

THE RELATIONSHIP BETWEEN LEADERSHIP AND FLOW: A DAILY DIARY STUDY

by

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Abstract

The current study examines how leaders craft conditions of the workplace to make it more conducive for flow to occur in their followers and what beneficial effects this has on employee well-being and performance. Data from 43 employees surveyed daily over two work weeks suggested that transformational leaders and leader-member exchange relationships impact several workplace conditions that in turn impact flow. Also, daily flow experiences were related to daily psychological well-being and daily performance.

Table of Contents

List of Figures	v
List of Tables	vi
Chapter 1 - Introduction.....	1
Flow and Preconditions	3
Leadership and Flow.....	5
Transformational Leadership	5
Leader-Member Exchange	8
Outcomes of Flow.....	12
Chapter 2 - Method.....	18
Sample and Procedure	18
Measures	19
Chapter 3 - Results.....	21
Chapter 4 - Discussion	25
Theoretical Implications	25
Practical Implications	27
Limitations, Strengths, and Future Directions	28
Conclusion	31
References.....	32

List of Figures

Figure 1. Hypothesized Model.....	3
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List of Tables

Table 1. Means, standard deviations, and correlations among variables	21
Table 2. Multilevel Analysis Testing Indirect Effect of Transformational Leadership on Daily Flow	23
Table 3. Multilevel Analysis Testing Indirect Effect of LMX on Daily Flow	24
Table 4. Effect of Daily Flow on Daily Psychological Well-Being, Physical Health, and Task Performance	24

Chapter 1 - Introduction

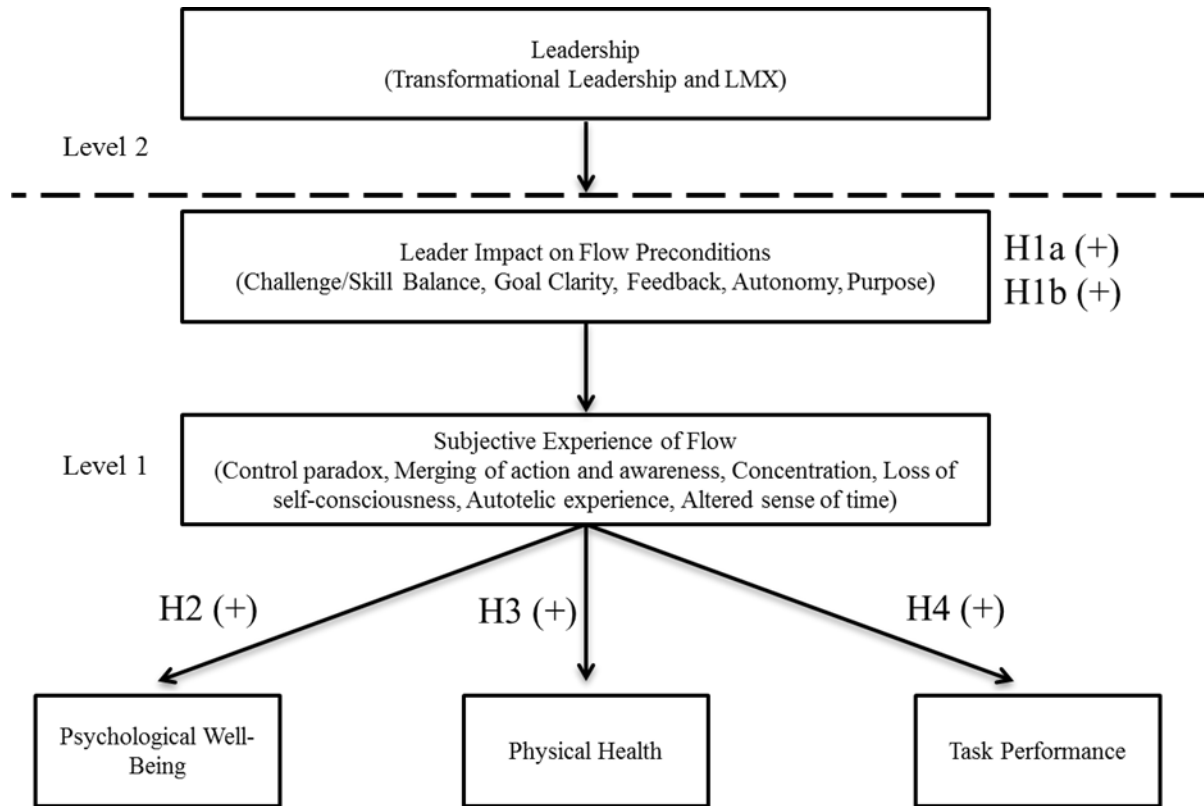
The positive psychology movement has urged psychologists to go beyond looking at the pathology of individuals and to instead focus on things that make life worth living (Seligman & Csikszentmihalyi, 2000). Specifically, it states psychologists should study constructs such as well-being, altruism, and happiness. One construct that has been a major part of the positive psychology movement is flow (Seligman & Csikszentmihalyi, 2000). Flow has been defined as a state “in which people are so involved in an activity that nothing else seems to matter at the time” (Csikszentmihalyi, 1990, p.4). Flow is often characterized by individuals being so involved with an activity that they lose sense of time, lose their sense of self-awareness, and feel in total control while not trying to maintain control (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005). Flow experiences have been said to be so enjoyable, that individuals will go to great lengths to perform an activity for no other reason than the performance itself (Csikszentmihalyi et al., 2005).

While the concept of flow has not been extensively researched in the workplace, there are several studies that suggest flow is important at work. As a positive psychology construct, it is not surprising that flow has been found to relate to different well-being outcomes including energy at the end of the day (Demerouti, Bakker, Sonnentag, & Fullagar, 2012) and positive mood (Fullagar & Kelloway, 2009). However, flow has been found to be related to important organizational behaviors as well. Studies have found that flow tends to have a strong positive relationship with both in- and extra-role performance (Demerouti, 2006; Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005). Although both of these studies also identified personality factors that moderate the relationship between flow and performance, it is clear that flow has an important role in the workplace.

