Blurring boundaries: Correlates of integration and segmentation between work and nonwork

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Abstract

This study investigates the interrelations among role integration–segmentation, role identification, reactions to interruptions, and work–life conflict. Results from a field survey of university staff employees suggest that as highly identified roles are integrated into other domains, high role integration is related to less negative reactions to interruptions, and employees who integrate work into nonwork set fewer boundaries for using communication technologies during nonwork time and report higher work–life conflict. Findings from this research provide insight into how individuals integrate their work and life domains and the consequences of such integration to work–life conflict.
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1. Introduction

A number of researchers and practitioners have argued that employees, more than ever before, experience inter-role conflict as they try to juggle the demands of work and personal life (e.g., Ashforth, Kreiner, & Fugate, 2000; Kossek, Lautsch, & Eaton, 2005; Lambert & Kossek, 2005; Nippert-Eng, 1996a, 1996b; Valcour & Hunter, 2005). Given the

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pressure on organizations to implement mechanisms to become more family-friendly, the call to better understand how employees move between their various roles becomes even more important (Ashforth et al., 2000; Hall & Richter, 1988). Indeed, some of the proposed solutions to inter-role conflict aimed at altering work–nonwork boundaries may serve to exacerbate rather than reduce role conflict for part of the target population. Thus, as boundaries between work and nonwork become increasingly blurred, it is important to understand whether and how individuals integrate versus segment their roles as well as the consequences of role integration. The present study addressed these issues by empirically examining some propositions derived from boundary theory and related research (e.g., Ashforth et al., 2000; Kirchmeyer, 1995; Kossek et al., 2005; Nippert-Eng, 1996a, 1996b).

2. Role integration–segmentation and boundaries

Boundaries (e.g., physical, temporal, and behavioral) serve to structure and demarcate the various roles an individual maintains in different domains. Boundary theory suggests that individuals vary in the extent to which their various roles are integrated or segmented across domains (e.g., work, family). Kossek et al. (2005) argued that an individual's boundary management strategy "is partly shaped as a result of the structure of the job they are in and partly by individual differences" (p. 254). High role integration is when "no distinction exists between what belongs to 'home' or 'work' and when and where they are engaged" (Nippert-Eng, 1996a, p. 567). In contrast, high role segmentation exists when the domains of work and nonwork are treated as separate; physical space and time for segmented roles have a single purpose (Nippert-Eng, 1996a). Nonwork issues are "left at the door" upon entering the work domain. Two important points should be noted. First, role integration–segmentation falls on a continuum, ranging from high segmentation to high integration (Ashforth et al., 2000; Nippert-Eng, 1996a, 1996b). Second, directionality is an important consideration (Ashforth et al., 2000). Specifically, work may be integrated into nonwork and/or nonwork may be integrated into work. Integration into one domain is independent of the reciprocal integration.

Theorists have discussed integration–segmentation with respect to several aspects. We focus on two of the main aspects that have been discussed: permeability of boundaries and role-referencing. It is important to note that both aspects could be considered part of what Kossek et al. (2005) refer to as an individual's boundary management strategy, defined as "a combination of various types of boundaries (e.g., temporal, mental, physical, and behavioral)" (pp. 245–246).

Permeable boundaries "allow one to be physically located in the role's domain but psychologically and/or behaviorally involved in another role" (Ashforth et al., 2000, p. 474). An example of highly permeable work to nonwork boundaries is an individual may call a co-worker while waiting for the bus to pick up his children for school, whereas an example of highly permeable nonwork to work boundaries might include scheduling a plumber to fix a faucet at home while waiting for a meeting to begin at work. In contrast, someone with low permeability between work and nonwork would respond to the co-worker's question at work during regular work hours, while an example of low permeable nonwork to work boundaries would be to wait to call a plumber to fix a leaky faucet during nonwork hours in a nonwork setting.

Certainly the organization or nature of the occupation could impose some constraints with respect to how much individuals can allow their boundaries to be permeable. For

example, a company policy may allow employees to periodically use the Internet for personal use, while schoolteachers may be restricted from having personal visitors or responding to personal phone calls during school hours. Yet in most jobs (as in the present study), the individual has some latitude over the degree to which his/her boundaries are permeable.

