have no choice but to distribute and delegate leadership functions and responsibilities to team members (Bell and Kozlowski, 2002). Taking such a facilitative approach to leadership means team members must be willing to emerge as leaders – taking individual responsibility for meeting team goals.

An individual's willingness to engage in emergent leadership behavior is driven by a number of individual characteristics including gender and culture. Previous research suggests a man's chances of emerging as a leader in a collocated group are great than a woman's (Eagly and Karau, 1991). However, computer-mediated communication (CMC) can serve to level the playing field for women potentially increasing their opportunities to also emerge as leaders (Klein and Dologite, 2000). National cultures can differ with respect to accepted roles of superiors and subordinates, use of hierarchy and participation, communication style, assumptions about motivation, and basic values in decision-making (Hofstede, 1980). Further, culture can impact an individual's views about teamwork and willingness to be empowered or work in a self-managed team (Kirkman and Shapiro, 1997).

Finally, it is important to consider time when studying leader emergence in computer-mediated groups for three reasons. First, leadership takes time to develop (Van Dierendonck, Haynes, Borrill, and Stride, 2004). Second, behaviors attributable to demographic differences within a team may dissipate over time (Harrison, Price, Gavin and Florey, 2002) thus any differences in leadership behavior between men and women may disappear with prolonged interaction. Third, and finally, relational development takes longer to emerge in CMC contexts compared to face-to-face (Chidambaram, 1996) suggesting the willingness of team members to engage in extra-role behaviors such as emergent leadership may take longer to surface.

We conducted a longitudinal experiment utilizing MBA students at the Post-Graduate Institute of Management in Colombo, Sri Lanka. These students participated in a computer-mediated team task with phased deliverables. *Yahoo!Groups* was the collaborative technology used to support team interactions and all messages were captured for analysis. Findings are presented focused on developing a better understanding of leadership emergence among men and women.

## LITERATURE REVIEW

The theory of Behavioral Complexity in Leadership (BCL) (Hooijberg 1996) posits that the people who are perceived as effective leaders are those who can selectively engage in behaviors—drawn from a broad behavioral repertoire—based on the needs of the situation at hand, a capability referred to by Hooijberg (1996: pg. 921) as “behavioral differentiation.” Further, Denison et al (1995) used Quinn's (1984) competing values framework as a method for classifying the behaviors in a leader's repertoire. The original set of eight behaviors (i.e., broker, innovator, director, producer, monitor, facilitator, coordinator, and mentor) has more recently been factor analyzed into two dimensions: socially-oriented (innovator, facilitator, mentor), and task-oriented (broker, director, producer, monitor, coordinator) (Vilkanis and Cartan, 2006). While BCL and the competing values framework were conceived of for use in traditional face-to-face leadership settings, they have also been applied to the context of computer-mediated teams in recent years (Carte, Chidambaram, and Becker, 2006). Conceiving of leadership behaviors as either task focused or socially focused was first introduced by Bales (1950) and developed in the Ohio State studies on leadership (Hemphill and Coons 1957).

### Leadership Behavior and Gender

Social role theory argues that leaders' behaviors are influenced by their specific positions in a hierarchy and the constraints of their gender roles – the shared beliefs that apply to individuals on the basis of their gender. As such, leaders elicit expectancies based on subordinates' or colleagues' categorization of them as male or female (Eagly

and Johannesen-Schmidt 2002). Generally, men are believed to be more self-assertive and motivated to master their environment (e.g., more aggressive, independent, self-sufficient, forceful, and dominant), while women are believed to be more selfless and concerned with others (e.g., more kind, helpful, understanding, warm, sympathetic, and aware of others' feelings). Further, Eagly and Karau (2002) argued that gender roles influence leader behaviors not only because people *react* to leaders in terms of gender expectancies, but also because most people have internalized gender roles to some extent and *behave* accordingly (Wood, Christensen et al. 1997). Thus men and women have different expectations for their own behaviors in organizational settings (Ely 1995), and female leaders' efforts to accommodate their behaviors to conflicting demands of gender roles and leader roles make them behave in a different way compared with their male counterparts (Eagly and Karau, 2002). Empirical evidence supports social role theory. Eagly and Johnson's (1990) meta-analytic review suggested women lead in a more interpersonally-oriented leadership style and men lead in a more task-oriented style.

