

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/authorsrights>



Unpacking the impact of attachment to project teams on boundary-spanning behaviors



Sujin Lee ^{a,*}, Sukanlaya Sawang ^b

^a KAIST, Daejeon 305-701, South Korea

^b QUT Business School, Brisbane, Australia

Received 14 August 2015; received in revised form 8 December 2015; accepted 8 December 2015

Available online 7 January 2016

Abstract

As business environments become even more competitive, project teams are required to make an effort to operate external linkages from within an organization or across organizational boundaries. Nevertheless, some members boundary-span less extensively, isolating themselves and their project teams from external environments. Our study examines why some members boundary-span more or less through the framework of group attachment theory. Data from 521 project team members in construction and engineering industries revealed that the more individuals worry about their project team's acceptance (group attachment anxiety), the more likely they are to perceive intergroup competition, and thus put more efforts into operating external linkages and resources to help their own teams outperform competitors. In contrast, a tendency to distrust their project teams (group attachment avoidance) generates members' negative construal of their team's external image, and thus fewer efforts are made at operating external linkages. Thus, project leaders and members with high group attachment anxiety may be best qualified for external tasks.

© 2015 Elsevier Ltd. APM and IPMA. All rights reserved.

Keywords: Boundary spanning; External activity; Group attachment theory; Project team attachment; Project team perception

1. Introduction

Effective teamwork is a critical success factor for project performance in the engineering and construction industry (Yang et al., 2011) and has a strong connection to financial and non-financial benefits (Chou and Yang, 2012). To achieve project efficiency, project teams increasingly rely on communications and collaborations across team boundaries (Bond-Barnard et al., 2013). Boundary spanning, or boundary management, refers to project team members' efforts to operate external linkages from

within an organization (e.g., across marketing and manufacturing teams) or across organizational boundaries (e.g., to external customers, suppliers) (Ancona, 1990; Marrone, 2010). As the business environment becomes even more competitive, individual team members need to venture beyond team boundaries to seize innovation opportunities (Crawford and Lepine, 2013). Nevertheless, some team members boundary-span less extensively, isolating themselves and their project teams from external environments. Our study aims to unpack project team members' behavior especially to propose a model that predicts who will be better (or worse) boundary spanners on their teams' behalf, based on attachment to project teams.

The purpose of our research is to elucidate project team members' relational orientations that facilitate (or hamper) their externally focused behavior, along with shedding light on underlying psychological mechanisms. The extant literature has mostly focused on performance *outcomes* of external activities, documenting that broader ranges of boundary spanning

☆ The authors thank Wendi Adair, Tove Hammer, Elizabeth Mannix, Elizabeth Mullen, Kathleen O'Connor, Melissa Thomas-Hunt, Leigh Thompson, and Pamela Tolbert for their insightful comments on this paper's earlier idea development and Moon Jung Byun, Junha Kim, and Chang Hyun Noh for their valuable assistance with this research.

* Corresponding author at: KAIST, 373-1 Guseong-dong, Yuseong-gu, Daejeon 305-701, South Korea. Tel.: +82 42 350 4339; fax: +82 42 350 4340.
E-mail address: sujinlee@kaist.ac.kr (S. Lee).

enhance the team's performance (Ancona and Caldwell, 1992; Somech and Khalaili, 2014). In contrast, prior research has paid less attention to *antecedents* of externally focused behavior (Choi, 2002; Brion et al., 2012). Especially, boundary spanners need to deal with interpersonal relationships and project environments inside and outside their teams (Friedman and Podolny, 1992; Qu and Cheung, 2013). Understanding project team members' relational orientation—that is, how they perceive project environments and interact with others—is critical in this context but remains largely unaddressed in project teams and boundary-spanning behavior research. Our study thus contributes to a current knowledge by applying group attachment theory (Smith et al., 1999) to understand how project team members' relational orientations influence their boundary-spanning behavior. Group attachment is an individual-level construct based on an individual's perception of his or her relationship to the specific group as a whole (Lee, 2005; Lee and Ling, 2007) and provides a psychological foundation of team boundary management. Our proposed model (Fig. 1) may help explain why some project team members excel while others derail tasks and teams in external activities. Practically, management may use our results to predict the most (least) active boundary-spanners and form externally focused project teams, or choose ideal team representatives.

The remainder of this paper is organized as follows. First, we review group attachment theory and its relevance to project team members' boundary-spanning behaviors. We then propose two psychological mechanisms (perceived intergroup competition and construed external image of the project team) as mediators between group attachment and team member boundary-spanning behaviors. The key hypotheses are then developed and follow with methodology, results, and analysis explanation. Finally, the discussion and implications are presented.