The second aspect of role integration–segmentation we examined in this study was role-referencing or whether an individual acknowledges one role while in an alternative role domain (Nippert-Eng, 1996a, 1996b). Nearly all individuals can *refer* to their other roles symbolically (e.g., displaying pictures or artifacts) or orally (e.g., discussing issues relating to another role), but may vary in the extent to which they do so. High role-referencing of nonwork to work might include displaying pictures or symbols of nonwork roles (e.g., trophies and vacation pictures) and discussing or referring to such roles in the work domain. Similarly, high role-referencing of work to nonwork might include displaying work-related mementos at home or discussing work problems with friends. In contrast, a co-worker whom others are unsure as to whether she is married, has children, etc., would be said to have low role-referencing of nonwork to work and someone whose friends/others are unclear as to the exact nature of her work would have low role-referencing of work to nonwork. In sum, we assess the general construct of integration in terms of permeability (i.e., located in one role but involved in another role) and reference (i.e., making reference to one role while involved in another role) integration of role boundaries.

2.1. Role identification

Individuals vary with respect to how much they choose to segment or integrate their various roles (Ashforth et al., 2000; Greenhaus & Singh, 2003; Hartman, 1997; Kossek et al., 2005; Nippert-Eng, 1996a, 1996b). Yet, little is known about why or what predicts whether individuals choose to integrate or separate their work and nonwork roles. Drawing from reinforcement-related research, Ashforth et al. (2000) proposed individuals are likely to favor work or nonwork roles that provide satisfying extrinsic or intrinsic rewards. As a result of these rewards, the individual is more likely to experience role identification whereby the individual considers the role (e.g., surgeon and parent) to be a defining component of himself or herself (Ashforth & Mael, 1989; Pratt, 1998). Stryker's (1980) work suggests individuals will be more inclined to enact a given role with which they have high role identification because they place high value on that aspect of themselves. That is, consistent with reward theory, individuals will tend to engage in roles that are associated with positive reinforcement of their self-concept. Therefore, we expect high identification with a role would lead an individual to enact and/or acknowledge that role more frequently, even when in another role domain. This is consistent with Ashforth et al.'s (2000) argument that individuals are more likely to integrate a favored role into other domains. This leads to the first two hypotheses:

Hypothesis 1A. *Work role identification relates positively to work into nonwork permeability and role-referencing.*

Hypothesis 1B. *Nonwork role identification relates positively to nonwork into work permeability and role-referencing.*

2.2. Boundary transitions and interruptions

Role segmentation and integration have complementary costs and benefits. Segmentation helps minimize how much an individual might experience blurring between roles, interruptions from other roles, and allows individuals to psychologically compartmentalize their identities (Ashforth et al., 2000; Ashforth & Mael, 1989; Goode, 1960; Kanter, 1977; Nippert-Eng, 1996b). However, an individual with high role segmentation may have a more difficult time making the transition or "shifting gears" between roles (Ashforth et al., 2000). Conversely, Ashforth et al. argued individuals with high role integration might enjoy easier, perhaps even seamless, transitions between roles. The drawbacks would include the higher likelihood of blurring between roles as well as potential conflict in different role expectations. Indeed, Kossek et al. (2005) found higher role integration to be associated with higher family-to-work conflict.

Ashforth et al. (2000) applied this stream of argument to interruptions as well. That is, what happens when an individual unexpectedly has to make a transition between roles due to an interruption of some type (i.e., an "externally imposed penetration," Hall & Richter, 1988)? There is some theoretical support (Mandler, 1964, 1990) for the assertion that individuals with segmented roles will react more negatively and experience more inter-role conflict and strain (Hecht, 1996) with such interruptions than would individuals with integrated roles. This leads to our next two hypotheses:

Hypothesis 2A. *Nonwork to work permeability and role-referencing associates with less negative reactions to nonwork interruptions in the work domain.*

Hypothesis 2B. *Work to nonwork permeability and role-referencing associates with less negative reactions to work interruptions in the nonwork domain.*

2.3. Boundary creation

The use of communication technologies during nonwork time provides a new territory for examining how individuals choose to create and maintain boundaries between their work and nonwork roles. It could be argued that the cultural norms for such boundary creation are not well-set or clear at this time. Rather, an individual may attain segmentation through deliberately erecting and defending self-imposed (or idiosyncratic) boundaries surrounding use of communication technologies (e.g., not respond to emails or answer cell phone after 9:00 p.m.). These boundaries may be, in essence, "idiosyncratic" boundaries in that they have not been "institutionalized" by means of government regulations, work policies, or societal norms (Ashforth et al., 2000, p. 482). Ashforth et al. (2000) argued that individuals with higher role integration have greater difficulty creating and maintaining role boundaries, especially with respect to idiosyncratic boundaries. We focus specifically on boundaries around communication technologies to perform work during nonwork time. Though one can also set boundaries for use of such technologies for nonwork use during work time, we were particularly interested in how work gets done and the management implications. This leads to our next hypothesis.