### **Leadership, Gender and Culture**

House's cross-cultural leadership theory asserts that expected, accepted and effective leader behavior varies by cultures. According to this theory, the importance placed on, and effectiveness of, socially- and task-focused leader behaviors are contingent on the culturally endorsed implicit theories of leadership (CILTs) of the broader social system (House, Wright, and Aditya, 1997). One of the more well-known culture dimension frameworks is Hofstede's culture dimensions: power distance, individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance, and long vs. short term orientation (Hofstede, 1980). Sri Lankan culture has been characterized on these dimensions as high on power distance, high on uncertainty avoidance, collectivist and nurturing (Weathersby, 1993) – virtually the opposite of North America. High power distance and uncertainty avoidance create resistance to empowerment and self-managed teams; collectivism facilitates empowerment as does the nurturing dimension (Randolph and Sashkin, 2002). However, more nurturing cultures can lead to a greater focus on team development and not enough on team performance. A review of leadership literature shows there is a lack of research about the interaction of gender and culture. It is possible gender differences are salient in one culture but not that salient in another.

### **Leadership, Gender, and Technology**

Research about gender differences in leadership style in the context of computer-supported teams has two contrasting theories, namely the equalization hypothesis and the social identity model of de-individuation effects (SIDE). The equalization hypothesis states that CMC minimizes inequalities between group members and leads to more equal levels of influence than those that occur in face-to-face teams ((Dubrovsky, Kiesler et al. 1991). Two main explanations for equalization are: first, social cues often available in face-to-face interactions are dampened by CMC (Sproull and Kiesler 1992). Thus organizational members are less aware of status differences and feel less inhibited about contributing information and sharing ideas. Second, the opportunity for simultaneous input makes it easier for all members to contribute (Dennis, Hilmer et al. 1998)

Some empirical research supports the equalization hypothesis. For example, Dubrovsky, et al., (1991) found that status inequalities were significantly reduced when groups used e-mail to communicate. In examining gender, Lind (1999) found that, compared to men, women in CMC teams perceived their teams as more inclusive and supportive. (Bhappu, Griffith et al. 1997) examined the effects of communication dynamics and media in diverse groups, and found that individuals in face-to-face groups paid more attention to in-group/out-group differences in terms of gender than those in CMC groups.

On the other hand, the SIDE model suggests that when individuation is difficult or impossible, as in CMC teams, behavior could be more gender stereotypical because if individuation is hindered, one might find more stereotypical behavior rather than less (Postmes, Spears et al. 2002). This idea also received support in some empirical research. For example, (Weisband 1994) found that status differences increase as a result of anonymous interaction in CMC contexts. Similarly, (Owens, Neale et al. 2000) argued that CMC groups tend to recreate hierarchies in an attempt to preserve status differences. Also, research suggests that status hierarchies may be retained due to the behaviors of high-status members such as talking more, perceiving their contribution as greater, and rating themselves more highly (Weisband, Schneider et al. 1995). Thus the context of CMC teams may not eliminate gender-based differences.

Given the competing literatures and empirical findings, we examine the questions:

*R1: In computer-supported teams, do men and women engage in different emergent leadership behaviors?*

*R2: If differences exist, do they dissipate over time?*

## METHODS

Subjects in our study were 132 students (male=85, female=47) enrolled in an MBA course within a premier MBA program in Sri Lanka. This institution attracts high-quality, experienced managers into its MBA program and all courses are taught in the evening so that students may maintain their fulltime employment while completing their MBA. As such, the use of these students does not come with some of the usual concerns about using students as surrogates. All subjects were assigned into 25 groups; 18 five-member groups and 7 six-member groups. As part of their course assignments, the groups were asked to complete 4 case assignments over 8 weeks with the deliverables equally spaced two-weeks apart. An initial survey was administered to collect demographic data.

