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Gender Differences in Participatory Leadership: An Examination of Principals' Time Spent Working with Others

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Abstract The purpose of this study was to examine whether female principals have a more participatory style compared to their male counterparts by examining principals' daily time allocation patterns. The study analyzed data from End of Day (EOD) survey logs from principals in an urban school district in the United States. Results from hierarchical linear modeling (HLM) showed that female principals, when compared to male principals, spent a higher proportion of their time working with others in planning/setting goals. At the same time, there were no differences in how principals allocated their total time working alone or working with others and their time distribution in other leadership domains. The findings suggest that gender differences in leadership style depend on specific activity domains and that there are significant differences in the key domain of strategic planning.

Keywords Principal practice; Gender differences; End of Day (EOD) survey; Leadership style; Hierarchical linear modeling

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Introduction

With increasing numbers of women moving into leadership positions in business and management (Eagly & Carli, 2003; Hoyt, 2013; Hoyt & Simon, 2016), possible gender based differences in leadership style and effectiveness have developed into a significant field of study (Hoyt, 2013; Hoyt & Simon, 2016). While the popular press has often portrayed women as having some superior leadership qualities in comparison to men (see, e.g., Book, 2000; Helgesen, 1990; Rosener, 1990; Sharpe, 2000), in empirical research, there is less support for significant differences in leadership based on gender (Powell, 1990; Vecchio, 2002). The findings of research studies on gender and leadership display considerable diversity (Hoyt, 2013; Hoyt & Simon, 2016). Results from meta-analyses do suggest that women lead in a more democratic and participatory manner in comparison to men (Eagly & Carli, 2003; Eagly & Johnson, 1990; van Engen & Willemsen, 2004). Female leadership has also been described as more consistent with the transformational leadership style which focuses on leaders' ability to be good role models, inspire, stimulate, and support their followers (Eagly & Carli, 2003; Eagly, Johannesen-Schmidt, & van Engen, 2003; van Engen & Willemsen, 2004).

In the specific context of school administration as well, increasing numbers of women have been entering leadership positions (Bitterman, Goldring, & Gray, 2013; Gates, Ringel, Santibañez, Ross, & Chung, 2003; Kowalski, McCord, Petersen, Young, & Ellerson, 2011; Oplatka & Hertz-Lazarowitz, 2006). In reviewing existing research on gender based differences in school leadership styles, Oplatka and Hertz-Lazarowitz (2006) argue that the diverse and often contradictory results from this research diminish the validity of claims of gender related differences in leadership. Furthermore, they note that differences in methods used in studies (surveys, observations, and interviews) might account for some of the inconsistent findings. This suggests that more research using diverse data and new sources of information could add clarity to the existing empirical literature base. In this study, we utilize a novel source of data—school principals' actual time use—measured with End of Day (EOD) logs to compare time allocation patterns of male and female principals. The EOD log is an online survey instrument that allows principals to log information on each hour of a working day, describing which function or domain they worked on (e.g., building operations, finances, district matter, student affairs, etc.) and who they worked with (Camburn, Goldring, Sebastian, May, & Huff, 2015; Camburn, Spillane, & Sebastian, 2010). Principals from an urban school district filled out this survey during entire work weeks, at seven different points in time, in between Spring 2005 and Spring 2007. Utilizing these data, which capture principals' daily time allocation patterns, we ask the following questions:

1. Are male and female principals different in their time allocation patterns on different activity domains?
2. Do female principals spend a greater proportion of their time working with others (especially teachers) in comparison to male principals?

Literature Review

Interest in gender based differences in the behaviors and styles of school leaders dates back to the 1970s (for a review, see Eagly & Carli, 2003; Eagly, Karau, & Johnson, 1992; Oplatka & Hertz-Lazarowitz, 2006). Early studies were interested in studying the under-representation of women in educational leadership roles (see, e.g., Acker, 1989; Blackmore, 1989; Davies, 1990; Evetts, 1991; Shakeshaft, 1989). Consistent with researchers in the field of management studies at that time, school researchers focused on various conditions that acted as barriers to women's promotion into leadership positions, described as the "glass ceiling" effect, and pointed to factors such as cultural norms, societal expectations, gender based stereotypes, the dominance of male networks in leadership, and internal barriers (Cubillo & Brown, 2003; Hoff & Mitchell, 2008; Oplatka & Hertz-Lazarowitz, 2006). Eagly and Carli (2007) presented the leadership labyrinth metaphor to capture barriers faced by women in all stages of their career, as an alternate to the image of glass ceiling, since the ceiling imagery could suggest that obstacles exist only at the top. The under-representation of women in school leadership positions was also likely a factor that initially influenced early research examining gender and leadership styles (Eagly et al., 1992).