Hypothesis 3. *Work to nonwork role permeability and role-referencing relates negatively to boundaries set for the use of communication technologies to perform work during nonwork time.*

2.4. Work–life conflict

Work–life conflict occurs when the role demands in one domain interferes with meeting the demands of a role in another domain (e.g., Greenhaus & Beutell, 1985; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Work–life conflict can occur in both directions—work demands can interfere with life and life demands can interfere with work (Carlson, Kacmar, & Williams, 2000; Greenhaus & Beutell, 1985; Gutek, Searle, & Klepa, 1991). While a recent meta-analysis (Byron, 2004) reports a number of studies that have examined demographic antecedents (e.g., marital status and number of children) and work variable antecedents (e.g., job stress and schedule flexibility), virtually none of the studies examined work–nonwork role integration as a possible antecedent of work-to-life conflict. Several researchers (Ashforth et al., 2000; Hall & Richter, 1988; Kossek et al., 2005) have suggested greater integration of work and nonwork roles may relate to negative consequences. Ashforth et al. argued that the permeability of the roles would allow unannounced interruptions, increased confusion about what role to enact at a given time, and little opportunity to fully disengage from another role to immerse oneself in a current role. Hall and Richter (1988) argued that "boundary permeability epitomizes role conflict" (p. 217) in that individuals are attending to two domains, with their separate norms and expectations, simultaneously. In other words, the line between the two domains may become blurred as job-related activities detract from and/or spillover into one's personal life (Batt & Valcour, 2003; Chesley, Moen, & Shore, 2003; Valcour & Hunter, 2005). Williams, Suls, Alliger, Learner, and Wan's (1991) diary study of working mothers found empirical support for the negative affect associated with attending to two roles at once. Specifically, juggling demands from different domains (e.g., work, family) resulted in negative affect and less task enjoyment. Anecdotal evidence in the telecommunicating literature suggests the difficulty teleworkers often have separating work and family activities (e.g., Kurland & Bailey, 1999). There is some empirical evidence linking telework to blurred work–family boundaries (e.g., Duxbury, Higgins, & Thomas, 1996; Kraut, 1989), though the research findings in this area are somewhat equivocal (see Bailey & Kurland, 2002; Pinsonneault & Boisvert, 2001, for reviews).

Greenhaus and Beutell's (1985) discussion of sources of work–life conflict is also relevant. Role permeability might be associated with resource drain creating time-based as well as strain-based conflict for the individual. For example, devoting time to work when one is in the nonwork domain makes it difficult to fulfill the requirements of the nonwork role. This may be less the case in regards to referencing one role while in another role. While role-referencing might increase mental preoccupation with another role, and thus serve as a source of strain-based conflict, we see less reason to expect that simply acknowledging one's work role while in the nonwork domain would foster work–life conflict.

In sum, prior research suggests role integration is likely to lead to "boundary blurring" and conflict between roles. We focus specifically on the role of work to nonwork permeability in relation to work-to-life conflict (e.g., Frone, Russell, & Cooper, 1992; Greenhaus, Parasuraman, Granrose, Rabinowitz, & Beutell, 1989; Thomas & Ganster, 1995; Wallace, 1997). In particular, individuals with higher work to nonwork permeability are likely to report greater conflict between these roles. We do not offer a hypothesis for role-referencing as there is little theoretical reason to believe that simply acknowledging one's work role while in the nonwork domain would create work–life conflict. This leads to our last hypothesis.