2. Group attachment theory: Anxiety and avoidance dimensions

Attachment to groups refers to individuals' psychological ties to their groups as a whole, rather than to another person (Lee, 2005; Lee and Ling, 2007; Smith et al., 1999). Although individuals' attachment to groups is affected by their group experience, it is neither a dyad- nor group-level construct. Attachment to groups is a conceptually and empirically individual-level construct (Marmarosh and Tasca, 2013; Rom and Mikulincer, 2003). Empirical research demonstrates that group members have different levels of attachment to the group, as suggested by low intraclass correlations of the construct within a group (Rom and Mikulincer, 2003).

Attachment to groups has been found to influence individuals' cognition, emotion, and behavior in task-related (Lee and Ling, 2007; Rom and Mikulincer, 2003) and social groups (Smith et al., 1999).

Attachment to groups has two distinct dimensions: group attachment anxiety and group attachment avoidance (Smith et al., 1999). *Group attachment anxiety* results from inconsistent and unpredictable reactions from team members to individuals' fear-motivated support-seeking behaviors. It refers to the degree to which a person worries that his or her project team will not be available or adequately responsive in times of need. Team members with *high* group attachment anxiety tend to have low self-confidence and associate their team with inconsistent support and respect. Their attachment goal is to gain acceptance. In contrast, team members with *low* group attachment anxiety are self-confident and believe the team offers consistent support and acceptance (Lee and Ling, 2007).

The other dimension, *group attachment avoidance*, reflects the extent to which he or she distrusts group members' goodwill and strives to maintain autonomy and emotional distance from them (Smith et al., 1999). Team members with *high* group attachment avoidance distrust their teams and thus seek to remain self-reliant and emotionally distant. In contrast, those with *low* group attachment avoidance trust and count on the team for support. Team members with low levels of both group attachment anxiety and avoidance dimensions have high *group attachment security*—they feel accepted by their teams and count on them for support (Lee, 2005; Lee & Ling, 2007; Smith et al., 1999). Attachment research focuses on the two continuous higher-order dimensions of anxiety and avoidance, rather than categorizing people by discrete attachment types (Brennan et al., 1998). Our research shares this focus on the two continuous dimensions.

2.1. Group attachment anxiety and perceived intergroup competition

We predict that group attachment anxiety is positively associated with perception of intergroup competition. Team members more anxiously attached to their project teams perceive the team's support and responsiveness as inconsistent (Korsgaard et al., 2003; Lyubovnikova and West, 2015). Their attachment goal is to gain acceptance (Mikulincer and Shaver, 2007). For team members with high group attachment anxiety, such beliefs are likely to promote deep concern about the project team's acceptance of them as valuable members and to make them strive to gain acceptance. Therefore, members more

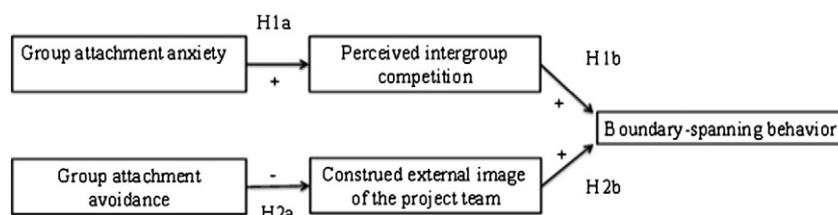


Fig. 1. A proposed model to explain project team members' boundary-spanning behaviors.

anxiously attached to their project teams are likely to feel pressured to bring about strong team performance outcomes. People aware of this pressure tend to feel threatened when interacting with outgroup members and to harbor perceptions of intergroup relations as being more competitive (Druckman, 2015). Due to the expectation that outgroup members will behave competitively (Lee et al., 2012; Puurtinen et al., 2015), project team members with high group attachment anxiety are more likely to feel threatened and thus perceive even more competition between groups.

Hypothesis 1a. Group attachment anxiety will be positively related to perception of intergroup competition.

2.2. Perceived intergroup competition as a mediator between group attachment anxiety and boundary-spanning behavior

We predict that perceived intergroup competition will mediate the link between group attachment anxiety and external activities. The perception of intergroup competition has been identified as a key predictor of external activities (Baum and Korn, 1999; Bowers et al., 2014). The more members perceive intergroup competition, the more likely they are to boundary-span and the less likely to remain isolated. The explanation is that competition between teams motivates team members to interact with non-team members to find out more about competitors and to seek to acquire new information and technologies, and to use the knowledge to benefit their own team and outperform competitors. In this way, perception of intergroup competition facilitates external activities (Baum and Korn, 1999; Bowers et al., 2014).