While these studies suggest flow is important in the workplace, the current understanding of flow at work is far from complete. First, there has been very little research on the relationship between leadership and flow and how leaders impact the flow experiences of their followers (for an exception see Smith, Koppes Bryan, & Vodanovich, 2012). Second, there is a lack of understanding as to how flow relates to important organizational outcomes on a daily basis. This is surprising given that flow is a state-like construct (Fullagar & Kelloway, 2009) and recent research suggesting that flow should be examined using a within-persons perspective (Debus, Sonnentag, Deutsch, & Nussbeck, 2014).

This study sought to address these gaps in the literature by employing a daily diary design to examine how leadership is related to flow and what effects the experience of flow might have. Specifically, this study contributes to the literature in two important ways. First, it addresses how flow and leadership are related by examining two different leadership theories: transformational leadership and leader-member exchange (LMX). Furthermore, it also addresses the process by examining the indirect effect that leaders have on flow through their impact on the preconditions of flow. Second, this study contributes to the literature by examining how flow relates to important employee and organizational outcomes on a daily basis. Specifically, it addresses how the experience of flow on a given day relates to physical health, psychological well-being, and performance on that same day.

Figure 1. Hypothesized Model



Flow and Preconditions

In order to understand how leaders can influence the flow experiences of their followers, it is necessary to have a basic understanding of flow theory. Flow is often thought of to be a multidimensional construct with nine different dimensions (Jackson, Martin, & Eklund, 2008). Researchers often suggest that three of these dimensions comprise conditions inherent in the task that are necessary for flow to occur, while the rest describe the subjective experience of flow (Csikszentmihalyi et al., 2005). The first of the six dimensions of experiential flow is a paradox of control, or maintaining complete control while not expending any effort to do so. The second dimension is a merging of action and awareness where actions become effortless and automatic. The third is complete concentration on the task at hand. The fourth is a loss of self-consciousness where a person becomes one with the task. The fifth is an altered sense of time

where a person seems to lose their sense of time. The final dimension of flow is that the activity is so enjoyable, that it becomes an end in itself.

As stated earlier, flow theory has identified three conditions that are necessary for the experience of flow (Csikszentmihalyi et al., 2005) The first pre-condition is a balance between the perceived challenges of an activity and the skills of the individual. This balance between skills and challenges is crucial because if an activity is too hard, employees are more likely to be frustrated or anxious than they are to experience flow. On the other hand, if the activity is too easy then employees are likely to be bored. The second pre-condition necessary for flow to occur is clear and immediate feedback from the task itself. This feedback is necessary to help guide employees through the changing demands of a given task (Reser & Scherl, 1988). The third pre-condition of flow is that there has to be clear goals for engaging in an activity. Clear goals are needed for flow to occur because they focus the attention of employees solely on the task at hand (Csikszentmihalyi, 1990).

Researchers have identified other factors that may be important for employees to experience flow. One of these factors is an alignment between task goals and higher level personal goals (Harackiewicz & Elliot, 1998). Specifically, when employees know what to do (i.e. clear goals) and these goals are meaningful to the person performing the task, they are more likely to become completely engrossed in an activity. A second factor that also is important for flow to occur is the job characteristic of autonomy (Bakker, 2005, 2008; Fullagar & Kelloway, 2009). According to self-determination theory (Ryan & Deci, 2000), and the Job Characteristics Model (Hackman & Oldham, 1975), when employees are autonomous and have the ability to choose their own actions, they are more likely to experience an intrinsically motivated state like

flow. This has been supported by research that has shown that autonomy is a job characteristic significantly associated with flow (Demerouti, 2006; Fullagar & Kelloway, 2009).

Leadership and Flow

While the previously stated conditions are necessary for employees to experience flow, they do not manifest themselves randomly in the workplace. Leaders are critical in establishing the preconditions of flow and the current study investigates this relationship using two different leadership theories: transformational leadership and LMX.

Transformational Leadership

The most published framework for understanding leadership is transformational leadership theory (Barling, Christie, & Hopton, 2011). Transformational leaders are leaders that go beyond the exchange nature of transactional leadership and inspire their followers to go above and beyond what they think is possible (Bass, 1998). Previous research suggests that there are four different dimensions of transformational leadership: intellectual stimulation, individualized consideration, inspirational motivation, and idealized influence (Bass, 1998). Intellectual stimulation refers to leader behaviors that cause followers to challenge assumptions, take risks, and make followers think for themselves. Individualized consideration refers to when leaders treat employees as separate people, spend time attending to each individuals' needs and concerns, and spend time mentoring employees. Inspirational motivation occurs when leaders hold followers to high standards to achieve an inspiring and appealing vision. Finally, idealized influence refers to leader behaviors that make them appear to be good role models and set an example for their employees to follow.

The transformational leadership literature suggests that transformational leaders can have an impact on their followers' attitudes and behavior. A meta-analysis by Judge and Piccolo

(2004) indicated that transformational leadership is associated with several outcomes including follower job satisfaction and follower motivation. Further research has indicated that one of the mediating mechanisms of this effect is the impact that transformational leaders have on the characteristics of their followers' jobs. Piccolo and Colquitt (2006) studied the effects of transformational leadership on task performance and organizational citizenship behaviors (OCBs) of followers. While they found that transformational leadership has direct effects on follower task performance and OCBs, they also found a significant indirect effect of transformational leadership on these outcomes through the leader's impact on the follower's job characteristics. If transformational leaders can impact employee job characteristics through the behaviors that they perform, then it is also possible that these behaviors will influence the preconditions of flow that employees experience as well.

First, transformational leaders can influence the challenge/skill balance needed for flow through their use of inspirational motivation, intellectual stimulation, and individualized consideration behaviors. Specifically, transformational leaders induce a high amount of challenge in employees' work by motivating them to perform up to a high standard and challenging them to perform their work in novel ways. However, they also balance this by increasing an employee's skills through coaching and development. Furthermore, transformational leaders may also be able to decrease the challenges of the activity if needed by exhibiting individualized consideration. Since transformational leaders are aware of the individual needs of their employees, they should be aware if an employee is struggling because their work is too challenging and would make an effort to change the work if it is needed.