Hypothesis 4. *Work to nonwork permeability relate positively to work-to-life conflict.*

3. Method

3.1. Participants and procedure

Packs containing a survey and cover letter were sent to 938 non-academic staff employees (e.g., administrative, clerical, and computer support) of a Western public university via the internal mail system. The cover letter explained the survey process, assured the confidentiality of the responses, and directed the employees to return the survey (business reply envelope included) directly to an author not affiliated with the university. A total of 360 surveys (38% response rate) were returned. Respondents were primarily female (67%) and married (73%). Sixty-three percent of the respondents were Caucasian, 20% Hispanic, 5.5% African American, 4.5% Asian, 2% Native American, and 5% indicated "other" as their ethnicity. Age was assessed in ranges (e.g., 20–25). Twenty-two percent were between the ages of 20 and 40, 57% fell between the ages of 41 and 55, and 21% of respondents were older than 55. The median and model respondent age ranges were 46–50 and 51–55, respectively.

3.2. Measures

3.2.1. Work role identification
Work role identification was measured with six items from Kanungo's (1982) scale. Example items include: "The most important things that happen to me involve my job/profession" and "I am very much involved personally in my job" ($\alpha = .72$).

3.2.2. Nonwork role identification
Nonwork role identification was measured with eight items from Yogev and Brett (1985) family involvement scale but adapted to capture nonwork more generally. Example items include: "I would be a less fulfilled person without my role(s) in my personal and family life" and "I enjoy talking about my personal and family life with other people" ($\alpha = .80$).

3.2.3. Permeability
Permeability was assessed with six items derived from Ashforth et al. (2000); Williams and Alliger (1994). Three items focused on *work to nonwork permeability* and three items focused on *nonwork to work permeability* (e.g., "I deal with nonwork issues while at work as needed"; 1 = strongly disagree, 5 = strongly agree).[1]

3.2.4. Role-referencing
Role-referencing was assessed with five items adapted from Nippert-Eng (1996a). Two items focused on *work to nonwork role-referencing* (e.g., "I talk about my work life with my

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[1] Note that the role integration measures are considered causal indicator scales, meaning the items are considered to be indicators of separate, albeit related, constructs (Bollen & Lennox, 1991). More specifically, each item indicates whether an individual integrates his/her work–nonwork roles but would not necessarily correlate with the individual's tendency to engage in other potential means of integration represented in the scale. The items can be combined to create the respective indices, but internal consistency is not a meaningful measure of scale reliability since we do not expect the items to necessarily covary (Nunnally & Bernstein, 1994).

friends and family"; 1 = strongly disagree, 5 = strongly agree) and three items focused on *nonwork to work role-referencing* (e.g., "I talk about my home/personal life at work"; 1 = strongly disagree, 5 = strongly agree).

Given we assessed role integration–segmentation on two aspects (i.e., permeability and role-referencing) and along two directions (i.e., work to nonwork and nonwork to work), it is important to empirically assess the dimensionality of the four scales. Accordingly, we conducted a confirmatory factor analysis (CFA) on the four integration–segmentation scales (i.e., work to nonwork permeability, nonwork to work permeability, work to nonwork role-referencing and nonwork to work role-referencing). A CFA using LISREL 8.52 (Joreskog & Sorbom, 2002) provided support for a four-factor model (χ^2 [38, $N = 330$] = 90.76, $p < .01$ [GFI = .95, CFI = .93, NNFI = .90, *RMSEA* = .07). The fit indices for the four-factor model met suggested rules of thumb cutoff values (e.g., Bentler & Bonett, 1980; Medsker, Williams, & Holahan, 1994). A model with all integration items loading on one latent factor was also tested. The one-factor model did not fit the data well (χ^2 [44, $N = 330$] = 288.43, $p < .01$ [GFI = .86, CFI = .70, NNFI = .62, *RMSEA* = .13]), and a χ^2 difference test indicated that the four-factor model fit the data significantly ($p < .01$) better.

3.2.5. Reactions to role boundary interruptions

Reactions to role boundary interruptions were assessed with four items developed specifically for this study but based on prior research (e.g., Nippert-Eng, 1996a). Two items represented reactions to one's nonwork interrupting work (e.g., "I get upset or annoyed when I am interrupted by my personal/family life at work," "I find it hard to enjoy my work when I am interrupted by personal/family life at work"; ($\alpha = .76$) and two items represented reactions to one's work interrupting nonwork (i.e., "I get upset or annoyed when I am interrupted by work-related problems during my 'off-work' hours," "I find it hard to enjoy my 'off-work' time when I am interrupted by work;" $\alpha = .81$).