As project team members more anxiously attached to their teams are sensitive to threats posed by the perception of intergroup interaction as competitive (H1a), they are more likely to dedicate time and resources to exploring external environments and interacting with outsiders, engaging in activities that will earn them acceptance and benefit their own team in competitive intergroup environments. Project members more anxiously attached to their project teams may want to prove themselves to the team and thus perform external activities more actively. Thus, group attachment anxiety should be positively related to boundary-spanning behavior through a perception of intergroup competition.

Hypothesis 1b. Perceived intergroup competition will fully mediate the positive link between group attachment anxiety and boundary-spanning behavior.

2.3. Group attachment avoidance and construed external image of the project team

We predict that project members more avoidantly attached to their project teams will construe a negative external image of their teams. A team's construed external image refers to how team members believe outsiders view their team, which may be inconsistent with how outsiders actually see the team (Dutton et al., 1994). A team's construed external image can be a status marker awarded by outsiders, and thus has an important impact

when people interact with outsiders (Dutton et al., 1994). Team members more avoidantly attached to their teams tend to distrust their teams and do not count on them for support (Korsgaard et al., 2003; Lee and Ling, 2007). Their attachment goal is to remain self-reliant and emotionally distant from the team (Mikulincer and Shaver, 2007). Because the project team is personally unimportant, project members with high group attachment avoidance are unlikely to care whether the team accepts them and unlikely to feel pressured to perform well for the team. Instead, because they distrust and devalue the team, they are more likely to construe the perception of their team by external, non-team members as negative. Indeed, empirical research on attachment to groups has demonstrated that people with high group attachment avoidance (with their social groups) felt a less positive affect toward their groups (Smith et al., 1999). Thus,

Hypothesis 2a. Group attachment avoidance will be negatively related to construed external image of the project team.

2.4. Construed external image of the project team as a mediator between group attachment avoidance and boundary-spanning behavior

We predict that constructed external image of the project team will mediate the link between group attachment avoidance and external activities. Team members construing a positive external image of their teams—believing that outsiders view the teams positively—feel proud of their teams in external interactions (Dukerich et al., 2002); therefore, they are likely to interact actively with outsiders. Moreover, team members behave in a way to benefit their team when they believe others perceive the team as worthy (Bartel et al., 2012). Thus, the more positively project members construe the external image of their project teams, the more likely they are to boundary-span—to gain helpful information and technologies to benefit their team. As much as project members avoidantly attached to their project teams perceive a construed negative external image of their teams (H2a) and regard their teams as having low status, they are emotionally detached from and un-invested in their teams and, in turn, may be unwilling to invest time and effort to engage in operating external linkages and resources for their teams. Thus, group attachment avoidance should be negatively related to boundary-spanning behavior through a negatively construed external image of the project team.

Hypothesis 2b. Construed external image of the project team will fully mediate the negative link between group attachment avoidance and boundary-spanning behavior.

3. Methods

3.1. Sample

We recruited full-time project members in construction and engineering industries through online panelists in Australia and the USA (14.63% response rate). The email invitation explained the estimated time to complete the survey and

provided respondents with a URL through which to participate. The respondents received a token to redeem a reward through the online panel companies upon the survey completion. Of the 521 total respondents, 255 were female (48.9%) and 266 were male (51.1%). The mean organizational tenure was six years ($SD = 5.35$). Respondents' mean age was 34 years ($SD = 10.30$). The average team size was eight members ($SD = 8.13$), and the average time working within the team was 10 months ($SD = 18.60$).

3.2. Measures

Participants were asked to think about the functional team with which they were currently working on a project within their division. If they were a member of multiple project teams, they were asked to focus on one team consistently while completing the survey. To mitigate the concern that variables measured first on a survey prime participants to respond to the other items consistent with the variable's influence, we counterbalanced the order of our variables in our survey. A given survey could start with any of the four measures of (1) group attachment anxiety/avoidance, (2) perceived intergroup competition, (3) construed external image of the project team, and (4) boundary-spanning scales. Our analyses showed that survey-item order had no effect on our dependent variables. Moreover, we used different endpoints and anchoring for independent and dependent variables, to reduce the possibility of the common method bias (Podsakoff et al., 2003).

3.2.1. Group attachment anxiety/avoidance

Six items were adapted from Brennan et al. (1998). We asked participants to focus on their project teams in organizations. Participants responded to the items using an eight-point scale (0 = *not at all true* to 7 = *very much true*). Example items are "I often worry that this team does not really accept me," "I worry that this team won't care about me as much as I care about them," and "I need reassurance that I am valued by this team" (group attachment anxiety: $\alpha = .93$); "I find it difficult to allow myself to depend on this team," "I find it difficult to completely trust this team," and "It is difficult to ask the team members for help" (group attachment avoidance: $\alpha = .74$).