Second, transformational leaders can influence the feedback precondition of flow by exhibiting individualized consideration behaviors. While transformational leaders may not be

able to influence the feedback an employee receives from their work task directly, they can have an indirect effect by influencing their of the task feedback. One of the outcomes of receiving feedback is that an individual starts to develop a more accurate self-image of his/her performance (Ashford, Blatt, & VandeWalle, 2003). Therefore, when leaders give feedback, then employees should have a more accurate picture of how they are performing on a given task. This increase in self-awareness should then help employees to be better able to interpret the feedback they are receiving from the task itself and better navigate the demands of the task.

Transformational leaders may also use behaviors that influence the goal clarity of a task. Specifically, transformational leaders may influence the goal clarity of employees' work by exhibiting idealized influence and inspirational motivation behaviors. Leaders exhibiting these behaviors provide an example for employees to follow and also make it clear what standards they want their followers to achieve (Barling et al., 2011). Therefore, the followers of transformational leaders should have more goal clarity in their work because they know what they are trying to achieve.

Transformational leaders may also help influence the alignment between task goals and personal goals that is necessary for flow to occur. One way that transformational leaders influence followers is by influencing who followers identify with. For example, a study by Kark and colleagues (Kark, Shamir, & Chen, 2003) suggests that the behaviors transformational leaders exhibit may cause their followers to identify with their workgroup and with the leader themselves. This study suggests that transformational leaders may help followers more strongly identify with their work in general. Further evidence for this comes from studies that suggest followers of transformational leaders have work goals that are more in line with their personal goals (Bono & Judge, 2003) and view their work as more personally meaningful (Arnold,

Turner, Barling, Kelloway, & McKee, 2007). Thus, transformational leaders should influence the alignment between their followers' task and personal goals.

Transformational leaders may also impact an employee's perception of autonomy by utilizing intellectually stimulating behaviors. Transformational leaders challenge employees to think for themselves and to come up with novel ideas about how to best perform their work. This freedom in employees work should result in employees perceiving a greater amount of autonomy in their work than if their leaders told them exactly how they are supposed to perform their work.

Based on this logic, the following mediational hypothesis is proposed:

Hypothesis 1a: Transformational leadership will have an indirect positive relationship with flow through its influence on the preconditions of flow.

Leader-Member Exchange

Another leadership framework that helps explain how leaders can impact the preconditions of flow is LMX. LMX theory goes beyond traditional leadership theories and focuses on the quality of relationship between a leader and their followers, instead of solely focusing on how leaders influence followers (Graen & Uhl-bien, 1995). According to LMX theory, relationships between leaders and followers can range from high-quality to low-quality relationships. Relationships that are high-quality are characterized by mutual trust, attention, freedom in the employees work, and mutual support. Low quality relationships, on the other hand, are characterized by distrust, social distance, and contractual obligations (Schriesheim, Castro, & Cogliser, 1999).

The quality of relationship between leaders and their followers has been shown to be an important construct for organizational research and is predictive of several different outcomes.

A recent meta-analysis by Dulebohn and his colleagues (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2011) suggests that LMX is predictive of follower behaviors (i.e. OCBs), attitudes (i.e. job satisfaction), and perceptual outcomes (i.e. empowerment). One explanation for these effects is the role that leaders have in crafting employee job characteristics in LMX theory. LMX theory suggests that the relationship between the leader and follower evolves through a give-and-take cycle where leaders and followers utilize different tasks to develop the employee's role in the organization (Graen & Scandura, 1987). Thus leaders should have a direct impact on the characteristics of their followers' work according to LMX theory.

LMX theory provides several ways that leaders could have an influence on the preconditions of flow in their followers' work. First, the quality of the relationship between a follower and a leader should impact the challenge/skill component of followers' work. LMX theory suggests that the leader/follower relationship develops and leaders get to know the limits of their followers' skills by giving them tasks and seeing how the follower responds (Graen & Scandura, 1987). At the beginning of this cycle, the leader probably does not have a great grasp on the followers' capabilities and they may give them tasks that are either too hard or easy. However, as the relationship develops over time, the leader will have more opportunities to see how their followers' perform in a variety of tasks and will develop an accurate picture of their limits. When the relationship between a follower and leader gets to this point, leaders should be more likely to give employees work that matches their skills because they will have a good understanding of what the employee can and cannot handle (Graen & Scandura, 1987).

LMX also provides reasons why leaders may influence the feedback precondition of flow as well. Relationships that are low quality are characterized by economic exchange while high-quality relationships are characterized by social exchange (Graen & Uhl-bien, 1995). Economic

exchange refers to exchanges that are purely contractual and both the leader and follower do no more than what is formally required. On the other hand, social exchanges involve more interaction between the leader and the follower at a personal level. Relationships in this stage are characterized by trust, support, and attention, which should make the relationship more social in nature. The increased interaction and support that comes from a high-quality relationship should result in the employee receiving more useful feedback about their job performance. This feedback from their leader should help followers experience flow more often by giving them a more accurate image of their own performance which will help them better interpret intrinsic task feedback (Ashford et al., 2003).

The relationship between leaders and their followers should also influence the goal clarity of followers work. Going back to the proposal that the relationship between leaders and their followers develops through a role-making process (Graen & Scandura, 1987), higher-quality relationships should be characterized by followers knowing what they are supposed to accomplish in their work because their role has been further developed while the role of followers in low-quality relationships should be more ambiguous. This line of reasoning is supported by meta-analytic evidence that suggests that role-ambiguity and role-clarity are both outcomes of LMX (Dulebohn et al., 2011; Gerstner & Day, 1997). Since followers in high-quality relationships have a better idea of what their role is, they should know what they are supposed to accomplish in their work better than followers in a lesser quality relationship.