3.2.6. Boundaries for use of communication technologies to perform work during nonwork time

Respondents were asked to indicate whether they set different boundaries for themselves during nonwork time (1 = yes, 0 = no). Seven different boundaries were developed in collaboration with the HR director of the participant organization. Example boundary items include: "I limit the amount of time or when I use communication technologies for work purposes during nonwork hours (for example, only until 7 p.m.)" and "I do not use communication technologies for work purposes on weekends." The items were summed to create the index.[2]

3.2.7. Work-to-life conflict

Work-to-life conflict was assessed with Gutek et al.'s (1991) four-item work interfering with life scale ($\alpha = .84$).

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[2] These items represent causal indicators of different boundaries one may (or may not) set. Thus, internal consistency is not a meaningful measure of scale reliability because we do not expect the items to necessarily covary (Nunnally & Bernstein, 1994).

We also included an array of demographic control variables that previous research has identified as related to work–life conflict (e.g., Hill, Ferris, & Martinson, 2003). Specifically, we controlled for family- (e.g., marital status) and work-related (e.g., level within the organization) variables that are likely related to whether and how an individual integrates his/her work–nonwork roles as well as his/her reactions to boundary interruptions. Respondents reported their *job level*, *job tenure* (in years), *gender* (1 = female, 0 = male), *marital status* (1 = married, 0 = not married), and *number of dependents* (under 18 years old) directly on the survey.

4. Results

Descriptive statistics are shown in Table 1. The pattern of correlations provided initial support for many of the hypotheses. The hypotheses were tested using hierarchical regression. In each of the models, the control variables (i.e., job level, job tenure, gender, marital status, and number of dependents) were entered in step one followed by the variables of substantive interest in step two.

Hypothesis 1 proposed that work role identification relates positively to work into nonwork permeability and role-referencing and that nonwork role identification relates positively to nonwork into work permeability and role-referencing. Separate regression models were run for each integration variable (i.e., work to nonwork permeability, work to nonwork role-referencing, nonwork to work permeability, and nonwork to work role-referencing). As shown in Table 2, work role identification predicted work to nonwork permeability ($\beta = .19$, $p < .01$) and role-referencing ($\beta = .23$, $p < .01$). Similarly, nonwork role identification predicted nonwork to work permeability ($\beta = .18$, $p < .01$) and role-referencing ($\beta = .32$, $p < .01$). Thus Hypothesis 1 was fully supported.

Hypothesis 2 proposed that nonwork to work permeability and role-referencing associate with less negative reactions to nonwork interruptions in the work domain and that work to nonwork permeability and role-referencing associate with less negative reactions to work interruptions in the nonwork domain. As shown in Table 3, individuals with higher work to nonwork role-referencing reported less negative affective reactions to work interrupting nonwork boundaries ($\beta = -.13$, $p < .01$), but the permeability variable was non-significant. Similarly, individuals with higher nonwork to work role-referencing reported less negative affective reactions to nonwork interrupting work boundaries ($\beta = -.13$, $p < .05$) but the permeability variable was only marginally significant ($\beta = -.11$, $p = .09$). Hypothesis 2 was partially supported.

Hypothesis 3 proposed that work to nonwork role permeability and role-referencing relate negatively to boundaries set for the use of communication technologies to perform work during nonwork time. The overall regression model was significant ($R^2 = .19$, $F = 8.15$, $p < .01$). Individuals with higher work to nonwork integration reported setting fewer boundaries for using communication technologies during nonwork time (permeability $\beta = -.26$, $p < .01$; role-referencing $\beta = -.19$, $p < .01$). Note that the integration variables explained significant variance over and above the control variables ($\Delta R^2 = .11$, $p < .01$) and that job level was the only statistically significant control variable ($\beta = -.17$, $p < .01$). Hypothesis 3 was fully supported.

Finally, Hypothesis 4 proposed that work to nonwork permeability relate positively to work-to-life conflict. The overall regression model was significant ($R^2 = .08$, $F = 3.11$, $p < .01$).