Although men still retain a majority in school administrative positions, the proportion of women attaining leadership roles has steadily increased since the 1990s in the U.S. (Bitterman et al., 2013; Grogan & Brunner, 2005; Oplatka & Hertz-Lazarowitz, 2006; Shakeshaft, 1999). The percentage of female principals in public schools was 52 percent in 2012 (Bitterman et al., 2013), whereas it was only 25 percent in 1988 (Gates et al., 2003). Among school superintendents, women represented about 6 percent of public school superintendents in 1992, and 13 percent in 2000 (Gates et al., 2003); in 2010, the percentage increased to 24.1 percent (Kowalski et al., 2011). With increasing numbers of women working in school administration positions, research examining gender based differences in school leadership has also concurrently developed into a significant field of study (Oplatka & Hertz-Lazarowitz, 2006). It is important to note here that leadership research distinguishes gender from sex; gender can be seen as culturally and socially created whereas the latter is considered to be mainly biologically derived (Pounder & Coleman, 2002). This distinction allows for males to display female gender leadership qualities and vice-versa; still, most studies tend to equate the two and have focused primarily on differences between men and women leaders. Many studies examining gender based differences in leadership use the sex of the principal rather than measures reflecting gender as a social construction (Grissom, Nicholson-Crotty, & Keiser, 2012); this conflation is reflected in the review of relevant literature in the following sections.

Existing literature in both general management and education research provides varying expectations for whether or not leadership styles differ according to gender. There are three contrasting leadership themes which are often discussed in empirical research on this topic: democratic (participatory) versus autocratic (directive); relationship-oriented and task-oriented; and transformational and transactional. Democratic leadership is distinct from autocratic leadership in that leaders allow and encourage participation in decision-making processes (Bass & Stogdill, 1990; Eagly

& Carli, 2003; Gastil, 1994). Whereas task-oriented leaders tend to put emphasis on completing tasks, leaders that are relationship oriented look out for the well-being of followers (Northouse, 2016). Transformational leaders serve as role models for group members, and empower and encourage them to be creative and improve their capabilities, while transactional leaders are characterized by emphasizing the exchange of rewards and monitoring group members' performance for mistakes (Avolio, 1999; Bass, 1985, 1998; Eagly et al., 2003; Leithwood & Jantzi, 2005).

These contrasting leadership styles have often been associated with the gender of leaders. Women leaders have been described as more democratic, relationship oriented, and transformational. These leadership styles have been attributed to stereotypical feminine traits such as being nurturing, caring, considerate, and co-operative. In contrast, male leaders have been described as autocratic, task-oriented, and transactional on the basis of stereotypical masculine traits that include assertiveness, instrumental competence, and dominance (Cuadrado, Navas, Molero, Ferrer, & Morales, 2012; Eagly & Carli, 2003; Eagly et al., 2003; Martin, 2015; Pounder & Coleman, 2002; Powell, 2012; Vecchio, 2002). Furthermore, leadership differences have been linked to gender roles as well as organizational expectations. Gender roles represent behavioral assumptions that are considered suitable for men and women (Eagly et al., 2003; Powell, 2012). Through internalizing their gender roles to some extent, women and men in similar leadership positions tend to differ in the way they carry out their roles, although they fulfill similar functions (Eagly et al., 2003).

A review of empirical evidence on differences in leadership behaviors based on gender reveals wide differences and varying conclusions regarding leadership styles and effectiveness. Some studies have demonstrated that women adopt a more democratic or participatory style in comparison to men (Eagly & Carli, 2003; Eagly & Johnson, 1990; Post, 2015; Powell, 2012). Also, studies have shown that women tend to display characteristics of transformational leadership more frequently than men (Bass, Avolio, & Atwater, 1996; Eagly et al., 2003; Martin, 2015). With regard to task- versus relationship-oriented styles, prior research has not established significant differences in real work settings (Cuadrado et al., 2012; Eagly and Carli, 2003; Eagly & Johnson, 1990; Powell, 2012), although some differences were recorded in laboratory settings (Eagly & Carli, 2003; Eagly & Johnson, 1990).