3.2.2. Perceived intergroup competition

Participants responded to four items measuring perceived intergroup competition adapted from Jackson and Smith (1999), using a six-point scale (0 = *not at all* to 5 = *very much*). Example items are "There is a basic conflict of interests between teams," "I feel like I am competing with members of other teams," and "Each team is more interested in their own team's interest than the company's interest as a whole" ($\alpha = .84$).

3.2.3. Construed external image of the project team

We used a measure of construed external image of a group from prior research (Dukerich et al., 2002; Luhtanen and Crocker, 1992). Participants responded to two items using a six-point scale (0 = *not at all* to 5 = *very much*). The items are

"In general, I think others think that this team is superior to other teams" and "I think most people consider this team, on the average, to be more effective than other teams" ($\alpha = .80$).

3.2.4. Boundary-spanning behavior

We adapted nine items to measure boundary-related activities (Ancona and Caldwell, 1992). Respondents were asked to indicate the extent to which they felt several listed behaviors were part of their responsibility in dealing with non-team members. Participants responded to all items using a six-point scale (0 = *not at all* to 5 = *very much*). Example items are "I keep other teams in the company informed of my team's activities," "I collect technical information or ideas from individuals outside of my team," and "I scan the environment inside or outside the organization for technical ideas or expertise" ($\alpha = .71$).

3.2.5. Control variables

In analyses, we controlled for age, gender, team size, project tenure, and organizational tenure.

3.3. Construct validity

Due to the cross-sectional nature of our data, shared variance among constructs may inflate relationships among them (Tsai and Ghoshal, 1998). For CFA analysis, Harman's single-factor test for common method variance is used widely. To examine this issue, we performed an overall CFA model for five independent constructs (group attachment anxiety, group attachment avoidance, perceived intergroup competition, construed external image of the project team, and boundary-spanning behavior). If substantial common method variance is present, either (1) a single factor will emerge from the factor analysis or (2) one general factor will account for the majority of the covariance among the variables (Podsakoff et al., 2003). The results showed that a five-factor model [$\chi^2(58) = 208.19$, IFI = .92, TLI = .90, CFI = .92, RMSEA = .08] had a better fit than a one-factor model [$\chi^2(63) = 502.15$, IFI = .76, TLI = .70, CFI = .76, RMSEA = .13]. The evidence was the well-fit CFA model. The measured items for each construct illustrated good localization. Further evidence was that a single-factor model performed poorly when all items were placed into one construct, indicating that each construct differs from the others.

4. Results

Table 1 shows the bivariate correlation coefficients and descriptive statistics for key variables. We found that group attachment anxiety was positively correlated with perceived intergroup competition ($r = .51$, $p < .01$). Group attachment avoidance was negatively related to construed external image of the project team ($r = -.37$, $p < .01$). Perceived intergroup competition ($r = .17$, $p < .01$) and construed external image of the project team ($r = .32$, $p < .01$) were both positively related to boundary-spanning behavior. Regression analysis revealed that our control variables (age, gender, team size, project

Table 1
The bivariate correlation coefficients between independent and dependent variables in the study. *

	1	2	3	4	5	Mean	SD.
1. Boundary-spanning behavior	(.71)	-.01	-.01	.17**	.32**	3.39	.66
2. Group attachment anxiety		(.93)	.65**	.51**	.23**	2.25	.99
3. Group attachment avoidance			(.74)	.52**	-.37**	2.14	1.01
4. Perceived intergroup competition				(.84)	.19**	2.39	.86
5. Construed external image					(.80)	3.98	.89
6. Age	.09	-.11	-.10	-.01	.07	38.58	10.67
7. Gender	-.02	-.01	-.04	.01	-.02	.63	.48
8. Team size	-.02	.07	.08	.09	.00	9.37	9.64
9. Project tenure	.10	-.07	-.05	.05	.04	3.56	1.54
10. Organizational tenure	.08	-.07	-.11	.00	-.06	7.14	6.92

Note: Cronbach alphas (internal reliabilities) are in the diagonals; * $p < .05$; ** $p < .01$

Cronbach alphas (internal reliabilities) are in the diagonals.

* $p < .05$.

** $p < .01$.

tenure, and organizational tenure) non-significantly influence on boundary-spanning behavior.

We used structural equation modeling (SEM) to examine dependence relationships among latent variables simultaneously (Fig. 2). We examined the role of group attachment anxiety/avoidance on psychological mechanisms (H1a and H2a) and outcomes (H1b and H2b) simultaneously. Due to the correlation ($r = .67, p < .001$) between group attachment anxiety and group attachment avoidance, we remained this relationship on the model. This means our model is accounted for the potential confounder. Our proposed model indicated a good fit to our data [$\chi^2(5) = 22.08, p < .001, NFI = .94, TLI = .92, CFI = .96, RMSEA = .09$].