Table 1
Descriptive statistics and correlations between variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Work role identification	2.93	0.62	—													
2. Nonwork role identification	3.98	0.56	−.31	—												
3. Work to nonwork permeability	8.32	2.82	.22	.03	—											
4. Work to nonwork role-referencing	6.13	1.42	.20	.12	.22	—										
5. Nonwork to work permeability	10.69	2.07	−.09	.19	.13	.22	—									
6. Nonwork to work role-referencing	10.22	2.15	.02	.35	.20	.42	.30	—								
7. Reactions to nonwork interrupting work	2.34	0.74	.12	−.09	−.07	.07	−.19	−.17	—							
8. Reactions to work interrupting nonwork	2.72	0.92	−.18	.16	−.03	−.11	−.08	−.11	.45	—						
9. Boundaries for communication tech use during nonwork time	1.61	1.30	−.10	−.04	−.34	−.25	−.05	−.20	−.11	.20	—					
10. Work-to-life conflict	2.85	0.92	.14	−.05	.24	.01	−.13	.02	.18	.25	−.09	—				
11. Job level	1.28	0.57	.20	−.06	.32	.13	.09	.16	−.07	−.10	−.22	.08	—			
12. Job tenure	7.68	6.95	−.04	−.07	−.10	.04	−.01	−.02	.08	.05	.09	−.12	−.05	—		
13. Gender (1 = female)	0.67	0.47	.02	.06	−.17	−.13	−.10	−.02	.00	−.04	.08	.03	−.20	−.04	—	
14. Marital status (1 = married)	0.73	0.44	−.03	.11	.10	.02	.00	.16	−.02	−.06	.01	.11	.15	.03	−.14	—
15. Number of dependents	0.62	0.96	.03	.14	.05	.09	.04	.08	.02	−.07	−.05	.00	−.11	−.08	−.20	.20

Notes. Correlations $\geqslant |.14|$ are significant at $p < .01$; correlations $\geqslant |.10|$ are significant at $p < .05$.

Table 2
Results of role integration regressed on role identification

	Work to nonwork permeability	Work to nonwork reference integration	Nonwork to work permeability	Nonwork to work role-referencing
Job level	.22**	.04	.11	.20**
Job tenure	−.11	.03	.04	.03
Gender	−.13*	−.10	−.06	.06
Marital status	.06	−.02	−.03	.07
Number of dependents	.03	.07	.03	.06
Work role identification	.19**	.23**		
Nonwork role identification			.18**	.32**
R^2	.15	.07	.05	.15
ΔR^2 with addition of identification variables	.04**	.05**	.03**	.10**
F	7.86**	3.56**	2.27*	8.22**

Note. Standardized β coefficients reported for the final step.
  * $p < .05$.
  ** $p < .01$.

Table 3
Results of affective reactions to boundary interruption regressed on permeability and role-referencing

	Reactions to work interrupting nonwork	Reactions to nonwork interrupting work
Job level	−.08	−.01
Job tenure	.02	.07
Gender	−.08	−.03
Marital status	.03	−.03
Number of dependents	−.03	.05
Work to nonwork permeability	.03	
Work to nonwork role-referencing	−.13**	
Nonwork to work permeability		−.11
Nonwork to work role-referencing		−.13*
R^2	.03	.04
ΔR^2 with addition of integration variables	.02**	.03**
F	2.03*	2.69*

Note. Standardized β coefficients reported for the final step.
  * $p < .05$.
  ** $p < .01$.

Consistent with our hypothesis, work to nonwork permeability predicted work-to-life conflict ($\beta = .21$, $p < .01$) and explained significant variance in work-to-life conflict over and above the control variables ($\Delta R^2 = .04$, $p < .01$). Job tenure was the only control variable significantly related to work-to-life conflict ($\beta = −.14$, $p < .01$). Hypothesis 4 was supported.

5. Discussion

This study empirically examined propositions derived from the boundary theory literature (e.g., Ashforth et al., 2000; Nippert-Eng, 1996a, 1996b). This study found evidence that

roles with which an individual more highly identifies are integrated into other domains, higher role-referencing is related to less negative reactions to role boundary interruptions, and high work to nonwork role integrators (permeability and role-referencing) set fewer boundaries for the use of communication technologies during nonwork time. Also, higher work to nonwork permeability is positively associated with higher work-to-life conflict.

In support of Hypothesis 1, individuals with stronger work role identification had higher work to nonwork integration (permeability and role-referencing). Similarly, individuals with stronger nonwork role identification had higher nonwork to work integration (permeability and reference). Thus, individuals who strongly identify with a particular work or nonwork role tend to integrate that role into other domains by such referent integration as talking about the role and displaying pictures relating to the role (specific items from our role-referencing measure), and such permeability integration as allowing a favored role to interrupt a role in another domain. Our findings support Ashforth et al.'s (2000) proposition derived from reinforcement-related research that individuals integrate favored roles into other roles.