Many studies have also found that women do not lead differently from men (Cuadrado et al., 2012; Dobbins & Platz, 1986; Morgan, 2004; Powell, 1990; Robinson & Lipman-Blumen, 2003; Vecchio, 2002). These studies emphasize individual traits or role requirements over gender differences. For example, Robinson and Lipman-Blumen (2003) studied upper- and middle-level U.S. managers and found no significant gender differences in most styles examined. However, female managers showed more task-oriented leadership than their male counterparts. While men displayed some passive styles, men and women were equally collaborative. Cuadrado and her colleagues (2012) found that male and female leaders exhibited no significant leadership differences, but female leaders were perceived as being more autocratic and negotiating than men. Researchers have argued that similarities between male and female leaders can be explained by similarities in the criteria in the selection process of male and female leaders and by the organizational socialization they are

subject to (Eagly & Johnson, 1990). Also, research shows that both men and women can embrace masculine/feminine styles in management (Coder & Spiller, 2013).

Research on differences in leadership styles is closely linked to whether women can be more effective, as leadership behavior is considered to be an important determinant of leadership effectiveness (Eagly & Carli, 2003; Lowe, Kroeck, & Sivasubramaniam, 1996). Scholars who support the notion of inherent differences in leadership behaviors on the basis of leaders' gender tend to describe leadership effectiveness in terms of a female advantage (Eagly & Carli, 2003; Eagly et al., 2003; Yukl, 2010). As successful organizations are said to adopt more transformational and democratic models and such styles are increasingly correlated with effectiveness, women whose leadership styles are more aligned with such models could be more effective than male counterparts (Bass et al., 1996; Eagly & Carli, 2003; Powell, 2012). Scholars who do not support the notion of inherent gender based differences in leadership styles suggest that a gender advantage approach simply reinforces gender role stereotypes by offering a simplistic view of leadership that has not been proven empirically (Coder & Spiller, 2013; Powell, 1990; Robinson & Lipman-Blumen, 2003; Vecchio, 2002).

Overall, empirical research on gender and leadership effectiveness has not shown conclusive evidence of significant differences (Coder & Spiller, 2013; Vecchio, 2002). A few studies on transformational leadership have found a small advantage in female leadership (Bass et al., 1996; Eagly et al., 2003), while other studies have proposed that the leadership context is an important consideration (Eagly & Carli, 2003; Eagly & Johnson, 1990). Eagly and Carli (2003) suggested that women were less effective in comparison to men when leadership roles were aligned with masculine traits and when there were more males as leaders and subordinates in the organization.

Their study found women to be modestly more effective in education, government, and social service settings, and in middle-level management positions that favor interpersonal skills. Research specific to school principals also offers contrasting views with regard to gender based differences in styles and effectiveness. Similar to findings in general management, some studies in school leadership research show that female principals adopt a more participatory style and pay more attention to relationships than their male counterparts (Eagly et al., 1992; Fridell, Newcom Belcher, & Messner, 2009; Grace, 1995; Shakeshaft, 1989). Shakeshaft (1989) proposed that women principals approached administrative tasks differently from men in several domains, including interpersonal relationship building, focus on curriculum and teaching, and participatory decision making. Grace (1995) also showed that female principals more strongly emphasized care for students and teachers, and relationships. However, she did not find any gender based differences in leadership styles concerning power sharing and consultation; professional experiences, rather than gender, influenced the tendency to adopt relatively democratic and participatory decision-making behaviors. Fridell, Newcom Belcher, and Messner (2009) found that female principals reported higher use of servant-leadership styles, especially in four domains—daily reflection, consensus building, healing relationships, and developing sense of self-worth.

Other researchers argue that there are no meaningful differences in leadership styles of male and female school leaders. For example, Hoff and Mitchell (2008) found in their analysis of principals and school administrators that both men and women consciously adopted masculine characteristics. The researchers attributed such results to the structural and organizational features of school systems that promote leadership traits that are more masculine. Ball and Reay (2000) also emphasized structure rather than gender itself in leadership behavior differences. They found that female principals adopted "masculine" alongside "feminine" traits to adapt themselves to the marketization of education.

In summary, research on gender based differences in leadership styles and behaviors is still developing, while also emerging as a significant field of study, due to (i) the increasing numbers of women attaining principal and superintendent positions, (ii) the barriers to women's career paths that are still manifest, and (iii) suggestions raised in the popular press and research work that a feminine leadership approach is more suitable for leading today's organizations. Further research in this area using new perspectives and innovative data will contribute to a better understanding of how women can efficiently lead organizations and navigate the leadership labyrinth or disrupt the glass ceiling, and will also contribute to a better understanding of leadership styles and effectiveness.