### Research Procedures

While these teams were collocated, they were asked to complete the assignment using only *Yahoo!Groups*, a commercially available Web-based groupware tool, for communicating with each other and posting project deliverables. Each team had a shared workspace in *Yahoo!Groups*, similar to a discussion board, which was accessible only to those team members and the instructor as well as a space for sharing files. A survey was administered to capture the extent to which the task was completed virtually. The responses indicated that the groups used *Yahoo!Groups* for the majority of their interactions.<sup>1</sup> Griffith and colleagues (2001) referred to this configuration as a hybrid team or group.

The communication exchanges were archived and downloaded for coding. Messages exchanged were read and incidents of leader behaviors were identified within each message. Thus, the coding unit of analysis was an incident of actual leadership behavior within each message. The Leaderplex model (see Figure 1) was used to guide our coding because previous work has been done to develop a coding scheme along these eight dimensions (see Carte, et al, 2006). Following the previous work on a two-factor solution and coding guidance for the eight behaviors, we coded behaviors engaged in by our participants as socially oriented if they demonstrated properties of facilitating, mentoring, or innovating, and we coded them as task oriented if they demonstrated properties of brokering, producing, directing, coordinating, or monitoring. A coding sample is provided in Table 1. The two dependent variables used in our analysis, task-focused leadership and socially-focused leadership, are sums of the number of leadership behaviors an individual engaged in within each category (i.e., task or social) within each of the four time periods between each deliverable. Our data analysis was conducted at the individual level. Coding was conducted by two coders and inter-rated agreement was above .80. In all, 2742 messages were exchanged and subsequently coded.

Two control variables were included in our analysis. According to Kanter (1977), the relative proportion of men and women in a group is a critical determinant of behavior, thus we controlled for gender composition which we defined as the proportion of members in an individual's team who are of the same gender as the individual (i.e., low number indicate minority members, high numbers indicate majority members). Further, personality has been previously linked to emergent leadership behavior. The Big 5 personality items were captured on a survey and used as a control in our analysis.

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<sup>1</sup> The participants were asked what percentage of their team's interactions occurred using phone calls, face-to-face meetings, and/or impromptu meetings. On average, respondents indicated that their teams used these alternative channels for less than 10% of their interactions and than 90% of interactions took place over *Yahoo!Groups*.

