Baltic Journal of Management

Volume 13 Number 1 2018

1 Editorial advisory board
2 Fears, discrimination and perceived workplace promotion
   Zachary Sheaffer, Shalom Levy and Edo Navot
20 Exports-performance relationship in Russian manufacturing companies: does foreign ownership play an enhancing role?
   Anna Bykova and Felix Lopez-Iturriaga
41 Investigating feedback effects in the field of brand extension using brand concept maps
   Pascal Kottemann, Anja Plumeyer and Reinhold Decker
65 Exploring open innovation collaboration between SMEs and larger customers: the case of high-technology firms
   Anita Ellen Tobiassen and Inger Beate Pettersen
84 Development and validation of the team influence relations scale (TIReS): beyond the measurement of individual influence in teams
   Barbara Kozusznik, Mateusz Paliga, Barbara Smorczewska, Damian Grabowski and Małgorzata Wanda Kozusznik
104 The mediating effects of ego-resilience in the relationship between organizational support and resistance to change
   Aristides Isidoro Ferreira, Carla Cardoso and Timo Braun
125 Promoting employees’ learning from errors by inclusive leadership: do positive mood and gender matter?
   Qingyan Ye, Duanxu Wang and Xi Li

www.emeraldinsight.com/loi/bjm
EDITORIAL ADVISORY BOARD

Johan Alvehus
Lecturer, Lund University, Sweden

Janis Angelis
University of Warwick, UK

Rolv Petter Amdam
BI Norwegian School of Management, Norway

Dr Daniela Argento
Kristianstad University, Sweden

Vilte Auruskeviciene
ISM University of Management and Economics, Lithuania

Phil Benson
New Mexico State University, USA

Dr Pernilla Broberg
Linköping University, Sweden

Richard Brunet-Thornton
University of Economics, Prague, Czech Republic

Shawn M. Carrabre
Minot State University, USA

Catherine Cassell
Manchester Business School, UK

Jens J. Dahlgaard
Linköping University, Sweden

Jurga Duobiene
Kaunas University of Technology, Lithuania

Tiit Elenurm
Estonian Business School, Estonia

Professor Alexandra Gerbasi
Surrey Business School, University of Surrey, UK

Madis Habakuk
Estonian Business School, Estonia

Olli-Pekka Hilmola
Lappeenranta University of Technology, Finland

Martin Johanson
Uppsala University, Sweden

Eamonn Judge
Leeds Metropolitan University, UK

Tauno O. Kekale
University of Vaasa, Finland

Aldas Kriauciunas
Purdue University, USA

Tore Kristensen
Copenhagen Business School, Denmark

Professor Nir B. Kshetri
University of North Carolina at Greensboro’s, USA

Virginijus Kundrotas
President, Baltic Management Development Association

Professor Jorma Larimo
University of Vaasa, Finland

Rainhart Lang
Chemnitz University of Technology, Germany

Jon Erland Lervik
BI Norwegian Business School, Norway

Jura Liaukonyte
Cornell University, USA

Arthur Lindemanis
Banking Institute of Higher Education, Latvia

Enn Listra
Tallinn University of Technology, Estonia

Jura Liaukonyte
Cornell University, USA

Brent McKenzie
Ocadph University, Canada

Oscar Martin Martin
Universidad Pública de Navarra, Spain

Kristina Maiksteniene
ISM University of Management and Economics, Lithuania

Professor Víctor García Morales
University of Granada, Spain

Diana Pauna
Stockholm School of Economics in Riga, Latvia

Alexandros Psychogios
Hull University Business School, UK

George M Puia
Saginaw Valley State University, USA

Torger Reve
BI Norwegian School of Management, Norway

Max Rolfstam
Aalborg University, Denmark

Maksim Saat
Tallinn University of Technology, Estonia

Vida Skudiene
ISM University of Management and Economics, Lithuania

Stefan Smolnik
University of Hagen, Germany

Amrik S. Sohal
Monash University, Australia

Gran Svensson
Oslo School of Management, Norway

Leslie Thomas Szamosi
City College/ University of Sheffield, Greece

Timurs Umanis
Kristianstad University, Sweden

Professor Maaja Vadi
University of Tartu, Estonia

Sinikka Vanhala
Aalto University, Finland

Dr Magnus Willesson
Linnaeus University, Sweden

Professor Colin C. Williams
University of Sheffield, UK

Professor Joakim Wincent
Luleå University of Technology, Sweden

Zita Zoltay-Paprika
Corvinus University of Budapest, Hungary

Professor Antonella Zucchella
University of Pavia, Italy
Fears, discrimination and perceived workplace promotion