The current study also aims to examine differences between male and female principals in leadership styles/behavior. However, in contrast to previous studies, which have mainly used annual surveys, interviews, and observations, we use EOD logs to study actual daily time allocation patterns of male and female principals. The EOD log is a unique method of studying school leadership practice using self-reported calendar data in which survey participants recount how they spent their time working across different activity domains and with different sets of people (for more detailed descriptions of the instrument, see Barnes, Camburn, Sanders, & Sebastian, 2010; Camburn & Barnes, 2004; Camburn et al., 2010; Rowan, Camburn, & Correnti, 2008). Studies have examined the validity of the log instrument in obtaining principal practice data, by comparing it to other types of data such as observations, surveys, and interviews (Camburn et al., 2010; Spillane & Zuberi, 2009). In general, these studies have concluded that the EOD instrument provides valid data that can be obtained without significant disruption of principals' work. These studies also suggest that the EOD log has relative strength compared to interviews or observations because it can gather data across larger samples.

While annual surveys can also generate data on large samples, the EOD logs are completed daily and can therefore minimize problems associated with recalling information (Spillane & Zuberi, 2009). With an efficient web interface, the EOD log can be used to capture detailed information on principal activity in specific time frames during a working day, including the type of activity, location, and with whom they worked (Camburn et al., 2010). This level of detail allows us to add greater complexity to questions about time allocation. In this study, we use EOD data to examine gender based differences not only in overall time use, but also in different activity domains, adding some nuance to the extant literature on leadership and gender based differences.

Methods

The data for this study come from an experimental evaluation of a professional development program called National Institute of School Leadership (NISL), conducted between Spring 2005 and Spring 2007 on 48 principals from a mid-sized urban school district. The results of the evaluation itself have been reported earlier (Camburn et al., 2015). The present study utilized EOD logs that were completed by all principals in the district during the evaluation period. The EOD log is a web-based instrument that captures the time principals spent throughout the day on nine different domains of leadership activity: (i) building operations, (ii) finances, (iii) community or parent relations, (iv) school district functions, (v) student affairs, (vi) personnel issues, (vii) planning and setting goals, (viii) instructional leadership, and (ix) professional growth. The domains were chosen to cover the range of principal leadership activity (Camburn et al., 2010). Principals were asked to log their daily activities during each hour of their working day (see Figure 1). Principals were provided four options to log in their time worked on any given domain: 1 = 1–14 minutes; 2 = 15–29 minutes; 3 = 30–44 minutes; and 4 = 45 minutes to 1 hour. These categories were converted into values that represented the mid-point of these categories.

Figure 1. Daily EOD log calendar

2. Please indicate when and for how long you worked on each of the following areas today. Within each hour block in which you worked on an area, indicate whether you worked on it for:

1 = 1-14 minutes; 2 = 15-29 minutes; 3 = 30-44 minutes; 4 = 45 minutes to 1 hour

	6 - 7 am	7 - 8 am	8 - 9 am	9 -10 am	10-11 am	11-12 am	12 - 1 pm	1 - 2 pm	2 - 3 pm	3 - 4 pm	4 - 5 pm	5 - 6 pm	6 - 7 pm	After 7pm
Building operations (schedules, space allocation, building maintenance, vendors)														
Finances and financial support for the school (preparing budgets, budget reports, seeking grants, managing contracts)														
Community or parent relations (formal meetings and informal interactions)														
School district functions														
Student affairs (attendance, discipline, counseling, hall/cafeteria monitoring)														
Personnel issues (recruiting, hiring, supervising, evaluating, problem solving)														
Planning/setting goals (school improvement planning, developing goals)														
Instructional leadership (monitoring or observing instruction, school restructuring or reform, supporting teachers' professional development, analyzing student data or student work, modeling instructional practices, teaching a class)														
Your professional growth (formal professional development, attending classes at college/university, reading articles or books)														
Other [please specify]														

Please specify all others in time order below

Once a principal entered any amount of time during a time block, the web based interface directed them to also enter 'with whom' they completed the particular activity. The options of personnel categories available to principals were: by myself, regular classroom teachers, teacher-leaders (coaches, facilitators, and master/mentor teachers), students, other principals, district staff, university staff, parents, community members, vendors/contractors, and other. Since the focus of this study was to compare the time principals spent working alone versus working with others, all these

categories that represented other personnel were combined together. Additionally, we also examined the time principals spent working with teachers and teacher leaders in our comparison of gender based differences. Principals completed the EOD logs during five working days during each wave of data collection. We used multiple waves of data for this study: Spring 2005, Fall 2005, Winter 2006, Spring 2006, Fall 2006, Winter 2007, and Spring 2007.