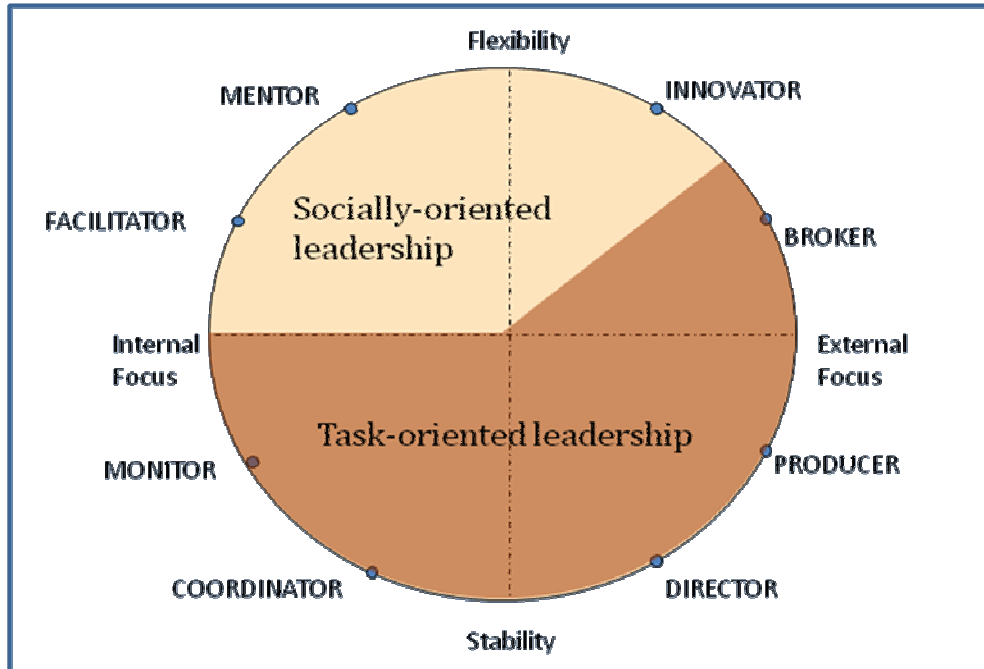


Figure 1 Leaderplex Model based on Behavioral Complexity in Leadership (BCL)  
 Source: Adapted from Denison, Hooijberg, and Quinn, 1995

Socially-oriented behavior	
Facilitator	"Can I have some feedback on Q3 and Q4, i am not sure whether i have got the idea right?"
Mentor	"A simple suggestion: Why don't you use another browser."
Innovator	"I designed a silly quick poll to see the functionality of it. Please participate if you can today so we can see how this works "
Task-oriented behavior	
Broker	"This document is from Davenport and team which explains al points in Table 10.2"
Producer	"I will take charge of question number 3"
Director	"...pls comment and check the flow of the answer"
Coordinator	"...since we are running out of time we should start working asap."
Monitor	"I think it is maximum 3 pages that we can write. In this case, we may need to trim our answer a bit."

Table 1: Sample coding

**Data Analysis and Results**

Data for the study was collected on the same individuals over four equally spaced time periods yielding a repeated measures generalized linear model (GLM) analysis. GLM is a flexible generalization of ordinary least squares regression that is particularly appropriate for count or categorical dependent data. The dependent variables in our study are counts (sum of leadership behavior shown in each period). The Poisson distribution is widely used to represent count data in GLM provided the variance and mean of the distribution are equal. When the variance is substantially larger than the mean, as in our sample, the data are said to be over-dispersed. The two-parameter negative binomial distribution – instead of the one parameter Poisson distribution – is the preferred alternative for an over-dispersion problem. We confirmed the appropriateness of the negative binomial model by plotting the projected negative binomial frequencies generated by a theoretical process with mean and dispersion matching our base model (model with no independent variables) and found general agreement. We also checked for zero inflation

(too many zeros) by comparing the percentage of zeros in the dependent variables for each of the four time periods with the percentage expected from the negative binomial distribution and found no evidence of zero-inflation.

In our analysis, we compared four nested models. These were a base model (model with no independent variables); a model with personality variables and gender composition; a model that adds gender and time, and a model that adds the interaction of gender with time. These models are fully nested so that the difference in chi-square values provides a valid model comparison. Results appear in Table 2 and Table 3.

Table 2 results indicate that a model including gender composition, gender and time is a significant improvement over the simpler models, but the model including the interaction between gender and time only borders on significance ( $p=.07$ ). In other words, while men and women differed in their task-focused leadership behaviors, these differences only marginally vary over time. For socially-focused leadership, Table 3 shows that personality and gender composition of the team are significant, but adding the main effects of time and gender can significantly improve the model. However, adding the interaction of gender and time provides no improvement.

	Base Model	+ Personality and Group Composition	+ Gender and Time	+ Time Interaction
Chi-square	512.1431	497.353	475.442	472.3254
Difference in chi-square	...	14.7898	21.9112	3.1167
Degree of freedom	479	473	471	470
Difference in degree of freedom	...	6	2	1
p-value	...	0.021956*	1.75E-05***	0.070312935

**Table 2: Nested Model Comparisons for Task-Oriented Leadership Behaviors**

	Base Model	+ Personality and Group Composition	+ Gender and Time	+ Time Interaction
chi-square	469.5633	452.832	433.657	436.1609
difference in chi-square	..	16.7318	19.1747	-2.5041
degree of freedom	479	473	471	470
difference in degree of freedom	...	6	2	1
p-value	...	0.010321*	6.86E-05***	NA