Zachary Sheaffer and Shalom Levy
Department of Economics and Business Administration,
Ariel University, Ariel, Israel, and
Edo Navot
United States Department of Labor, Washington, District of Columbia, USA

Abstract
Purpose – Past research about workplace promotion has focussed on factors that shape employees’ perceptions for promotion. Yet, we still know little about how such undesirable factors as the fear of success (henceforth FoS) syndrome and perceived workplace discrimination affect perceived promotion and even less so how this relationship is mediated by self-efficacy and intrinsic motivation. The purpose of this paper is to propose a conceptual framework integrating these factors.

Design/methodology/approach – A structural equation modelling procedure was employed to empirically test the model using data collected from employees in wide-ranging Israeli industries ($n = 553$).

Findings – The path model indicates that initially, FoS and perceived discrimination negatively affect perceived chances of promotion. When however, self-efficacy and intrinsic motivation mediate this relationship, subjects perceive their promotion chances positively.

Practical implications – Self-efficacy and intrinsic motivation may be employed to attenuate the potentially adverse effects of FoS and discrimination effects.

Originality/value – FoS and perceived workplace discrimination are common phenomena, yet the authors show that they may be mitigated by heightened self-efficacy and amplified intrinsic motivation that help in sustaining perceived workplace promotion.

Keywords Self-efficacy, Intrinsic motivation, Perceived discrimination, Chance for promotion, Fear of success

Introduction
Workplace promotion constitutes a primary facet of career paths. Recent transitions concerning employment in general and particularly career paths (Savickas et al., 2009) have inspired interest in intra-organisational mobility, promotions or advancement opportunities at workplaces and the way they are perceived by employees (Luksyte et al., 2013). Promotion aspiration is related to the broader domain of career development (Dik et al., 2008). However, few empirical studies have hitherto examined perceptions of promotion decisions and antecedents and after-effects of those perceptions. Relevant studies have investigated employee beliefs vis-à-vis organisational criteria concerning promotion decisions, and their association with job satisfaction (Beehr and Taber, 1993) or employee behaviours (Webster and Beehr, 2013). Notwithstanding, calls for further research (cf. Tzafrir and Hareli, 2009) of forerunners that potentially affect employees’ perceptions regarding perceived or actual chances for promotion, have yet to be thoroughly addressed. We address this lacuna by focussing on how perceived discrimination and fear of success (henceforth FoS) shape perceived chances of promotion (henceforth, PCP). Our model sequentially examines how perceived discrimination affects FoS, how FoS influences self-efficacy, the effect of self-efficacy on intrinsic motivation, and motivation’s effect on PCP. We further examine the role of self-efficacy and intrinsic motivation in mediating the association between these initial antecedents and PCP with data predicated on an exploratory questionnaire distributed amongst respondents from wide-ranging Israeli industries. Though previous research has addressed various forms of the effect of both perceived discrimination and FoS on self-efficacy (cf. Heslin et al., 2012), no known works have thus far
associated both phenomena with PCP through the mediating effects of self-efficacy and intrinsic motivation.

Focussing on FoS and perceived discrimination as key explanatory variables, and the attempt to link them causally with PCP is motivated by several reasons. First, twenty-first century workplaces have become uncertain, hence, volatile (Kossek and Lambert, 2012). Job security fades away and careers turn protean in that they are typically driven by employees rather than by organisations, and are reinvented by individuals (De Vos and Soens, 2008). Despite awareness of changing corporate loci – highlighting such phenomena as affirmative action, diversity, career contracts or employability (Neck, 2015) – discrimination is still rife and innate FoS amongst employees, notably women, persists. This aura of transition, characterised by growing uncertainty, typically exacerbates rather than curbing fears. Additionally, given increasingly diverse workforces, discrimination continues to hamper upward mobility (Bihagen and Ohls, 2006). These circumstances call for a fresh examination of both perceived discrimination and FoS. Specifically, how they shape perceptions about promotion in newly evolving workplaces. Self-efficacy and intrinsic motivation are important mediators because they constitute elemental behavioural constructs that, though extensively studied, have yet been shown to alleviate innate FoS and prevalent workplace discrimination’s adverse effect. Highly efficacious employees would necessarily be more intrinsically motivated (McAuley et al., 1991), thereby FoS and perceived workplace discrimination’s adverse impact on employees’ self-esteem and career aspirations thereof would be attenuated. We follow Foley et al.’s (2002, p. 491) recommendation to analyse employees’ perceptions of how promotion decisions are made, and Volpone and Avery’s (2013, p. 444) call to explore how self-efficacy buffers the negative effect perceived discrimination engenders. The hypothesised relationships underscore the importance of not solely PCP, but also concerning significant behavioural processes within which employees perceive their intra-organisational upward mobility. Studies in this domain could benefit from a stronger sense of embeddedness in the theoretical framework offered by the extant organisational behaviour literature.