We first examined simple descriptive statistics on the time principals spent on various activity domains. Next, we compared the time principals spent working with others on various domains to examine differences based on gender. Information on gender was derived from a question pn the EOD instrument that asked the principal about their gender (Are you: male/female). Due to how the survey was formatted—providing two options for a question on the principal's gender (male/female), we were unable to go beyond a binary construction of gender. Apart from comparing the overall time principals spent working with others, we also conducted this comparison on the different activity domains. Due to the nested nature of observations, with multiple daily log entries nested within principals, simple mean comparisons are not appropriate, as entries made on different days by the same principal are likely to be related. For this reason, we used HLM to conduct our analyses. For example, to compare the proportion of time principals spent working with others on planning/setting goals, the following equations describe the analytical models we used.

Level 1: Observations (Days)

$$\textit{(Proportion of time worked on Planning/ Setting Goals with others)}_{ij} = \beta_{0j} + \sum_n^N \beta_{nj}*(\mathbf{A}_{nj}) + r_{ij} \quad (1)$$

Level 2: Principals

$$\beta_{0j} = \gamma_{00} + \gamma_{01}*(\textbf{\textit{Principal Gender}}_j) + \sum_m^M \gamma_{0m}*(\mathbf{B}_j) + u_{0j} \quad (2)$$

$$\beta_{0n} = \gamma_n \quad (3)$$

Here, **A** represents a vector of covariates at the observation/day level, which includes the day of the week and the particular wave of data collection. At level 2, or the principal level, we included a dummy variable for principal gender, using 0 to code male principals and 1 for female principals. **B** represents a vector of principal level covariates including principal experience, education level, the school size or student enrollment, percentage of white students in the school, and whether the principal had participated in NISL. We also controlled for participation in NISL because a component of the program included an emphasis on distributed leadership practices.

Results

Table 1 presents descriptive statistics on the proportion of total time principals spent on different activity domains during the course of a workday. Of the original 48 principals who participated in the study, EOD time use data were available for only 41 principals. The differences in time allocation patterns between male and female principals were not statistically significant for any of the activity domains. Male principals logged an average of 434.89 minutes on the calendar whereas female principals recorded 442.69 minutes. The difference between male and female principals on average minutes logged on the EOD calendar was also not statistically significant.

Table 1. Proportion of Time Spent by Principals on Different Activity Domains

	Male principals (n = 13)		Female principals (n = 28)	
Variable	*M*	*SD*	*M*	*SD*
Building operations	.10	.06	.07	.05
Finances	.05	.05	.05	.03
Community relationships	.11	.06	.09	.04
School district functions	.04	.04	.05	.05
Student affairs	.23	.17	.21	.09
Personnel decisions	.11	.06	.11	.09
Planning/setting goals	.09	.05	.08	.05
Instructional leadership	.16	.08	.20	.11
Professional growth	.07	.05	.04	.04

Table 2 presents descriptive statistics on how female principals differed from male principals in the proportion of time they spent working alone on specific domains. Planning/setting goals were the only domain where female principals were significantly different from male principals in the proportion of time they spent working alone. Female principals spent a lower proportion of their time working alone on planning/setting goals when compared to male principals. However, a simple comparison of means is not appropriate for the EOD data as the observations have a nested nature; observations from the same principal are likely to be similar. To account for this and to also control for potential confounding variables, we conducted multilevel regression that allows us to take into account the hierarchical nature of the log data and also include control variables at the observation and principal level.