**Table 3: Nested Model Comparisons for Socially-Oriented Leadership Behaviors**

Table 4 and Table 5 below show the GLM coefficients for task- oriented and social-oriented leadership behaviors. The model containing all main effect variables without time interaction was identified as the most appropriate. The GLM estimates the expected number of leadership behaviors for an individual with the observed characteristics. Positive coefficients indicate a likelihood of an increased expected number of behaviors. Both Table 4 and Table 5 show a negative coefficient for time in the main effects model, indicating that there is a tendency for people to engage in fewer leadership behaviors as time increases. Also, our results show the impact of gender on task-oriented leadership is almost significant ( $p= 0.0976$ ). Both tables also show significant positive coefficients for conscientiousness, suggesting that significant positive scores lead to an increased expected number of behaviors and the task-oriented model shows a significant negative score for openness to experience suggesting this trait reduces one’s likelihood of engaging in task-oriented leadership. The results for the final column (adding a time and gender interaction) are presented for information only for the socially-oriented behaviors, because the model was not a significant improvement over the models without interaction.

	Base Model	+ Personality and Group Composition	+ Gender and Time	+Time Interaction
Gender Composition		0.2706	0.3411	0.3433
Gender			-0.221	0.2855
Time			<b>-0.3063***</b>	<b>-0.1726*</b>
gender*time				<b>-0.2177*</b>
Agreeableness		0.1345	0.1175	0.1179
conscientiousness		<b>0.2829*</b>	<b>0.2784*</b>	<b>0.2796**</b>
Extraversion		-0.0584	-0.092	-0.0879
Neuroticism		<b>-0.1452*</b>	-0.1028	-0.1104
Openness		-0.1874	<b>-0.2056*</b>	-0.1966

**Table 4: Influence of Dependent Factors on Task Oriented Leadership Behaviors**

	Base Model	+ Personality and Group Composition	+ Gender and Time	+ Time Interaction
Gender Composition		-0.1122	-0.0546	-0.0495
Gender			-0.0915	0.4417
Time			<b>-0.3835***</b>	<b>-0.2347*</b>
gender*time				-0.2422
Agreeableness		-0.0481	-0.056	-0.0467
conscientiousness		<b>0.3595*</b>	<b>0.3458*</b>	<b>0.3462*</b>
Extraversion		-0.1697	-0.1765	-0.1762
Neuroticism		-0.0736	-0.0398	-0.0397
Openness		-0.1475	-0.1601	-0.1554

**Table 5: Influence of Dependent Factors on Social Oriented Leadership Behaviors**

**Discussion**

The broad categorization of leadership behaviors as task-focused or socially-focused can be found in the leadership literature – sometimes labeled initiating structure versus consideration or production-centered versus employee-centered behaviors (see for example, Judge, Piccolo and Hies, 2004). While recent work suggests that successful leadership is a function of overlapping attention to task performance and the social needs of the group (e.g., Judge et al., 2004); meta-analysis of prior studies of gender and leadership found that men emerge as leaders in task-focused situations and women emerge as leaders in socially-focused situations (Eagly and Karau, 1991). Participants in our computer-mediated teams demonstrated more balanced engagement – there were no gender-based differences in socially-oriented leadership and the women in our teams engaged in more task leadership over time than the men. As such, our findings may be best viewed as a first step in understanding how technology may be used to produce a more balanced engagement in task- and socially-oriented leadership by men and women alike. From this perspective, we discuss our results.

Social role theory (Eagly, 1987) suggests and recent meta-analysis (Eagly and Karau, 1991) supports gender differences in leader emergence. Focused on small, initially leaderless groups, these researchers argued that men will emerge as leaders more often than women, but this relationship may be moderated by task congruence. When



the group task is more communal, women are more likely to emerge as leaders. Contrary to previous studies, our study shows there is no significant difference between men and women in neither task-focused nor socially-focused leadership behaviors providing some support for previous findings in the equalization hypothesis stream of research.