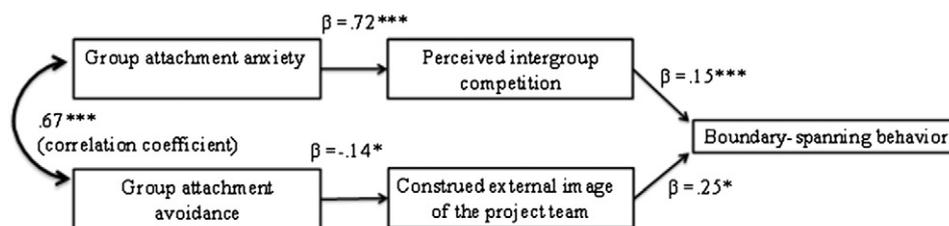
To confirm that our model was fully mediated, we compared a rival model (each construct had a path to every other construct in the model) to the proposed model (Fig. 2). If our proposed model is fully mediated, the rival model's chi-square should not be significantly different from the proposed model's chi-squares. Comparisons between the rival non-mediated model and our

proposed model indicated no significant differences [$\Delta \chi^2(2) = 5.83, ns$]. The next step was to determine the significance of direct and indirect effects among variables in the proposed model through the bootstrap procedure. The bootstrap technique allows researchers to determine the stability of parameter estimates with a greater degree of accuracy (Byrne, 2006). The bootstrap technique is also appropriate to apply even for a moderate sample size (Yung and Bentler, 1996); therefore, it was more appropriate for our research. If direct effect value is significant but indirect effect value is not significant, a full mediation occurs. The results of direct and indirect effects analysis through the bootstrap procedure confirmed mediation effects of psychological mechanisms (perceived intergroup competition and construed external image of the project team) on the relationship between group attachment anxiety/avoidance and boundary-spanning behavior.

Specifically, group attachment anxiety positively influenced perceived intergroup competition ($\beta = .72, p < .001$). Group attachment avoidance negatively influenced construed external image of the project team ($\beta = -.14, p < .05$). Perceived intergroup competition ($\beta = .15, p < .05$) and construed external image of the project team ($\beta = .25, p < .05$) positively affected boundary-spanning behavior. Therefore, our hypotheses (H1a through H2b) were supported.

5. Discussion

This paper examines why some project members boundary-span more or less, given that externally focused behavior among project team members generates performance benefits for those teams and their broader organizations. Our research elucidates the antecedents based on members' relational orientations (group attachment anxiety and avoidance) and psychological mechanisms (perceived intergroup competition and construed external image of the project team) related to boundary-spanning behavior through the framework of group attachment theory. Our research demonstrated that the more individuals worry about their project team's acceptance (group attachment anxiety), the more likely they are to perceive intergroup competition, and thus put more efforts into boundary management (i.e. operating external linkages and resources to help their own teams outperform competitors). For example, Joe has joined a project team since last month. He thought if he



$\chi^2(5) = 22.08, p < .001, NFI = .94, TLI = .92, CFI = .96, RMSEA = .08$

Note: * $p < .05$ *** $p < .01$.

Fig. 2. Results of our proposed model to explain project team members' boundary-spanning behaviors.

worked harder than others and went extra miles, he would become a highly valued member of his team.

In contrast, when individuals mistrust on their project teams (group attachment avoidance), they generate negative perception of the team's image, and thus fewer efforts are made at venturing beyond team boundaries to seize innovation opportunities. For example, Jane felt that her team frequently failed to share critical information with her. She then developed the negative image of the team. She was gradually demotivated and did not go beyond her minimal work requirement. Below we describe our research's multiple contributions to the team boundary-spanning and group attachment theories. The following section also discusses the managerial implication from our findings.

5.1. Theoretical contributions

This paper extends team boundary-spanning theory by elucidating psychological antecedents and mechanisms of project team members' externally focused behavior. The integration of social psychology's group attachment theory with organizational scholarship allows researchers to view external behavior from a new perspective and reveals novel insights. Our results suggest that group attachment constructs offer a better understanding of project team members' boundary-spanning behavior. That is, we can use the distinction of two dimensions of group attachment (anxiety and avoidance) to generate specific predictions regarding perceived intergroup competition and construed external image of the project team and external behavior. Thus, our perspective complements and expands team boundary-spanning theory into a new direction that reveals the differential roots of an observed level of project team member boundary-spanning, promoting a better prediction of who will be the most (least) active boundary-spanners representing their teams.

