

**Introducing a process-focused measurement application to capture temporal
behavioural dynamics of leader-follower ambidexterity**

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Leadership is a relational, dynamic process that comes about through the temporal course of verbal interactions between leaders and followers (Uhl-Bien et al., 2007). Whereas the interactive nature of leadership evoked much interest in understanding how leaders' communication affect follower behavior over time, research so far has mostly captured leader communication by means of followers' *perceptions* at *specific* points in time and linked these subjective ratings to follower behavior. As a consequence, the behavioral conceptualization of leadership at the micro-level of specific communicative acts (i.e., *what* leaders do), the role of time in leadership theory (i.e., *when* leaders do something) and the reciprocal nature of leader-follower communication (i.e., *how* leaders interact with followers) are remarkably under-theorized.

Acknowledging that conceptual and empirical contributions often go hand in hand (van Maanen et al., 2007), our research contributes to the leadership field by introducing a technology-based application that allows researchers to study the linkages between leader and follower communication in real-time. We conducted a behavioral process study of ambidextrous leader and follower behavior to illustrate how to capture micro-dynamics through which leaders affect follower behavior in workplace meetings.

The interplay of leader-follower dynamics is of high interest for the innovation literature because innovation performance is largely a product of their mutual interaction processes. Conceptual work (Rosing et al., 2011) suggested that ambidextrous leadership – that is, alternation of complementary behaviours (i.e., “opening”; e.g., encouraging idea exploration and error learning, versus “closing”: e.g. monitoring adherence to rules and procedures) – increases innovation success through managing followers' engagement in exploration versus exploitation. Yet so far, scholars either relied solely on static survey instruments to capture this process or considered leader (e.g., Zacher & Rosing, 2015) and follower ambidextrous behavior (e.g., Rosing & Zacher, 2017) in isolation. By focusing on how leader and follower ambidexterity are intertwined over time, we conducted a process-oriented behavioral research

study using a newly developed technological application. We expected that the dynamic interplay of opening and closing behaviors over time positively relates to followers' exploratory and exploitative activities:

Hypothesis 1: Dynamic changes in leaders' ambidextrous behavior (closing and opening) are positively associated with dynamic changes in followers' ambidextrous behavior (exploration and exploitation).

METHOD

We trained two research assistants in coding leader and follower ambidexterity. The observers used two mutually exclusive and exhaustive behavioral taxonomies comprising (1) leader ambidextrous behaviour (i.e., opening and closing, based on Rosing et al., 2011), (2) follower ambidextrous behaviour (i.e., exploration and exploitation based on March, 1991), and (3) a “neutral category” (used in both schemes). Both schemes were incorporated into a digital coding app and observers used an iPad to code leader-follower-interactions in seven meetings (six from a multinational oil and gas company; one from a research centre in Western Australia).

RESULTS

We calculated two time-variant behavioral measures to capture leader and follower ambidexterity by transforming the behavioral codes into numerical integers (opening and exploration = +1, closing and exploitation = -1, neutral = 0) and cumulating the behavioural sequences over time for leaders and followers separately for each meeting. Figure 1 displays one line graph for leader ambidexterity and another line graph for how follower dynamic ambidextrous behaviour (Figure 1). Visual inspection indicates that leader and follower ambidexterity is changing in similar ways. Hierarchical linear modelling using HLM 6.08 was employed to test this hypothesis. Follower ambidexterity was partitioned into between-meetings and within-meetings components and we calculated a within-meeting equation in

which variability in follower ambidexterity at time j was modelled as a function of leadership ambidexterity at time j using the following equation model.

Level 1: $\text{FollowerAmbidexterity}_{ij} = \pi_{0j} + \pi_{1j} * (\text{LeaderAmbidexterity}_{ij}) + r_{ij}$

Level 2: $\pi_0 = \beta_{00} + r_0$

$$\pi_1 = \beta_{10}$$

The results of the random-intercept-and-fixed-slope-model indicated a positive and significant effect for dynamic leader ambidexterity ($\beta_{10} = .53$, $SE = 0.04$, $p < .01$). We also calculated a random-intercept-and-random-slope model which revealed significant variance of the slope factor ($SD(r_{01}) = 0.71$, $p < 0.01$) indicating that the strength of the leader-follower ambidexterity association varied considerably between meetings.

DISCUSSION

This study illustrates how a dynamic process perspective on leader-follower behavioral patterns contributes to our understanding of ambidextrous leadership. We found that temporal variations of complementary leader behaviours (opening and closing) predicted dynamic changes of leader exploratory and exploitative activities. In sum, this study supports theorising on leadership ambidexterity. Variability between meetings suggested that these behavioural associations are moderated by contextual variables and future research could investigate how work design characteristics could strengthen or weaken the extent to which leader ambidexterity relates to follower ambidexterity over time.