LMX theory also provides explanations for why the relationship between the leader and follower should affect the alignment between the goals of the task and the personal goals of followers. While the leader is thought to play the most important role in the role-making process, LMX theorists admit that followers can also initiate the role-making process (Graen &

Scandura, 1987). This part of LMX theory is similar to the notion of job crafting. Job crafting occurs when employees take proactive steps to change the boundaries of their job (Wrzesniewski & Dutton, 2001). One outcome of job crafting is that employees make their job more of a fit to them (C.-Y. Chen, Yen, & Tsai, 2014). While this is a positive outcome for employees, job crafting is only likely to occur when employees have autonomy and support in their work that is needed to actively change their jobs (Wrzesniewski & Dutton, 2001). This type of support can be found in high-quality exchange relationships between leaders and their followers (Schriesheim et al., 1999). Therefore, followers in high-quality exchange relationships will engage in more attempts to make their job a better fit for them and there should be more alignment between their personal goals and the goals of their work.

Finally, the quality of the relationship should influence the amount of autonomy employees have in their work as well. Rationale for this argument comes from the literature that has examined the relationships between LMX and empowerment (Aryee & Chen, 2006; G. Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Gomez & Rosen, 2001). Empowerment has been defined several ways, but one of the most common definitions is the process by which employees are giving more freedom and responsibility in their work (Keller & Dansereau, 1995). Autonomy refers to the amount of control and responsibility that an employee perceives in their work (Hackman & Oldham, 1975), therefore another way to define empowerment is the process of giving employees more autonomy. Since high-quality leader-follower relationships are characterized by mutual trust and support (Schriesheim et al., 1999), followers in these relationships participate in making decisions, have access to information, and are able to determine their own work. Therefore, followers in high-quality relationships should feel more empowered than follower's in low-quality relationships because they have more autonomy in

their work (Aryee & Chen, 2006; G. Chen et al., 2007; Dulebohn et al., 2011; Gomez & Rosen, 2001).

Given the above arguments, the following mediational hypothesis is proposed:

Hypothesis 1b: LMX will have an indirect positive relationship with flow through its influence on the preconditions of flow.

Outcomes of Flow

As a positive psychological construct, flow has been most often thought of as a state that will enrich lives if experienced often enough (e.g. Csikszentmihalyi, 1990; Seligman, 2011). However, the scope of flow research has started to creep into organizations as well. Recent research suggests that flow not only enriches the lives of employees, but also has beneficial effects for the organization as well (e.g. Eisenberger et al., 2005). Furthermore, some of these studies have shown that individuals do not need repeated flow experiences for beneficial effects. For example, a recent study by Demerouti and her colleagues (Demerouti, Bakker, Sonnentag, & Fullagar, 2012) identified that experiencing flow on a given day was associated with more energy at the end of the day. This study examines the relationship between flow, psychological well-being, physical health, and task performance using a daily diary study methodology.

A daily diary approach is appropriate due to the changing nature of flow and the proposed outcomes (Ohly, Sonnentag, Niessen, & Zapf, 2010). Flow is a state that is proposed to change depending on the conditions of the task (Csikszentmihalyi, 1990), therefore it should not be surprising that previous research has shown that the amount of flow employees experience does not remain consistent over time (e.g. Debus et al., 2014). Furthermore, it is possible that the outcomes in this study will change on a day-to-day basis as well. Everyday experience tells us that our well-being will fluctuate such that people feel good on some days and not so good on

other days. Also, previous research suggests that task performance fluctuates overtime (Binnewies, Sonnentag, & Mojza, 2009). A daily diary approach is well-suited to handle the measurement difficulties that arise from fluctuating constructs, and it allows us to examine the relationships between fluctuating states. In essence, daily diary approaches allow us to examine “life as it is lived” (Bolger, Davis, & Rafaeli, 2003).

The first potential outcome of flow is the well-being of the individual. Defining the well-being of an individual is a difficult task because of the various distinctions that can be made under the heading of “well-being.” One distinction that can be made is between the physical and psychological components of well-being (Arnold et al., 2007). Another distinction that can be made is between the absence of negative health and the presence of positive health (Snyder & Lopez, 2002). While there are other such distinctions that can be made, the focus of this study is to examine how flow influences the psychological and physical components that determine the well-being of an individual.

The broaden-and-build theory of positive emotions is useful for explaining how flow may contribute to an individual’s psychological well-being and physical health. According to the broaden-and-build theory, the experience of positive emotions work to broaden momentary thought-action repertoires and build that person’s personal resources while negative emotions work to narrow a person’s available thoughts and actions (Fredrickson, 2001). For example, the experience of joy may cause an individual to want to play, take risks, and engage in creative problem solving while the experience of sadness may cause the person to want to disengage from the situation. Since flow is a state that is characterized by intense concentration and enjoyment by performing the task at hand (Csikszentmihalyi, 1990), it is not surprising that several studies suggest that flow is a positive state that acts according to the broaden-and-build theory (Fullagar,

van Ittersum, & Knight, 2012). For example, Steele and Fullagar (2009) examined flow in a sample of college students. They found that flow experiences built positive resources in students that contributed to students' psychological and physical well-being. Generalizing the results of this study to the current research, it is proposed that if a person experiences flow during their workday, they should have more resources and feel better, both physically and psychologically, at the end of the day. While their research was highly related to the current study, this study extends beyond Steele and Fullagar's work by examining the broaden-and-build theory on a daily basis in an employee sample.

The anxiety and stress literature also provides a basis to suggest that flow should be positively related to psychological and physical well-being. Anxiety has been associated with several negative well-being factors including burnout, life satisfaction, and physical health (e.g. Murphy, Duxbury, & Higgins, 2006). However, some recent research has suggested that flow is antithetical with anxiety. That is, the existence of flow is usually related with an absence of anxiety. One example of this research was a study conducted by Fullagar, Knight, and Sovern (2013) over student musicians. These researchers tracked 27 musicians over the course of an entire semester to examine the relationship between challenge/skill balance, flow, and performance anxiety. They found that the situations that produced the greatest amounts of flow also produced the least amount of performance anxiety and that the situations that produced the least amount of flow produced the greatest amount of anxiety. Drawing on these results, flow should have the opposite health effects of anxiety and be linked to positive well-being states.

In sum, flow is a state of optimal functioning and should therefore have beneficial effects on employee well-being.

Hypothesis 2: Flow will be positively related to psychological well-being at the end of the day.

Hypothesis 3: Flow will be positively related to daily physical health.