The present work focused on two distinct mediators—perceived intergroup competition and construed external image of the project team. Our study adds to prior research by highlighting that each of the mediators is related to differential antecedents. Our findings highlight that perceived intergroup competition accounted for the positive link between group attachment anxiety and boundary spanning. In contrast, construed external image of the project team explained the negative association between group attachment avoidance and boundary spanning. Thus, our work suggests that the effect of perceived intergroup competition or construed external image of the project team on external activities depends on what drives such perceptions in the first place.

To our knowledge, the current research is the first demonstrating the relevance of the group attachment construct in organizational intergroup behavior among real-life employees and team members. Prior research has examined attachment to social groups at a US university (Smith et al., 1999) and to Israeli army task groups (Rom and Mikulincer, 2003). Unlike the social groups for which the attachment to groups' construct was originally developed and validated (Smith et al., 1999), project teams in organizations are more

selective and less unconditional in offering approval to their members. Still, attachment to groups has predictive utility and explanatory power for project team members. Even in the attachment literature in social psychology, attachment's effect on nonattachment-related performance settings has received little attention, warranting more studies in this area (Lee and Thompson, 2011; Murayama and Elliot, 2012). By investigating effects of group-attachment-anxiety-associated perceptions of intergroup competition and avoidance-related construed external image of the project team on external activities in the workplace, our paper extends the attachment-to-groups constructs to organizational scholarship generally and project teams specifically.

5.2. Managerial implications

Our study suggests that the benefits of external activities in promoting project team performance can be facilitated (or hampered) by project members' particular group attachment styles. Members with high group attachment anxiety may be best qualified for external tasks. Members with high group attachment avoidance may be the worst type—those least engaged in external activities. Our research helps project leaders and administrators identify members most adept with external responsibilities.

Then an important question is in what project team contexts members more avoidantly attached to their teams can feel less avoidant to the team and boundary-span more, bringing about positive team performance outcomes. Recent findings in attachment research have demonstrated that individuals can develop multiple attachment styles to different individuals or groups that vary by specific social context (for a meta-analysis, see Fraley, 2002). Empirical evidence shows that caring leadership behavior (e.g., understanding the needs and concerns of their team members) was positively related to the team's external activities (Druskat and Wheeler, 2003). Also, positive leader-member exchange was associated with subordinates' searching out new product ideas and championing ideas to others (Yuan and Woodman, 2010). Thus, caring leadership may play an important role in lowering levels of group attachment avoidance among project team members and facilitating member external activities.

The key message from our findings is to avoid the project team mistrust because it prohibits boundary-spanning behavior among the team members. The anecdotal examples from project managers in order to minimize the distrust are

- keeping promises, agreements, and commitments;
- sharing and communicating important information to other team members;
- empowering team members to contribute or make some decisions;
- avoiding blaming and gossiping.

When the team atmosphere is positive, individuals would feel to be a part of the project team. The need for team acceptance will then escalate the level of boundary-spanning behavior.

Individual team members will go the extra mile in operating external linkages and resources to help their own teams outperform competitors.

5.3. Limitations and future research

Our study has multiple limitations. First, because our research design was cross-sectional, our ability to draw causal conclusions is limited. To mitigate this concern, we counterbalanced the order of measures in our survey and created four different versions starting with group attachment anxiety/avoidance, perceived intergroup competition, construed external image of the project team, and boundary spanning. Still, to establish stronger causal evidence in this domain, future work should use an experimental or longitudinal design.

Second, we relied on self-report measures. Nevertheless, participants may not have known external behaviors are socially desirable, reducing potential bias in our data. In addition, project members may be more accurate reporting their boundary-spanning behavior themselves, rather than through third parties. Future research might utilize a multimethod approach (e.g., incorporating leaders' or teammates' observations) to measure members' external behavior more objectively and/or identify potential asymmetries of observation. Further, the social desirability measure from Stöber (2001) can be used for future study to capture this potential bias.

Third, the level of required boundary-spanning behavior may differ across project types and phases. Future research may include this information to investigate if the level of required boundary-spanning behavior influences on our model.

Fourth, the context of competing team in our study is limited. We do not know the number of potentially competing teams and the competitive contents (e.g. competing due to a lack of human resources or time). This context may be important to boundary-spanning behavior. In light of Johns (2006), contextualization can inform a better hypothesis development. Although our study simply addressed the general perception of team competition, future research can include the detailed competition and investigate its influence on individuals' boundary-spanning behavior. Specifically, the intensity of competition may depend upon the type of resources individuals competing for and the sense of urgency. This could mean if a member from Team A urgently needs to use a 3D printer (a limited resource—one machine shared across four projects and currently is in use with Team B), the member may increase his or her boundary management and cooperate with external linkages to access this resource.

