

EXPLAINING EMPLOYEE JOB PERFORMANCE: THE ROLE OF ONLINE AND OFFLINE WORKPLACE COMMUNICATION NETWORKS

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Appendix

Measures

Online and offline network ties (adapted from Baldwin et al. 1997)

Please answer the following questions about your interactions with your coworkers.

In general, which of the following persons in the list do you contact for help or advice with your work (related to your work tasks and not administrative activities). Please leave the row blank if you do not interact with that person at all. Online communication refers to any communication via e-mail, instant messenger or mobile text messaging, audio or video conference. Offline communication refers to face-to-face communication.

	On average, I communicate with this person online...					On average, this person communicates with me online...				
	Less than once a month	Once a month	Once a week	Once a day	Many times a day	Less than once a month	Once a month	Once a week	Once a day	Many times a day
Name 1	1	2	3	4	5	1	2	3	4	5
...	1	2	3	4	5	1	2	3	4	5
Name N	1	2	3	4	5	1	2	3	4	5

	On average, I communicate with this person offline...					On average, this person communicates with me offline...				
	Less than once a month	Once a month	Once a week	Once a day	Many times a day	Less than once a month	Once a month	Once a week	Once a day	Many times a day
Name 1	1	2	3	4	5	1	2	3	4	5
.....	1	2	3	4	5	1	2	3	4	5
Name N	1	2	3	4	5	1	2	3	4	5

Computer self-efficacy (seven-point Likert Scale) (Venkatesh et al. 2003)

I could complete a job or task using the system...

- if there was no one around to tell me what to do as I go.
- if I could call someone for help if I got stuck.
- if I had a lot of time to complete the job for which the software was provided.
- if I had just the built-in help facility for assistance.

Conscientiousness (seven-point Likert Scale) (Gosling et al. 2003)

I...

- am always prepared.
- pay attention to details.
- make plans and stick to them.
- waste my time.
- find it difficult to get down to work.

Job performance (seven-point Likert Scale) (adapted from Kraimer et al. 2005; Welbourne et al. 1998)

Please rate your subordinates along the following dimensions:

- Quality of work.
- Quantity of work.
- Technical competence.
- Working as part of a team or work group.
- Help others when it is not part of his/her job.

Computer experience (Venkatesh et al. 2003)

Please indicate amount of computer experience you have in years: _____

Rank (Mehra et al. 2001)

Which of the following best describes your position in this company:

1. junior manager
2. middle manager
3. senior manager
4. non-managerial employee

Tenure (Cross and Cummings 2004; Mehra et al. 2001)

Please indicate the number of years you have been working for this company: _____

Gender (Cross and Cummings 2004; Mehra et al. 2001)

Male Female

Network ties

A communication network can be seen as a set of employees and the ties or linkages between them, where the ties represent communication between employees. The online network examines employees' online communication and the offline network examines their offline communication. The frequency of communication is indicated by values ranging from 1 to 5, where 1 indicates minimum communication (less

than once a month) and 5 indicates maximum communication (many times a day). Social network analysis is generally concerned with dichotomous ties within a network, either being present (1) or absent (0). In order to illustrate actual communication networks and not incidental contact with other members of the company, we only show the existence of a link (1) between two individuals when the strength of their communication is 3 or above. A score of 3 indicates communication at least once a week and can be regarded as a regular activity of the employee (Scott 2000).

Direct ties (Freeman 1979)

Direct ties were calculated using the UCINET 6.0 software used in network analysis (Borgatti et al. 2002) for online and offline networks respectively. Direct ties measure the number of employees with whom an individual is directly connected (Freeman 1979). The focal individual can either be the source or object of the connection. In-degree ties include only those links in which the focal individual is the object of the connection. In other words, only when other employees indicate that they would communicate with the focal individual, such links/ties would be counted. To reduce self-report bias, we use in-degree ties that were operationalized as the number of times an individual was chosen by coworkers on the communication roster. The in-degree ties of a focal individual k can be denoted as:

$$C_D(P_k) = \sum_{i=1}^n a(P_i, P_k)$$

where $a(P_i, P_k) = 1$ if and only if P_i and P_k are connected by a line and 0 otherwise.

Indirect Ties (Ahuja 2000)

The number of contacts an individual has in the communication network with path distances greater than one, accounting for the weakening or decay in tie strength between two individuals that are connected by increasingly large path distances. A weight factor will be assigned to each indirect tie based on the number of steps in-between the indirect ties such that larger weight will be assigned to an indirect tie with fewer steps. The weight factor is expressed as: $1 - [f_i / (N+1)]$, where f_i is the total number of contacts an employee can reach at path distance i , and N is the total number of contacts an employee can reach in any number of steps. For example, if an individual has 2 direct ties, 3 two-step ties and 5 three-step ties, the weight factor for each direct tie will be $1 - 2/11 = 9/11$ ($N=10$, i.e., $2+3+5$), $1 - 3/11 = 8/11$ for each two-step ties and $1 - 5/11 = 6/11$ for each three-step ties. Therefore, the weighted count of indirect ties for this hypothetical individual is $3(8/11) + 5(6/11) = 54/11$.

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