Table 2. Proportion of time spent by principals working alone on different activity domains

	Male principals		Female principals	
Variable	*M*	*SD*	*M*	*SD*
Overall time (across all leadership domains)	.21	.09	.24	.14
Building operations	.53	.24	.37	.29
Finances	.56	.21	.49	.31
Community relationships	.11	.20	.13	.13
School district functions	.19	.27	.35	.34
Student affairs	.13	.12	.15	.15
Personnel decisions	.18	.19	.31	.28
Planning/setting goals	.36	.28	.16	.22
Instructional leadership	.16	.19	.21	.25
Professional growth	.40	.41	.40	.38

Table 3 presents the results from HLM models that estimated the proportion of time principals spent working alone on planning/setting goals. The results show that female principals spent a lower proportion of their time working alone on planning/setting goals when compared to male principals. The differences are similar for the model with no covariates (β = *-.17*, p = *.002*) and the model with additional control variables (β = *-.18*, p = *.002*).

Table 3. HLM Estimates of Proportion of Time Working Alone on Planning/Setting Goals

	Model 1		Model 2	
Variable	β	*SE*	β	*SE*
Intercept	.32***	.04	.19***	.02
Level 1 (Observation)				
Tuesday			-.04	.05
Wednesday			-.02	.05
Thursday			.05	.06
Friday			-.02	.06
Fall 2005			.07	.06
Winter 2006			.09	.08
Spring 2006			.05	.06
Fall 2006			-.01	.08
Winter 2007			-.02	.07
Spring 2007			-.06	.09
Level 2 (Principal)				
Female	-.17**	.05	-.18**	.05
Experience			.00	.00
Master's degree			.04	.05
School size			.00	.00
% White students			.00	.00
Participated in NISL			.12*	.04
Variance Components				
Level 1	.112		.109	
Level 2	.010		.008	

*p < .05. **p < .01. ***p < .001

Since female principals spent a lower proportion of the overall time in planning/setting goals working alone as compared to male principals, we also wished to know if this meant that they spent a higher proportion of their time working with teachers in the school. Table 4 presents the results from HLM models that estimated the proportion of time principals spent on planning/setting goals working with teacher leaders and regular teachers in the school. The results show that female principals spent a higher proportion of their time working with teachers on planning/set-

ting goals than male principals. The differences are similar for the model with no covariates ($\beta = .16$, $p = .02$) and the model with additional control variables ($\beta = .15$, $p = .02$).

Table 4: HLM Results of Proportion of Time Working with Teachers on Planning/Setting Goals

	Model 1		Model 2	
Variable	β	*SE*	β	*SE*
Intercept	.36***	.05	.48***	.03
Level 1 (Observation)				
Tuesday			-.03	.07
Wednesday			-.15*	.07
Thursday			-.06	.07
Friday			.09	.07
Fall 2005			-.01	.07
Winter 2006			-.13	.07
Spring 2006			-.09	.08
Fall 2006			-.14	.08
Winter 2007			-.18	.09
Spring 2007			-.16	.09
Level 2 (Principal)				
Female	.16*	.06	.15*	.07
Experience			.00	.01
Master's degree			-.06	.06
School size			.00	.00
% White students			.00	.00
Participated in NISL			-.02	.06
Variance Components				
Level 1	.188		.189	
Level 2	.014		.007	
*$p < .05$. **$p < .01$. ***$p < .001$.				

Discussion and conclusion

As increasing numbers of women move into leadership positions, research has also drawn attention to possible gender based differences in leadership styles and effectiveness. Previous research on gender and leadership styles reach varying conclusions on this question. This study provides additional nuance to the literature on gender differences in leadership style by examining actual time spent by principals in different activity domains of leadership work. We found that there were no significant differences based on principals' gender in the proportion of overall time spent working with others. However, when we examined each activity domain, we found that on

planning/setting goals, female principals spent a greater proportion of their time working with others than male principals. Thus, the domain matters for considering differences in the extent to which principals involve others in their work.

Planning and setting goals is perhaps the most important area where principals can involve others in their work, and it is in this key area that there are significant gender based differences. Prior research has already suggested that women principals invest more time and effort in building a vision for their schools and initiating change and reform (Oplatka & Hertz-Lazarowitz, 2006). Louis, Leithwood, Wahlstrom, and Anderson (2010) reviewed prior research on core practices of successful school leaders and identified setting goals as a primary leadership function (along with developing people, organizational redesign, and management of instruction). It is intuitive to surmise that if developing a vision and promoting shared goals is a critical aspect of successful leadership, involving others in this core function would underpin the development of a successful distributed leadership model. Based on this logic, the findings of this study can be considered consistent with previous research, which has shown that female leaders have a more participatory style compared to their male peers (Eagly & Carli, 2003; Eagly & Johnson, 1990; Fridell et al., 2009; Post, 2015; Shakeshaft, 1989) in the critical domain of planning and setting goals.