Lastly, while our study focused on micro level (team members), future research can further examine at meso and macro levels. Some constructs such as trust, competitiveness, and cohesion may also be worth examining through multilevel (Chiocchio et al., 2012; Marrone, 2010) or aggregated group-level (Druskat & Wheeler, 2003) lens. Future research could replicate our model by investigating the influence across individual, project team, and organization-level.

6. Conclusion

An increasingly important responsibility for project teams and members is to cross team boundaries on behalf of their teams and organizations. Through the lens of group attachment theory, we present a parsimonious view on the functions of project team members' relational orientations and underlying psychological mechanisms in predicting their externally focused behavior. By taking this view, our work opens a new line of inquiry that can predict and explain the behaviors behind more beneficial external activities and cross-boundary collaborations for project team effectiveness.

Conflict of interest

The authors declare that there is no conflict of interest.

References

- Ancona, D.G., 1990. Outward bound: strategic for team survival in an organization. *Acad. Manag. J.* 33 (2), 334–365.
- Ancona, D.G., Caldwell, D.F., 1992. Bridging the boundary: external activity and performance in organizational teams. *Adm. Sci. Q.* 37, 634–665.
- Bartel, C.A., Wrzesniewski, A., Wiesenfeld, B.M., 2012. Knowing where you stand: physical isolation, perceived respect, and organizational identification among virtual employees. *Organ. Sci.* 23, 743–757.
- Baum, J.A.C., Korn, H.J., 1999. Dynamics of dyadic competitive interaction. *Strateg. Manag. J.* 20, 251–278.
- Bond-Barnard, T.J., Steyn, H., Fabris-Rotelli, I., 2013. The impact of a call centre on communication in a programme and its projects. *Int. J. Proj. Manag.* 31, 1006–1016.
- Bowers, A.H., Greve, H.R., Mitsuhashi, H., Baum, J.A., 2014. Competitive parity, status disparity, and mutual forbearance: securities analysts' competition for investor attention. *Acad. Manag. J.* 57, 38–62.
- Brennan, K.A., Clark, C.L., Shaver, P.R., 1998. Self-report measurement of adult attachment: an integrative overview. In: Simpson, J.A., Rholes, W.S. (Eds.), *Attachment Theory and Close Relationships*. Guilford Press, New York, pp. 46–76.
- Brion, S., Chauvet, V., Chollet, B., Mothe, C., 2012. Project leaders as boundary spanners: Relational antecedents and performance outcomes. *Int. J. Proj. Manag.* 30, 708–722.
- Byrne, B.M., 2006. *Structural Equation Modeling with EQS: Basic Concepts, Applications and Programming*. second ed. Erlbaum, Mahwah, NJ.
- Chiocchio, F., Grenier, S., O'Neill, T.A., Savaria, K., Willms, J.D., 2012. The effects of collaboration on performance: a multilevel validation in project teams. *Int. J. Proj. Organ. Manag.* 4, 1–37.
- Choi, J.N., 2002. External activities and team effectiveness: review and theoretical development. *Small Group Res.* 33, 181–208.
- Chou, J.S., Yang, J.G., 2012. Project management knowledge and effects on construction project outcomes: an empirical study. *Proj. Manag. J.* 43, 47–67.
- Crawford, E.R., Lepine, J.A., 2013. A configural theory of team processes: accounting for the structure of taskwork and teamwork. *Acad. Manag. Rev.* 38, 32–48.
- Druckman, D., 2015. Negotiating as a group representative: constraints and opportunities. *Int. Negot.* 20, 25–40.
- Druskat, V.U., Wheeler, J.V., 2003. Managing from the boundary: the effective leadership of self-managing work teams. *Acad. Manag. J.* 46, 435–457.
- Dukerich, J.M., Golden, B.R., Shortell, S.M., 2002. Beauty is in the eye of the beholder: the impact of organizational identification, identity, and image on the cooperative behaviors of physicians. *Adm. Sci. Q.* 47, 507–533.
- Dutton, J.E., Dukerich, J.M., Harquail, C.V., 1994. Organizational images and member identification. *Adm. Sci. Q.* 39, 239–263.