A possible explanation for our findings may rest in the nature of the task. Stereotypic behaviors emerge when self-categorization or stereotypes are evoked (Lee and Spears, 1991); as such, for gender differences to emerge the context of our research design needed to evoke the gender role. The virtual working environment filters out many social status cues making individuals feel anonymous, potentially resulting in more equal participation across many subgroups including gender (Dubrovsky, Kiesler et al. 1991; Bhappu, Griffith et al. 1997). Gender differences in our study may not have been salient enough to make members feel constrained by gender norms. Although, when these results were presented to the participants (one year after the experiment concluded) one of the male participants suggested the men may have been aware that their particular style of leadership did not translate easily into the virtual context and perhaps they attempted to communicate more in impromptu face-to-face encounters. Women did not express similar sentiments. So, perhaps the use of collaborative technology did facilitate more equal participation in group leadership among men and women. However, the interaction term in the task-focused analysis was significant (P-value=0.0111) and is illustrated in Figure 2. The pattern of results demonstrated shows women engaging in more task leadership than men later in the group’s life.

It is also interesting to note that the interaction term in the socially-oriented analysis bordered on significance (P-value=0.0683). These behaviors are portrayed graphically in Figure 3. As shown, men in our study actually engaged in more socially-oriented leadership than women in the first time period and then it dropped to almost zero by the end of the study. In fact, if we compare figures 2 and 3 we see that men engaged in more task and socially-focused leadership early on but by the mid-point women were engaging in more of both. Suggesting, over time the gender differences as prescribed by social role theory not only dissipated but were overcome. These findings not only support an equalization effect potentially resulting from technology use, they suggest even stronger potential gains among minority participants.

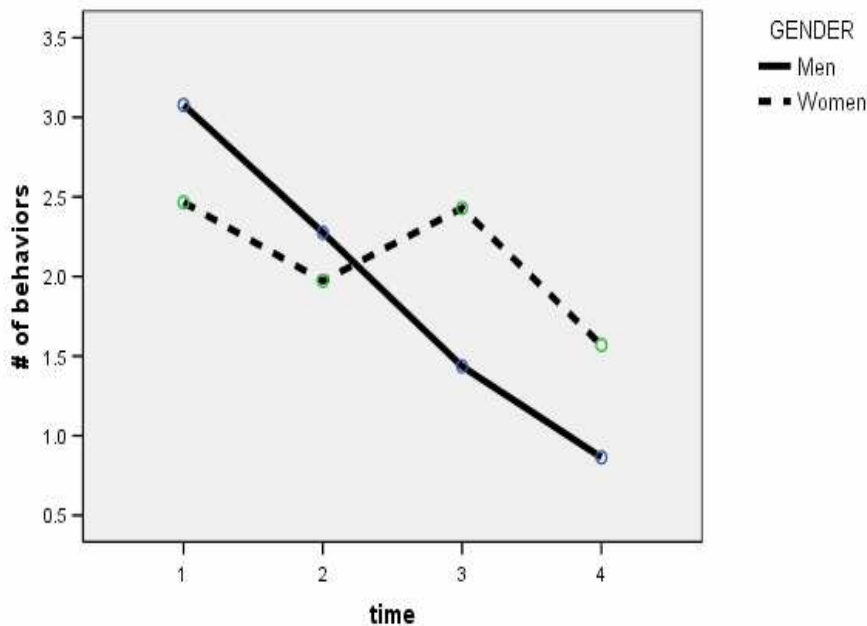
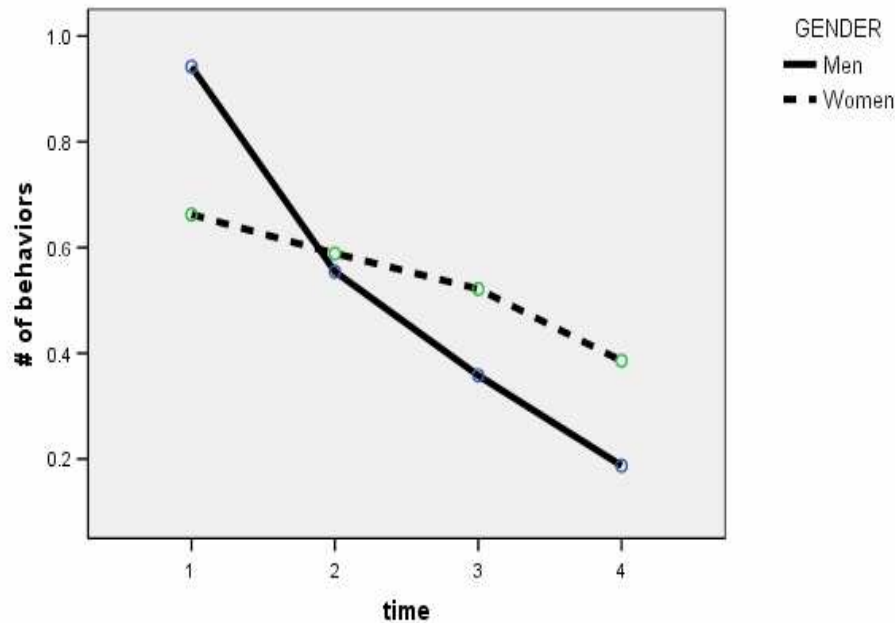