While the preceding discussion has focused on the importance of experiencing flow daily for employee well-being reasons, it is also likely that it has positive effects on organizationally relevant outcomes like task performance, or performing well in the activities that are officially required by the organization (Motowidlo & Van Scotter, 1994). The experience of flow on a given day should be related to task performance because of the preconditions of flow and the effect that experiencing flow will have on an individual's personal resources.

Traditionally, flow researchers have examined the preconditions of goal clarity, challenge/skill balance, and unambiguous immediate feedback (Csikszentmihalyi et al., 2005). These three preconditions should be related to flow, but also to optimal performance on whatever task they are performing. Goal clarity should be related to increased task performance because clear goals tend to focus attention and motivate people to exert extra effort (Locke & Latham, 1990). Challenge/skill balance should also contribute to increased task performance. By definition, this balance happens when a person is performing optimally. That is, they are performing tasks that are not above or below their abilities, but aligned with them. Goal-setting may also come into play with the challenge/skill balance precondition. People are motivated by difficult goals, but only if they think they can achieve those goals (Locke & Latham, 1990). Therefore, if there is no challenge/skill balance, individuals may not commit to the goals presented by the task. Finally, clear and immediate feedback should also contribute to increased task performance. Feedback plays a pivotal role in self-regulation (Vancouver, 2005). Feedback helps individuals monitor their performance and understand how they are performing in comparison to some standard. When feedback is clear and immediate, as in the case of flow

experiences, individuals should easily see deficiencies in their performance and take action to increase their performance to meet their goal.

A second mechanism by which experiencing flow may result in increased task performance is through the positive resources that it builds. Referring back to the broaden-and-build theory (Fredrickson, 2001), the experience of positive emotions should work to build resources and broaden someone's thoughts and actions which in turn should result in positive outcomes for that individual. The long-term effects of the broaden-and-build hypothesis has been supported by meta-analytic evidence that suggests that people who experience positive affect frequently then go on to have more successful jobs, marriages, and friendships than individuals who do not experience positive affect frequently (Lyubomirsky, King, & Diener, 2005). These findings suggest that individuals may accumulate positive resources over time from repeated positive experiences and that this accumulation of resources helps individuals to flourish (Fredrickson & Losada, 2005).

While the above discussion suggests that the repeated experience of flow is important for the long-term success of individuals it is also possible that flow can have more immediate effects on performance. Specifically, the broaden-and-build theory states that positive emotions immediately broaden individuals' thought-action repertoires (Fredrickson, 2001). Therefore, when individuals experience positive emotions their thought-action repertoires should immediately broaden and they should have more personal resources available to them at that point. For example Fredrickson and Branigan (2005) conducted a lab study in which college students watched different videos that were designed to elicit specific emotions. They found that students who viewed movies that elicited positive emotions had immediately broadened attention and thought-action repertoires when compared to students in other conditions. This evidence

suggests that flow may have immediate effects on an individual's positive resources. Therefore, when a person experiences flow on a given day, they should have built up resources from that experience which should help them perform at a higher level throughout the rest of their day.

The notion that flow is related to task performance is hardly original. Previous researchers have examined this question and found a relationship between flow and task performance (e.g. Demerouti, 2006). However, previous studies have been limited by their cross-sectional designs. The current study contributes to the flow literature by providing a more detailed understanding of how flow might be related to task performance. Specifically, this rationale suggests that flow has immediate, daily effects on performance because the task characteristics of flow are also associated with better performance and because the experience of flow builds positive resources that will help individuals perform better throughout the rest of their day.

Hypothesis 4: Daily flow will be positively related daily task performance.

Chapter 2 - Method

Sample and Procedure

Sixty-five employees from a small Midwest corporation (143 employees) that designs websites for local government agencies were invited to participate in the current study. Employees were recruited from the project management (11/11, 100% response rate), content development (23/27, 74.1% response rate), training (3/9, 33.3% response rate), and graphic design (9/18, 50% response rate) departments within this organization. Forty-three employees (66.2% response rate) provided usable data for this study. Twenty-four (55.8%) were female, and the mean age and tenure of the sample was 30.24 ($SD = 7.50$) and 2.42 years ($SD = 2.62$) respectively.

The study proceeded in three different phases. First, managers invited employees to participate in the study in exchange for the opportunity to be entered into a drawing for an iPad mini. Second, employees were asked to complete a survey that asked them about their perceptions of their immediate supervisor's leadership style. In the third phase, employees were asked to respond to a survey at the end of their workday for 10 consecutive working days (i.e. two consecutive working weeks). A two week time period was used because it is a stable snapshot of someone's social life that can be generalized to other parts of their life (Reis & Wheeler, 1991). In this phase of data collection employees were asked to respond to measures of flow, leader impact on flow preconditions, physical health, psychological well-being, and their performance for that day. The average employee provided data on six out of a possible ten occasions ($SD = 2.94$).

Measures

Transformational Leadership. Employees rated their supervisors on transformational leadership using the 20-item Multifactor Leadership Questionnaire ($\alpha = .95$; Bass & Avolio, 1995). Sample items include, "My supervisor instills pride in me for being associated with him/her," and "My supervisor spends time teaching and coaching." Responses ranged from 0 (*Not at all*) to 4 (*Frequently, if not always*).

LMX. Employees rated their supervisors on LMX by using the LMX-7 ($\alpha = .88$; Graen & Uhl-Bien, 1995). Sample items with accompanying response options include, "Do you know where you stand with your leader and do you usually know how satisfied your leader is with what you do? 1 (*Rarely*) to 5 (*Very often*)" and "How would you characterize your working relationship with your leader? 1 (*Extremely ineffective*) to 5 (*Extremely effective*)"