- Fraley, R.C., 2002. Attachment stability from infancy to adulthood: meta-analysis and dynamic modeling of developmental mechanisms. *Personal. Soc. Psychol. Rev.* 6, 123–151.
- Friedman, R.A., Podolny, J., 1992. Differentiation of boundary spanning roles: labor negotiations and implications for role conflict. *Adm. Sci. Q.* 37, 28–49.
- Jackson, J.W., Smith, E.R., 1999. Conceptualizing social identity: a new framework and evidence for the impact of different dimensions. *Personal. Soc. Psychol. Bull.* 25, 120–135.
- Johns, G., 2006. The essential impact of context on organizational behavior. *Acad. Manag. Rev.* 31, 386–408.
- Korsgaard, M.A., Brodt, S.E., Sapienza, H.J., 2003. Trust, identity and attachment: promoting individuals' cooperation in groups. In: West, M., Tjosvold, D., Smith, K. (Eds.), *International Handbook of Organizational Teamwork and Cooperative Working*. John Wiley and Sons, West Sussex, UK, pp. 113–130.
- Lee, S., 2005. The ingroup secure base: An attachment-exploration model of intergroup relations. Unpublished Doctoral Dissertation. Cornell University, Ithaca, NY, United States.
- Lee, S., Ling, L., 2007. Understanding affectional ties to groups from the perspective of attachment theory. In: Mannix, E.A., Neale, M.A., Anderson, C. (Eds.), *Research on Managing Groups and Teams* United Kingdom 10. Elsevier Science Press, United Kingdom, pp. 217–248.
- Lee, S., Thompson, L., 2011. Do agents negotiate for the best (or worst) interest of principals? Secure, anxious and avoidant principal-agent attachment. *J. Exp. Soc. Psychol.* 47, 681–684.
- Lee, S., Adair, W.L., Mannix, E.A., Kim, J., 2012. The relational versus collective “we” and intergroup allocation: the role of nested group categorization. *J. Exp. Soc. Psychol.* 48, 1132–1138.
- Luhtanen, R., Crocker, J., 1992. A collective self-esteem scale: self-evaluation of one's social identity. *Personal. Soc. Psychol. Bull.* 18, 302–318.
- Lyubovnikova, J., West, M.A., 2015. Positive project management teams. In: Wastian, M., von Rosenstiel, L., West, M., Braumandl, I. (Eds.), *Applied Psychology for Project Managers*. Springer, Berlin Heidelberg, pp. 149–159.
- Marmarosh, C.L., Tasca, G.A., 2013. Adult attachment anxiety: using group therapy to promote change. *J. Clin. Psychol.* 69, 1172–1182.
- Marrone, J.A., 2010. Team boundary spanning: a multilevel review of past research and proposals for the future. *J. Manag.* 36, 911–940.
- Mikulincer, M., Shaver, P.R., 2007. *Attachment in Adulthood: Structure, Dynamics, and Change*. Guilford Press, New York.
- Murayama, K., Elliot, A.J., 2012. The competition–performance relation: a meta-analytic review and test of the opposing processes model of competition and performance. *Psychol. Bull.* 138, 1035–1070.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., Podsakoff, N.P., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88, 879–903.
- Puurtinen, M., Heap, S., Mappes, T., 2015. The joint emergence of group competition and within-group cooperation. *Evol. Hum. Behav.* 36, 211–217.
- Qu, Y., Cheung, S.O., 2013. Experimental evaluation of logrolling as an effective mediating tactic in construction project management. *Int. J. Proj. Manag.* 31, 775–790.
- Rom, E., Mikulincer, M., 2003. Attachment theory and group processes: the association between attachment style and group-related representations, goals, memories, and functioning. *J. Pers. Soc. Psychol.* 84, 1220–1235.
- Smith, E.R., Murphy, J., Coats, S., 1999. Attachment to groups: theory and measurement. *J. Pers. Soc. Psychol.* 77, 94–110.
- Somech, A., Khalaili, A., 2014. Team boundary activity: its mediating role in the relationship between structural conditions and team innovation. *Group Organ. Manag.* <http://dx.doi.org/10.1177/1059601114525437>.
- Stöber, J., 2001. The Social Desirability Scale-17 (SDS-17): convergent validity, discriminant validity, and relationship with age. *Eur. J. Psychol. Assess.* 17 (3), 222–232.
- Tsai, W., Ghoshal, S., 1998. Social capital and value creation: the role of intrafirm networks. *Acad. Manag. J.* 41, 464–476.
- Yang, L.R., Huang, C.F., Wu, K.S., 2011. The association among project manager's leadership style, teamwork and project success. *Int. J. Proj. Manag.* 29, 258–267.
- Yuan, F., Woodman, R.W., 2010. Innovative behavior in the workplace: the role of performance and image outcome expectations. *Acad. Manag. J.* 53, 323–342.
- Yung, Y.-F., Bentler, P.M., 1996. Bootstrapping techniques in analysis of mean and covariance structures. In: Marcoulides, G.A., Schumacker, R.E. (Eds.), *Advanced Structural Equation Modeling Issues and Techniques*. Lawrence Erlbaum, Mahwah, NJ., pp. 125–157.