Theory and hypotheses

Perceived chances for promotion

Workplace promotion is essential for employees. Hence, it significantly affects career paths, wages, spheres of responsibility, employability (Nauta et al., 2009), fairness (García-Izquierdo et al., 2012) and status (Janssen and Gao, 2015). Promotion is an imperative organisational procedure for management and employees alike (Delaney and Huselid, 1996). With respect to employees, they manage their career contingent upon the perceived likelihood of progressing upwards (Kaplan and Ferris, 2001). Beehr et al. (2004) argue that promotion is limited to a single vacancy, even if several contenders deserve the position, and decisions are often dichotomous (rejection/acceptance). If an applicant is accepted, co-employees are frequently reluctant to follow her/his instructions if they suspect that person’s nomination was biased. Relatedly, motivation and commitment is the ambition to seek ascendancy within organisations (Gau et al., 2013) and, for those who desire higher positions, the belief that promotions are reasonably obtainable (Cassirer and Reskin, 2000). Therefore, promotional aspirations may stimulate employees to excel personally and surpass fellow employees’ performance, conduct or commitment to corporate goals (Zhou et al., 2012).

Perceived discrimination and FoS

Perceived discrimination occurs when individuals feel they have been treated unjustly owing to affiliation with specific social categories (Banerjee, 2008). Social psychologists (Czopp and Monteith, 2003) suggest that race and gender bias in society is invisible, deep,
pervasive, and often leads to discriminatory behaviour (Greenwald et al., 2002). Discrimination may be inspired by prejudice, stereotypes or racism (Aboud and Levy, 2000), but its definition does not presume any unique underlying cause (Pager and Shepherd, 2008). Workplace discrimination occurs through preventable and inequitable differences in fulfilling HRM tasks (Pynes, 2008) amongst staff of diverse backgrounds. Discrimination negatively affects discriminated-against groups or individuals, e.g., lower wages and/or higher unemployment (Lang and Lehmann, 2012). Pertinently, a distinction exists between differential treatment and disparate impact (McGinley, 2012). The former occurs when individuals are treated unequally due to race (Richardson and Norris, 2010). Disparate impact occurs when individuals are treated equally, subject to a given set of rules and procedures, but when the latter are constructed to favour members of one group over another (Reskin, 1998). FoS has been studied from the aspects of relational psychoanalysis (Schechter, 1979) to cognitive and social psychology (Conroy et al., 2001). FoS constitutes an innate mental stress that limits ambition and progress, notably amongst women (Horner, 1972). FoS surfaces when individuals doubt their abilities, and is accompanied by lack of self-confidence and disappointment (Nagel, 1990). FoS resembles fear of achievement intensified by fear of failure. This stems from the inability to accomplish one’s duties and is accompanied by low self-esteem and ostracism (Griffore, 1977). Individuals who fear success would be dissatisfied with achieving their personal goals. Worse, FoS diminishes one’s belief in one’s capabilities to appropriately accomplish tasks and objectives owing to past failure, which often exacerbates this syndrome (Oxford and Shearin, 1994). Regardless of external evidence of their aptitude, individuals fearing success remain persuaded that they are frauds and do not merit the success they have achieved (De Vries, 2003). Proof of success is dismissed as timing, luck, or a consequence of misleading others into thinking that they are more competent and intelligent than they consider themselves to be, much like the dismissal of others’ positive affirmations (Ferrari and Thompson, 2006). Intuitively, discrimination may be perceived as a trigger that sparks or intensifies an existing FoS syndrome. Horner (1972) pointedly argued that FoS is derived from stereotypes and biases that dissuade individuals from pursuing careers. Individuals perceiving discrimination or those biased against would necessarily be more apprehensive regarding their chances to succeed or concerning risk of failure. FoS amongst women stems from innate apprehension regarding the behaviour they should endorse that leads to success (Isaac et al., 2012). Implicit or explicit workplace discrimination further aggravates fears of either failure or success. Research reports (Britt-Spells et al., 2016) that perceived discrimination is positively associated with anxiety, depression, or insecurity along with lack of self-confidence and low self-esteem (Ellemers and Barreto, 2015). These symptoms are necessarily liable to engender or aggravate existing FoS (Gore et al., 2016). A case in point is black men with weaker racial identities, arising from discrimination, who demonstrate greater fear of succeeding (Campbell and Fleming, 2000).