Figure 2 Interaction of task-focused leadership and gender



**Figure 3 Socially-focused leadership, gender, and time**

Our results also provide some insights into the effect of personality dimensions on emergent leadership behaviors – specifically conscientiousness and openness to experience were associated with emergent leadership behavior. A recent meta-analysis about personality and leadership found among the Big 5 dimension extraversion most consistently correlated with leadership (Judge, Bono, Ilies, and Gerhardt, 2002). Conscientiousness displayed the second strongest correlation with leadership. However, in our study, extroversion does not have a significant positive effect on leadership, but conscientiousness does and openness to experience is negatively related. A possible explanation for this is the virtual working environment makes it hard for extrovert people to assert themselves, but the organizing activities of conscientious individuals allow them to quickly emerge as leaders. Openness to experience has previously been linked to intention to use technologies whether the technology was perceived to be useful or not suggesting that open people are likely to engage in technology use to satisfy their curiosity rather than due to perceived utility (Devaraj, Easley, and Crant, 2008, 2008) suggesting our openness to experience participants may have engaged in exploration rather than task-focused behaviors.

Finally, our data were collected in Sri Lanka. Some dimensions of Sri Lankan culture are virtually the opposite of North American culture. Gender roles within different cultures can vary greatly. Sri Lanka, in fact, elected the world’s first female Prime Minister – Sirimavo Bandaranaike in 1960. So, perhaps women feel more empowered in this culture to freely engage in leadership behaviors absent a less assertive role expectation. A cross-cultural comparison of gender and leader emergence is an area ripe for future research.

As with any research, our study has limitations. Our data are collected from students in a highly selective MBA program. As such they are unlikely to be representative of all Sri Lankans making generalizability a bit of an issue. Our findings are consistent with studies conducted in North America (c.f., Chidambaram, Carte, and Lim, 2006). As such, our sample may be more generalizable to North America than to Sri Lanka. In order to draw conclusions about how Sri Lankans and/or Americans might behave online, a better understanding of with which cultural values these participants most align would be useful. Our study also gives direction for future research. Our data are limited to Sri Lankans, a cross-cultural comparison might be interesting.

**CONCLUSION**

Can technology level the playing field? Much has been written about this. Our findings suggest the introduction of computer-mediated communication into group interactions can provide women an opportunity to engage in assertive behaviors potentially outside of their social role expectations. Previous research suggests that women are more likely to engage in less assertive, socially-oriented leadership while men engage in more assertive, task-oriented leadership at least partially due to social role expectation associated with gender. In our study this was not the case. The women in our study engaged in both socially-oriented and task-oriented leadership behaviors at level equivalent to their male counterparts. Given the volume of previous studies linking leadership to positive team outcomes, including a need for task-focused behaviors in virtual teams (Zimmerman, Wit, and Gill, 2008), we encourage future studies focused on the use of technology to investigate other drivers of emergent leadership behaviors. We believe the answer to our above question – can technology level the playing field – is yes.

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