Consistent with Hypothesis 2, individuals with higher nonwork to work role-referencing had less negative affective reactions to personal role interruptions at work. Similarly, individuals with higher work into nonwork role integration (reference only) had less negative affective reactions to being interrupted by work role issues while in their nonwork domain. This provides some empirical support for Ashforth et al.'s (2000) assertion that transitions between roles are easier for high integrators and further support for Mandler's (1964) argument that individuals who compartmentalize or segment their roles have a more difficult time shifting between roles when the shift is unexpected. The role-referencing variables were significant, yet the permeability variables were not. Perhaps individuals that tend to enact one role while involved in another are not necessarily more accepting of interruptions. It may be that some "integrators" prefer it to be on their terms—that is, they desire choice with regard to crossing over roles.

Consistent with Hypothesis 3, individuals who integrated their work role into their nonwork role created fewer boundaries for the use of communication technologies during nonwork time. Thus, individuals who tend to be more involved in their work role while in their nonwork domain also have fewer self-created boundaries for how or how much they will use communication technologies for work while in the nonwork domain. Such individuals would be unlikely to restrict their use of communication technologies to the workweek and/or only rely on communication technologies for work emergencies. This finding supports the theoretical argument (Ashforth et al., 2000) that integrators will have a more difficult time creating boundaries, particularly when the norms for such boundaries are not well-institutionalized.

Consistent with Hypothesis 4, higher work to nonwork permeability related to higher work–family conflict. This provides empirical support that attending to two domains at the same time leads to blurring of boundaries and ultimately role conflict (e.g., Ashforth et al., 2000; Hall & Richter, 1988). This is also consistent with the literature that finds work time and workload significantly predict work–family conflict and stress-related outcomes (e.g., Frone, Yardley, & Markel, 1997; Gutek et al., 1991; Major, Klein, & Ehrhart, 2002; O' Driscoll, Ilgen, & Hildreth, 1992; Smith, Folkard, & Fuller, 2003). We did not hypothesize a relation between work to nonwork role-referencing and work–life conflict, however a post hoc analysis showed a non-significant relationship ($\beta = -.03$, *ns*). Thus, individuals who talk about their work role in their nonwork domain do not report higher work–life

conflict. It seems that role-reference integration is not invasive in the nonwork domain because it does not require the individual to be engaged in the nonwork role. This also provides some discriminant validity between the role integration (permeability vs. role-referencing) variables.

Due to organizational constraints, we could not measure the counterpart to work–life conflict–life–work conflict in this study. This prevented us from examining whether nonwork to work integration is related to life–work conflict. However, as a post hoc analysis we did examine the relation between nonwork to work integration and work–life conflict. Interestingly, higher nonwork to work permeability was significantly related to lower work–life conflict ($\beta = -.14$, $p < .05$). Thus, individuals who deal with nonwork issues as needed at work report lower work interference with nonwork issues. This makes conceptual sense, but also provides additional support for the positive role of an organization accommodating an employee's personal life while in the work domain. This finding also suggests that the effect of integration is not absolute, but depends on directionality. While the integration (i.e., permeance) of nonwork to work may help reduce work–life conflict, integration of work to nonwork increases work–life conflict.

The cross-sectional design of this study provides only a glimpse into the relationship between role integration, role boundaries, and work–life stress. Two other limitations of the study should be noted. Mono-method bias is always a concern when variables are measured using a single survey (Campbell, 1982; Williams & Brown, 1994). Given our specific focus, we only measured work-to-life conflict in this study. Future research is needed to examine the full factorial of integration–segmentation on both types of inter-role conflict.

Though role identification has been proposed as an important determinant of integration–segmentation in prior theoretical work (e.g., Ashforth et al., 2000; Ashforth & Mael, 1989), and supported empirically in the present study, future research is needed to examine other possible antecedents to integration–segmentation, such as work and family norms or role contrast (Ashforth et al., 2000). Consequences of integration–segmentation for the organization (e.g., productivity and culture) and individual (e.g., strain) also merit further empirical examination. Understanding how individuals integrate their work and life domains and the consequences of such integration is of great importance as work–nonwork role boundaries become increasingly blurred. Our research provides an initial glimpse into this issue, with the hopes of fostering continued exploration into the interplay between work and nonwork roles and boundaries.

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