Daily Flow. Flow was measured daily by asking employees to first identify the most enjoyable activity they had performed that day. They were then asked to respond to six items about how they felt while performing that activity ($\alpha = .78$; averaged across all occasions). These six items corresponded to the six dimensions that describe the subjective flow experience (Csikszentmihalyi, 1990). Sample items include, "I felt in control," and "I performed this task almost spontaneously." Responses ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Daily Leader Impact on Flow Preconditions. Leader impact on the flow preconditions was assessed by asking employees to respond to five items about the impact their supervisor had on the flow activity they identified ($\alpha = .84$; averaged across all occasions). These items were based on the five preconditions of flow described earlier. Sample items include, "My supervisor gives me freedom necessary to perform this activity," and "My supervisor had a role in developing my skills that were needed to complete this activity." Responses ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Daily Psychological Well-Being. Psychological well-being was assessed with items adapted from the positive affective well-being scale created by Hess, Kelloway, and Francis (2005) ($\alpha = .95$; averaged across all measurement occasions). Employees were asked to respond to seven items that asked them how they felt at that moment (e.g. “Motivated” and “Joyful”). Responses ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Daily Physical Health. Daily physical health was assessed using Schat, Kelloway, and Desmarais’ physical health questionnaire (2005) ($\alpha = .60$; averaged across all occasions). Five items were adapted to assess how an employee felt that day. Sample items include “I had a cold today” and “I felt tired today.” Responses ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Daily Task Performance. Task performance was assessed by modifying two items from Goodman and Syvanteck’s (1999) task performance scale ($\alpha = .73$; averaged across all occasions). The items were, "Today, I fulfilled all the requirements of my job," and " Today, I performed well." Responses ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Chapter 3 - Results

Table 1 presents means, standard deviations, and correlations among the study variables.

The demographic variables were not related to any of the other variables and were excluded from further analysis.

Table 1. Means, standard deviations, and correlations among variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Age	30.31	7.38	---								
2. Sex	1.53	0.51	-.15	---							
3. Transformational Leadership	4.05	0.67	-.02	.14	---						
4. LMX	3.81	0.74	-.05	.08	.81*	---					
5. Daily Psych Well-Being	5.03	1.09	.13	-.08	.36*	.37*	---				
6. Daily Flow	5.67	0.49	.15	-.03	.38*	.38*	.45*	---			
7. Daily Leader Impact	4.68	1.00	-.08	-.15	.53*	.57*	.38*	.31*	---		
8. Daily Physical Health	3.43	0.75	-.06	-.17	-.09	-.02	.36*	.12	.16	---	
9. Daily Task Performance	5.44	0.68	-.02	-.20	.31*	.40*	.54*	.38*	.26	.23	---

Note: Day-level variables were averaged across measurement occasions

Sex was coded 1 = Male and 2 = Female

LMX = Leader-member exchange

* = $p < .05$

Due to the nested nature of the data (Level 1- Days, Level 2- Persons), multilevel modeling using HLM 7 software was used to analyze the data (Raudenbush et al., 2011). The level 1 variables consisted of the variables that were measured on a daily basis, while the level 2 variables consisted of the leadership variables that were measured at the beginning of the study.

Before testing the hypotheses, the percentage of within-individual variance for flow, leader impact, psychological well-being, physical health, and task performance was calculated (70.49%, 48.78%, 65.07%, 62.50%, 76.15% respectively; Hoffmann, Griffin, & Gavin, 2000). These estimates suggest that a large percentage of variance for each variable is attributable to within-person variation and multilevel modeling is appropriate.

According to Hypothesis 1a and 1b, the relationship between transformational leadership, LMX, and flow is mediated by the impact that leaders have on the preconditions of flow.

Following Baron and Kenny (1986), the following conditions for mediation were tested: 1) the predictor should be related to the outcome, 2) the predictor should be related to the mediator, 3) the mediator should be related to the outcome, and 4) when controlling for the mediator, the relationship between the predictor and outcome becomes non-significant (full mediation) or weaker (partial mediation). Sobel tests were also utilized as an additional test of mediation. The results from each model used to test these hypotheses are presented in Table 2 and Table 3.

To test for the first condition (i.e. whether leadership is related to flow) an intercepts-as-outcomes model with leadership as a predictor of daily flow was examined. The results suggested that both transformational leadership ($B = .27, SE = .12, t(41) = 2.24, p < .05$) and LMX ($B = .25, SE = .12, t(41) = 2.05, p < .05$) are significantly positively related to flow. To test for the second condition (i.e. whether leadership is related to leader impact on the preconditions), an intercepts-as-outcomes model with leadership predicting daily leader impact on the preconditions of flow was examined. The results suggested that both transformational leadership ($B = .78, SE = .21, t(41) = 3.69, p < .001$) and LMX ($B = .75, SE = .18, t(41) = 4.08, p < .001$) were significantly positively related to daily leader impact on the preconditions of flow. To test for the third and fourth conditions (i.e. whether leader impact on the preconditions of flow is related to flow and whether the relationship between leadership and flow is weaker when controlling for leader impact on the preconditions), another intercepts-as-outcomes model was tested where leadership was entered as a level 2 predictor and daily leader-impact on the preconditions of flow was entered as a level 1 predictor. Due to the fact that the fourth condition of mediation requires that the relationship between the predictor and outcome to be examined while controlling for the mediator, the day-level variable of leader impact on flow preconditions was centered at the grand mean. Centering level 1 variables at the grand mean allows us to

control for both the within-and between-person effect of these variables in the higher level equations (Hoffmann et al., 2000). . The results for the transformational leadership model suggested that daily leader impact on the preconditions of flow was significantly positively related to daily flow ($B = .14$, $SE = .03$, $t(42) = 4.06$, $p < .001$) and the relationship between transformational leadership and flow is non-significant when controlling for daily leader impact ($B = .15$, $SE = .11$, $t(41) = 1.41$, $p > .05$). Likewise, the results from the LMX model suggest that daily leader impact on the preconditions of flow was significantly positively related to daily flow ($B = .13$, $SE = .03$, $t(42) = 3.98$, $p < .001$) and the relationship between LMX and flow is non-significant when controlling for daily leader impact ($B = .16$, $SE = .11$, $t(41) = 1.47$, $p > .05$). Furthermore, the results from the Sobel z-tests provide additional support for these mediational effects (transformational leadership, $z = 2.76$, $p < .01$; LMX, $z = 2.85$, $p < .01$). These results suggest that the effect of leadership on daily flow is fully mediated by the impact that leaders have on the preconditions of flow on a daily basis. Therefore, Hypothesis 1a and 1b were supported.