We thus formally hypothesise that:

\[ H1. \text{ High levels of perceived discrimination will spark off or intensify existing FoS.} \]

**FoS and GSE**

Self-efficacy is one’s belief in one’s ability to succeed in specific situations (Ornmrod, 2006). Individuals’ self-efficacy is critical in how they approach goals, tasks and challenges (Luszczynska and Schwarzer, 2005). Determining the beliefs people hold regarding their power to affect situations and achieve across a broad range of situations (Chen et al., 2004) strongly inspires the power a person essentially has to encounter challenges capably and the choices one is most likely to make. Self-efficacy functions as a critical proximal behavioural element and it concerns explicit goal-oriented behaviours through intervening
affective, motivational and cognitive processes (Chen and Chen, 2016). People are mostly encouraged to confront challenging tasks and gain experience when the optimum level of self-efficacy is somewhat above their ability (Phillips and Gully, 1997). Highly self-efficacious individuals strive to accomplish tasks and persevere longer in those efforts. Employees’ ability to persevere despite discrimination is explained by their beliefs that they can attain broadly across various circumstances, typified as generalised self-efficacy (henceforth GSE). GSE is a form of self-belief that is primarily applicable to such stressful situations as perceived workplace discrimination (Randle, 2012). GSE differs from specific self-efficacy in that the latter applies to the ability to achieve in task-specific situations, whereas the former refers to the conviction in one’s aptitude to achieve across a broader range of circumstances (Luszczynska et al., 2005). Intuitively, higher self-efficacy would result in decreased FoS (Nelson et al., 2013). Nelson et al. (2013) argue that female students are less likely to esteem their skills and abilities, which adversely affects self-efficacy notably due to internalisation of self-devaluation. This resonates to lower self-esteem and self-worth concerning personal skills and abilities which subsequently undermine their career paths (Papastergiou(335,248),(1000,348), 2008). Relatedly, lower self-efficacy is significantly associated with fearing failure, else fearing success (Martin, 2002). In the context of achievement motivation, passive avoidance mode is interpreted as a type of FoS (Fleming and Horner, 1992). Individuals fearing success avoid negative incentives by inhibiting any achievement-related activity that enhances goal fulfilment (Sorrentino and Short, 1974). Individuals driven by FoS may have been chastised for doing well at an achievement task or for exhibiting any instrumental activity towards goal attainment. Thus, these individuals restrict future goal-directed behaviour in order to avoid facing similar negative repercussions (Pang, 2010). We thus hypothesise that:

\[ H2. \text{Individuals characterised by high FoS will demonstrate lower levels of GSE.} \]