In recent years, school leadership research has moved from assumptions of leadership as coming solely from the principal alone to including teachers and other stakeholders in distributed leadership models (Spillane, 2005; Spillane, Camburn, & Pareja, 2007; Spillane, Halverson, & Diamond, 2004). Studies have shown that higher levels of distributed leadership are related to student outcomes (Harris, Leithwood, Day, Sammons, & Hopkins, 2007; Heck & Hallinger, 2009). Research has also shown that female school leaders exhibit more democratic leadership styles. The results from this study also support the idea that female principals exhibit a more participatory style in at least one aspect of distributed leadership—planning and setting goals. These findings would support the comment by Eagly, Johannesen-Schmidt, and van Engen (2003) about findings from leadership research being

> encouraging for female leadership because other research has established that all of the aspects of leadership style on which women exceeded men relate positively to leaders' effectiveness whereas all of the aspects on which men exceeded women have negative or null relations to effectiveness. (p. 569)

A policy implication of these findings is that they can contribute to promoting increased participation of women in school leadership roles. Apart from an equity perspective, there is support that female principals promote a more participatory style in at least some aspects of leadership work. Further research needs to be conducted in order to examine whether gender based differences in participatory leadership styles translate to differences in school effectiveness. Eagly and Carli (2003) argue that although female leaders display a more democratic or participatory style, as also evidenced in this study, these advantages are often offset by followers' evaluations that are unfair and prejudiced. Female leaders can be unfairly evaluated because they may lack stereotypical masculine qualities that are often linked to

traditional conceptions of leadership, or because they possess too many of those same qualities. Eagly and Carli (2003) further argue that gender based differences in leadership effectiveness could be moderated by contextual characteristics, such as the characteristics of followers.

There are several critiques of research aimed at examining leadership differences based on gender that apply to this study as well. Notions of a female advantage could be social constructions that ultimately perpetuate gender based stereotyping (Coder & Spiller, 2013). Vecchio (2002) notes that another critique of studies of gender based leadership differences is that the research is largely atheoretical, failing to specify the causes of differences due to gender. One result of this is that a person's sex is often used as a proxy variable for the underlying latent variable. Studies of gender differences are also largely cross-sectional and do not adequately account for contextual factors such as cultural values and norms (Vecchio, 2002). Similarly, Oplatka and Hertz-Lazarowitz (2006) argue that research focusing on gender based differences, or women school leaders, can be critiqued for considering women as homogeneous and for not studying other contextual determinants. They note that women "are not likely to hold identical ways of thinking, shared aspirations or interests, nor a universal 'woman's way of leading'. Women principals, like men, lead in different ways" (p.28).

A limitation specific to this study is that data from EOD logs allow us to compare self-reported data on the quantity of time principals spend on various activity domains and with different school personnel. The data do not allow us to make inferences on the quality of these time allocation patterns. Therefore, although male and female principals spend about the same proportion of their working day working with others on domains such as student affairs or personnel issues, the nature of these interactions cannot be determined. Principals may spend similar amounts of time working with others but the extent to which that time is spent in collaborating, delegating, consulting, et cetera, can greatly influence the extent to which that interaction is perceived as democratic or participatory. The EOD log does not allow us to examine these dimensions of leadership interactions. Another limitation of this study is that we did not examine the interaction of gender and school level (elementary, secondary/high) in principals' time allocation patterns. In public schools, the percentage of leaders who are female is higher in elementary schools (64%) and lower in middle (42%) and high schools (30%) (Bitterman et al., 2013). While women comprise a higher percentage of the teaching workforce at all levels, there are differences by level, with more male teachers at the high school level. These differences can result in different interactions, such as the likelihood of a new principal being mentored by a female principal, and expectations based on gendered stereotypes that may vary based on the composition of the leadership and teacher workforce. These experiences may in turn provide the context that supports or hinders a participatory leadership style. Since the present study included principals from all school levels—elementary (62.9%), middle (20.6%), and high (10.1%), as a next step, this data could be used to examine how principals' interactions working with others and leadership differences based on gender varies by school level; these interactions were not explored here. Despite these limitations, this study adds to the literature on gen-

der based leadership differences by using a novel source of data—daily time allocation patterns. The results show that, in the specific domain of planning and setting goals, female principals spend more time with others than male principals, which is indicative of more participatory leadership.

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