Table 2. Multilevel Analysis Testing Indirect Effect of Transformational Leadership on Daily Flow

Variable	1			2			3		
	B	<i>t</i>	SE	B	<i>t</i>	SE	B	<i>t</i>	SE
Intercept	5.66*	77.54*	0.07	4.69*	35.79*	0.13	5.65*	76.84*	0.07
Transformational Leadership	0.27*	2.24*	0.12	0.78*	3.69*	0.21	0.15	1.41	0.11
Daily Leader Impact on Flow Preconditions							0.14*	4.06*	0.34

Note: * = $p < .05$.

Model 1 Outcome- Daily Flow

Model 2 Outcome- Daily Leader Impact on Flow Preconditions

Model 3 Outcome- Daily Flow

Table 3. Multilevel Analysis Testing Indirect Effect of LMX on Daily Flow

Variable	1			2			3		
	B	<i>t</i>	<i>SE</i>	B	<i>t</i>	<i>SE</i>	B	<i>t</i>	<i>SE</i>
Intercept	5.66*	77.95*	0.07	4.67*	36.51*	0.13	5.65*	77.08*	0.07
LMX	0.25*	2.05*	0.12	0.75*	4.08*	0.18	0.16	1.47	0.11
Daily Leader Impact on Flow Preconditions							0.13*	3.98*	0.34

Note: * = $p < .05$.

LMX = Leader-member exchange

Model 1 Outcome- Daily Flow

Model 2 Outcome- Daily Leader Impact on Flow Preconditions

Model 3 Outcome- Daily Flow

To test Hypotheses 2, 3, and 4, one random-coefficients model was created for each outcome while daily flow was entered as a predictor (See Table4). In testing these hypotheses, flow was centered at the person mean for each model. This was done to exclude all between-person variance from the model and explicitly test the within-person effects (Ohly et al., 2010).

The results suggest that daily flow was significantly positively related to daily psychological well-being ($B = .60, t(42) = 5.86, p < .001$) and daily task performance ($B = .41, t(42) = 4.58, p < .001$), but not to daily physical health ($B = .15, t(42) = 1.26, p > .05$). Thus, Hypotheses 2 and 4 were supported, but Hypothesis 3 was not.

Table 4. Effect of Daily Flow on Daily Psychological Well-Being, Physical Health, and Task Performance

Variable	Daily PsyWB			Daily Phys Health			Daily Task Perf		
	B	<i>t</i>	<i>SE</i>	B	<i>t</i>	<i>SE</i>	B	<i>t</i>	<i>SE</i>
Intercept	5.03*	33.39 *	0.15	3.41*	31.08*	0.11	5.40*	60.11*	0.09
Daily Flow	0.60*	5.86*	0.10	0.15	1.26	0.10	0.41*	4.58*	0.08

Note: * = $p < .05$.

Daily PsyWB = Daily Psychological Well-Being

Daily Phys Health = Daily Physical Health

Daily Task Perf = Daily Task Performance

Chapter 4 - Discussion

The study of flow at workplace has revealed that flow has some beneficial effects for employees and organizations. However, the current understanding of flow's importance in the workplace is far from complete. First, there is very little research on how leaders may influence their followers' flow experiences. This is surprising given that leadership research is a very popular research area in the organizational sciences (Barling et al., 2011). A second gap in the current understanding of flow in the workplace is how flow relates to important outcomes on a daily basis. This is an important step to take since flow is a transient state that fluctuates over short amounts of time (Debus et al., 2014).

The current study was an attempt to fill some these gaps in the flow at work literature. In this study, a daily diary design was used to examine how leaders can facilitate flow in their followers on a daily basis, and what effects the experience of flow has on an employee's well-being and performance. This study found that both transformational leadership and LMX were positively related to the amount of flow that employee's experience on a day-to-day basis. Furthermore, this effect is mediated by the impact that leaders have on the preconditions of flow. Finally, the results suggest that the experience of flow on given day was also positively linked to daily psychological well-being and task performance. However, the daily experience of flow was unrelated to an employee's health on that same day.

Theoretical Implications

Our study has important contributions to offer theory and research in the areas of leadership and flow. First, this study provides evidence for the importance of studying the effects of leadership on flow. Only one other study has been conducted on leadership and flow. In this study, Smith and colleagues focused on the moderating impact of flow on leadership and

job attitudes (Smith et al., 2012). However, they also conducted an exploratory analysis and found that follower flow partially mediates the relationship between authentic leadership and safety climate. The current study went above and beyond these findings by examining the effects of two leadership variables (transformational leadership and LMX) on their followers' flow. Furthermore, this study extended this research by examining a mechanism through which this effect occurs. By integrating transformational leadership, LMX, and flow theory this study proposed, and found, that leaders influence their followers' daily experiences of flow by crafting their job experiences in such a way that makes flow more likely to occur. Specifically, this study suggests that by helping followers maintain a balance between their skills and the challenges of an activity, giving employees adequate feedback, communicating the purpose behind activities, and giving employees the freedom to do their work leaders make it more likely that followers will experience flow.

Second, this study provides additional evidence for the importance of examining flow on a daily basis. Previous research suggests that flow is a state-like variable that fluctuates over time (Debus et al., 2014; Demerouti et al., 2012; Fullagar & Kelloway, 2009). Like these previous studies, the results from the current study also suggest that most of the variance in flow was caused by within-individual variation (70.49%). Therefore, this study provides additional evidence that flow is a state-like construct and should be measured as such. However, this study went beyond these studies in an important way. Previous experience sampling studies of flow at work have treated flow primarily as an outcome or as a predictor of well-being. This study examined not only how leadership influences flow and how flow influences daily well-being, but also how flow would in turn influence task performance. Due to the importance of performance in organizational research, this is an important contribution

Finally, this study also relates to work that examines the antecedents and consequences of job characteristics. The job characteristics model suggests that the job characteristics of autonomy, skill variety, task significance, task identity, and feedback produce critical psychological states that motivate people to perform well at work (Hackman & Oldham, 1976). The current study overlaps with this model by suggesting that there are certain characteristics of an employees' work that may produce critical psychological states like flow (see also Demerouti, 2006; Nielsen & Cleal, 2010). However, the current study also extends this model by identifying different characteristics of work that result in the state of flow. Specifically, it identified challenge/skill balance, goal clarity, feedback, alignment between task and personal goals, and autonomy as important characteristics that result in the experience of flow.