More generally, our research answers calls for innovative, unobtrusive measurement techniques that allow to measure behavioral data in real-time. The app allowed immediate visual feedback to meeting participants and therewith tackles a number of shortcomings of previous technological solutions, such as high costs, considerable time investments, and a time lag between data collection and data analysis (Büngeler et al., 2017). To conclude, we

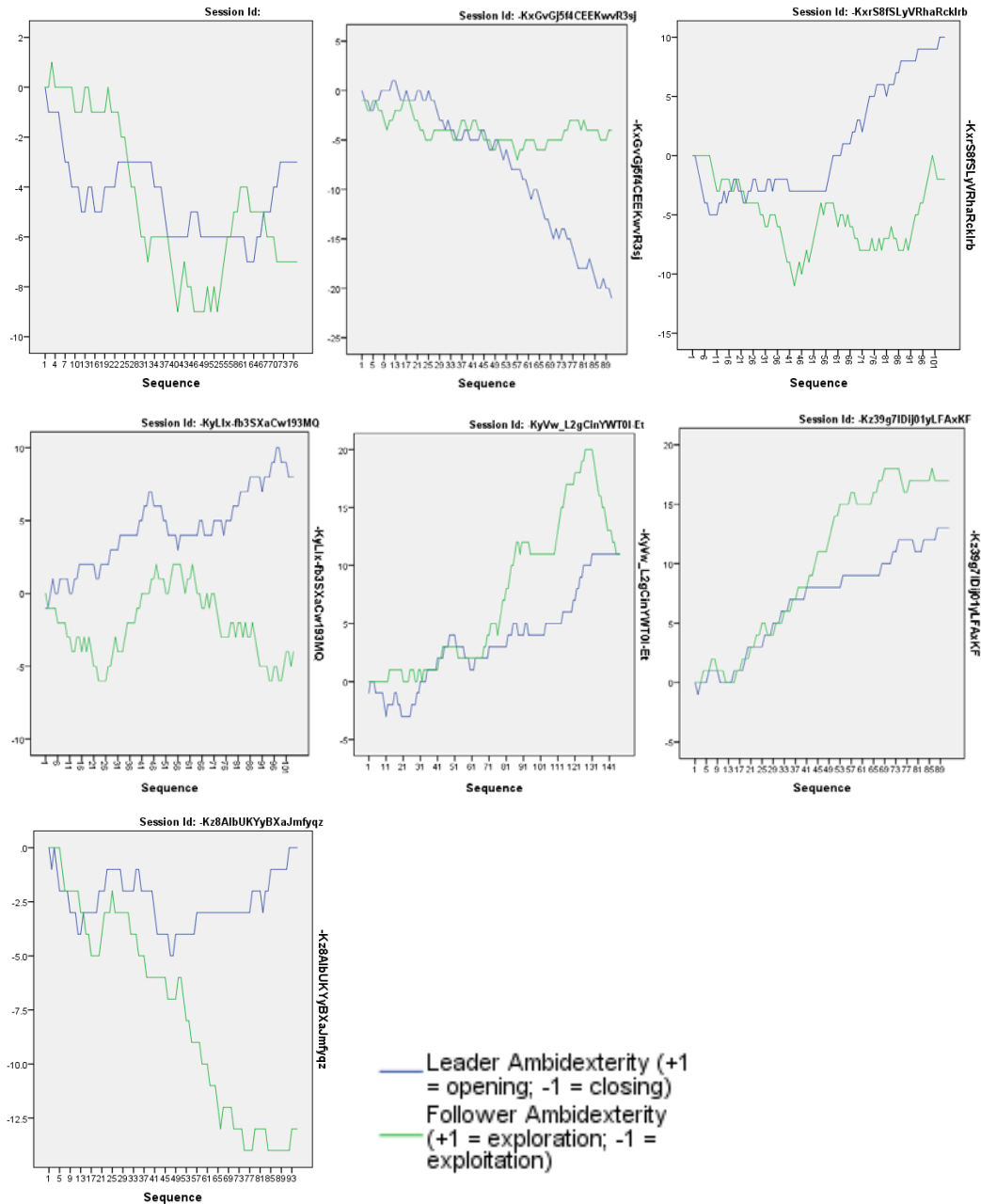
hope that this new measurement application inspires scholars to look further into the fine-grained dynamics of leader-follower interactions.

REFERENCES

- Büngeler, C., Klonek, F., Lehmann-Willenbrock, N., Morency, L., & Poppe, R. 2017. Killer apps: Developing novel applications that enhance team coordination, communication, and effectiveness. *Small Group Research*, 48:1–30.
- March, J.G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2: 71–87.
- Rosing, K., Frese, M., & Bausch, A. 2011. Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. *The Leadership Quarterly*, 22:956–974.
- Rosing, K., & Zacher, H. 2017. Individual ambidexterity: the duality of exploration and exploitation and its relationship with innovative performance. *European Journal of Work and Organizational Psychology*, 26:694–709.
- Uhl-Bien, M., Marion, R., & McKelvey, B. 2007. Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. *Leadership Quarterly*, 18:298–318.
- van Maanen, J., Sørensen, J. B., & Mitchell, T. R. 2007. The interplay between theory and method. *Academy of Management Review*, 32:1145–1154.
- Zacher, H., & Rosing, K. 2015. Ambidextrous leadership and team innovation. *Leadership & Organization Development Journal*, 36:54–68.

Figure 1

Dynamic slopes of leadership and follower ambidextrous behavior ($N = 711$ observations nested in 7 meetings)



Note: Leadership ambidexterity was calculated by cumulating opening (+1) and closing behavior (-1) over time. Follower ambidexterity was calculated by cumulating exploration behavior (+1) and exploitation behavior (-1) over time.