Practical Implications

While the results of this study are theoretically important, there are also several practical implications that can be taken away from this research. The first implication is that organizations should care about facilitating the flow experiences of their employees. The current study found that the more flow an employee experienced on a given day, the better they performed and the better they felt psychologically at the end of the day. When these findings are added to the research that suggests flow is also related to organizational citizenship behaviors (Demerouti, 2006; Eisenberger et al., 2005), a positive mood (Fullagar & Kelloway, 2009), and energy after work (Demerouti et al., 2012), it is apparent that the experience of flow is important for employees and should be encouraged by the organizations. These effects should be even more intriguing to practitioners when considering that the effects of flow found in this study occurred very quickly (i.e. within the same day).

Our findings also shed some light on the way that organizations can start to increase the amount of flow that their employees experience. Specifically, the results of this study suggest that the experience of flow is more likely to occur if leaders impact certain characteristics of their followers work. Therefore, there are two potential mechanisms to increase flow. The first would be to train and develop leaders to become more transformational and to have better quality relationships with their followers. Previous research has suggested that transformational leadership e.g. (Barling, Weber, & Kelloway, 1996; Dvir, Eden, Avolio, & Shamir, 2002; Mullen & Kelloway, 2009) and LMX (e.g. Graen, Novak, & Sommerkamp, 1982; Scandura & Graen, 1984) can be trained so this is a feasible option for organizations which should result in employees experiencing more flow. The second, and more direct, mechanism available to organizations is to redesign jobs in such a way that employees experience more challenge/skill balance, goal clarity, feedback, alignment between their personal and work goals, and autonomy.

Limitations, Strengths, and Future Directions

While this study makes important contributions to the literature, there are several limitations worth noting. The first of these limitations is the resistance of part of the sample to respond to the daily survey on time. Instead of choosing to respond to the survey at the end of their work day as requested, a small portion of respondents waited until the following morning to complete the survey. Since employees still took the survey shortly after they were supposed to, it is unlikely that this resulted in problematic recall biases. However, their responses may not be as accurate as they would have if they had responded at the end of their work day.

A second limitation is the use of all self-report surveys. This could lead to the phenomenon known as common-method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). This bias may artificially inflate some of the relationships found in the study. However, it should

be noted that the current study tried to combat this bias by collecting data at different points in time. Furthermore, some researchers have argued that this bias may not be prevalent and can even be thought of as an “urban legend” (Spector, 2006). Not every construct that it measured with the same method is related (Spector, 2006). Therefore, common method bias may not have inflated the relationships found in this study.

A final limitation of the current study has to do with the measurement of some of the variables. One example of this is in the measurement of flow itself. It could be argued that flow was oversampled because employees were asked to identify “The most enjoyable activity that they performed today.” However, it is also possible that flow could have been under sampled as well. Due to time constraints, employees were only able to respond to one experience that they had when they may have actually had multiple flow experiences throughout the day. Therefore, it is also possible that employees experienced more flow than what the data in this study show. Future research should replicate these findings with different measures of flow. There was also a weakness with the measure of daily physical health. The reliability of this measure was below the .7 level that is considered to be the minimum for research (Nunnally & Bernstein, 1994). Therefore, a relationship between daily flow and physical health may exist, but it might not appear in this data due to unreliability of the physical health measure.

As stated previously, one of the strengths of this study is the use of a daily diary design. Since multiple state-like constructs were examined, it is necessary to utilize methods that allow us to capture these fluctuations. While traditional cross-sectional survey designs are inadequate for this task, daily diary methods give us this ability. By measuring variables over an extended period of time, daily diary methods give us more than just a snapshot of an employee’s life and instead allow us to examine their “life as it is being lived” (Bolger et al., 2003). In this study

specifically, daily diary design was used to address questions that examine how stable characteristics, such as leadership, are related to fluctuating constructs like flow and how this state construct is related to fluctuations in physical health, psychological well-being, and task performance.

This study presents several fruitful future directions for researchers. One of these is to examine how other leadership constructs may affect the experience of flow. Recent leadership research has seen a trend where the focus of the research is no longer on the influence that a formal leader has on a group of followers. This trend has given rise to constructs such as shared leadership (e.g. Wang, Waldman, & Zhang, 2014) and followership (e.g. Uhl-Bien, Riggio, Lowe, & Carsten, 2014). While this study examined the effects of transformational leadership from the traditional leader-centric approach and LMX from a relational approach, it is possible that these other approaches to studying leadership could yield fruitful results as well.

A second potential future direction is to take a closer look at how leaders are influencing the preconditions of flow. Specifically, are leaders changing the objective characteristics of their followers' jobs or are they changing their followers' perceptions of these characteristics? In this study, theory and rationale for how leaders can craft their followers' objective job characteristics, but other researchers have argued that leaders influence their followers' job characteristics by changing their perception of them (Piccolo & Colquitt, 2006; Piccolo, Greenbaum, den Hartog, & Folger, 2010). Therefore, a fruitful direction for future research would be to more precisely explain how this effect occurs.

Another interesting direction is identifying additional outcomes of flow. Flow researchers have typically examined well-being, task performance, and organizational citizenship behaviors as outcomes (e.g. Demerouti et al., 2012; Demerouti, 2006). Flow researchers should

continue to branch out and examine other outcomes and even explore some potentially negative effects of flow. For example, since flow involves a loss of self-awareness, could the experience of flow be harmful in areas where safety is a major concern? Answering these questions and expanding the nomological network for flow would greatly advance flow research.

Conclusion

While flow has started to garner some attention in organizational research, little research has examined the relationship between leadership and flow and the effects that flow can have on a daily basis. The findings from this study present an explanation of how leaders influence the flow experiences of their followers and how flow is important for the well-being and performance of employees. These findings should encourage future flow researchers to examine the impact of leadership and how flow occurs on a daily basis.

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