**Self-efficacy and intrinsic motivation**

Work motivation is a set of vigorous forces that originate both within and beyond individuals’ being to initiate work-related behaviour and to determine its configuration, direction, intensity and duration (Pinder, 2008). Motivation is a person’s internal disposition to be involved with and approach positive incentives and avoid negative inducements. Motivation encompasses arousal, direction, and intensity of psychological processes (Seo et al., 2004). Arousal is what instigates action and is stimulated by individuals’ desire or need for something that is missing at a given point in time (Erez et al., 2012). Direction refers to the course employees take in achieving goals they set for themselves. Intensity is the vigour employees put into this goal-directed work performance (Mitchell and Daniels, 2003). Intrinsic motivation transpires when we act without any palpable external rewards. We merely enjoy an activity or see it as an opportunity to explore, learn and realise our potentials (Coon and Mitterer, 2010). Intrinsic motivation relates to behaviour driven by internal rewards, e.g., the motivation to engage in a given behaviour arises from within since it is intrinsically rewarding (Dyvik and Kuvaas, 2013). Deci (1980, p. 34) theorised intrinsic interest as “The need for competency and self-determination”. Bandura and Schunk (1981) identified self-efficacy as related positively to intrinsic interest. Pertinently, self-efficacy is comprised of coping abilities under stress or various internal motivational states (Bandura, 1984). Self-efficacy stimulates employees’ motivational processes in general (Multon et al., 1991), and constitutes an effective predictor that causally affects learning and motivation (Zimmerman, 2000). Self-efficacy beliefs have also shown convergent validity in affecting such key indicators of motivation as level of effort, choice of activities, and persistence (Zimmerman, 2011). Intrinsic motivation decreases when extrinsic rewards are offered contingent on performance, since extrinsic rewards lessen individuals’ sense of
personal causation and perceptions of competence (Pritchard et al., 1977). Self-efficacious individuals work more willingly, and persevere longer when they encounter difficulties than do their counterparts who doubt their own competences (Zimmerman, 1995). Aply, when students are taught to ascribe their enactive feedback to effort, they perceive higher motivation (Schunk, 1987).

Consequently, we hypothesise that:

\[ H3. \] Self-efficacy affects intrinsic motivation positively.

**Intrinsic motivation and PCP**

Motivation and PCP fall within the wider domain of career motivation theory (Bolton, 2011). Career motivation is the set of individual characteristics, related career decisions and behaviours that mirror individuals’ career identity, career affecting factors, and resilience in the face of unfavourable career conditions (London, 1983). Two key characteristics underlie career motivation; individual willingness to wait for promotion and career rewards and, importantly, intrinsic control-belief about one’s influence over promotional opportunities. Second, situational or time and experience requirements for promotion, striving for advancement and furthering advancement possibilities (Skinner, 1999). Relatedly, the contest-mobility norm (Wayne et al., 1999) presumes that employees’ accomplishments are principally a function of hard work (Rosenbaurn, 1984, p. 19). Motivational variables are associated with the contest-mobility norm. Additionally, intrinsic motivation augments affective commitment and plays a key role in transmuting high-involvement processes into valuable outcomes for employees (Boxall et al., 2015). Intrinsically motivated employees are more likely to enjoy their work and succeed in it (Horng et al., 2016), thus perceive themselves to be higher performers (Elliot and Harackiewicz, 1994), and more likely to be selected for promotion (Henker et al., 2015). Since promotion is perceived to be meaningful to ambitious employees, specifically those eligible or those perceiving they are entitled to it, they would be significantly more motivated concerning promotion.

Thus:

\[ H4. \] Intrinsically motivated employees will have positive perceptions of promotion.

**Perceived discrimination and PCP**

Intuitively, individuals who perceive themselves discriminated against would be less likely to expect workplace promotion. For instance, stigmatising obese employees. Consistent evidence shows discrimination against the overweight in simulated employment decisions, including promotion (Roehling et al., 2007). Perceived discrimination was also associated with perceived institutional racism (Jeanquart-Barone and Sekaran, 1996) which, in turn, impedes vertical organisational advancement. The perceived Glass Ceiling Paradigm shows a perceived “transparent discrimination” to be negatively associated with perceptions of promotion (fairness) (Foley et al., 2002). Aply, workplace discrimination against women and blacks precludes their chance of ever looking for vertical organisational mobility (Foley et al., 2002). Ilgen and Youzit (1986) argued that black employees and women often internalise negative evaluations and stereotypes, such that they restrain themselves and turn down opportunities for promotion. Sexual orientation in workplaces has long been the focus of research about discrimination and its adverse repercussions (Kim et al., 2013). Ragins and Cornwell (2001) found that perceived discrimination is associated with adverse work attitudes and fewer promotions. Gay employees perceive and face restricted upward mobility and “lavender ceilings” in firms typified by heterosexism (Friskopp and Silverstein, 1996). Hence:

\[ H5. \] Employees perceiving discrimination will be less likely to perceive promotion.
Morrison and Von Glinow (1990) argued that women’s traits and behaviours, socialisation practices and attitudes do not make them deficient to assume leadership positions. That said, ample evidence shows that FoS, chiefly amongst women, often scuttles their aspirations for promotion rather than facilitates expectations for upward mobility. Fassinger (1996) alleged that FoS constitutes an internal self-barrier to vocational choice, and promotion in this vein is an innate occupational preference. Franzén (2005) found that female supervisors are uncomfortable in wielding power over others. Hence, it may not be success, *per se*, that women fear, but rather the idea that the behaviours that lead to success may be disapproved of by others (Austin, 2001). This type of fear succinctly encapsulates why FoS diminishes women’s expectations for promotion and it relates to the social norm of modesty which women may find difficult to defy (Wade, 2001). This is liable to engender self-sabotage at critical career junctures. Women recurrently demonstrate that their perception of entitlement elucidates “equality as greed”, as men take more for themselves than women do (Valian, 1998). Meaning, the way women perceive entitlement necessarily aggravates their FoS, given their belief that men are generally greedier and hence, may have higher promotional aspirations. Mallon and Cassell (1999) argue that women are less inclined to apply for jobs, unless they meet specification requirements, but those with FoS refrain from doing so. We hence hypothesise that:

**H6. FoS reduces PCP.**

Based on the above discussion, we formulate the study’s conceptual framework (Figure 1).

### Methodology

**Procedure and sample**

Data were collected from employees of 12 firms in wide-ranging Israeli industries. A key criterion for inclusion was being a company employee. Temporary employees were excluded. Questionnaires were distributed by students skilled in data collection who were instructed to obtain formal approval from firms’ management following which employees received a personal request to participate. Confidentiality and anonymity were assured. In total, 553 usable responses were analysed of 905 sent questionnaires (61 per cent). Most (68 per cent) respondents were from large firms, 17 per cent medium-sized and 15 per cent from small firms. A total of 79 per cent were the private sector employees. Gender distribution included 45 per cent male and 55 per cent female respondents. Most respondents were in the 21-35 age bracket (78 per cent), 17 per cent in the 36-50 age bracket and 5 per cent were in the 51+ bracket, with an average age of 31 (SD 8.8). A total of
57 per cent were single, 38 per cent married, and 5 per cent divorced. Most respondents had tertiary education (64 per cent), with an average or above-average income (59 per cent). Mean tenure in the organisation was 5.1 years (SD 6.4).

**Measurement**

The survey instrument consisted of validated questionnaires pertaining to the study’s theoretical constructs. PCP was measured based on Roznowski’s (1989) scale, which measures employees’ attitude assessment and affective response to their work role. Intrinsic motivation items were based on Grant’s (2008) scale regarding employees’ personal belief in having the capabilities to meet given situational work demands. Perceived discrimination items were based on Schmitt et al. (2002) and Cornejo’s (2007) scales that measure one’s ingroup disadvantages and outgroup privileges, modified to capture general and varied groups’ discrimination. Participants were asked to express their experience and personal feeling vis-à-vis discrimination. FoS items were based on Ray’s (1985) scale that measures the level of success-fearing individuals with statements negatively describing success’ costs and benefits. Respondents were asked to indicate their level of agreement with statements based on the aforementioned scales. A seven-point Likert scale was used (“1” = strongly disagree; “7” = strongly agree) throughout. Demographic and workplace-related information was also recorded.

Awareness concerning self-report limitations necessitated several remedies. First, scale reordering (Sprangers and Schwartz, 1999) was employed to decrease consistency artefact effects. Second, Harmans’s one-factor test was used (Richard et al., 2009) to ensure that no common method variance was present. We also factor analysed all items in this study to guarantee that no single factor emerged from this procedure (Podsakoff and Organ, 1986). Indeed, the items loaded onto thematic factors.

**Results**

**Validity and reliability**

First, all variables’ items were subjected to an exploratory factor analysis with varimax rotation. The items with low internal validity were excluded. Then, the factor analysis was run using the principal component analysis with varimax rotation, for the remaining items. FA yielded five factors explaining 64.2 per cent of the cumulative model’s variance. All items were satisfactorily loaded (< 0.5). GSE’s factor explains 24.4 per cent; eigenvalue 8.8. Perceived discrimination factor explains 13.9 per cent; eigenvalue 5. FoS’s factor explains 11.5 per cent; eigenvalue 4.1. PCP’s factor explains 9.3 per cent; eigenvalue 3.3, and intrinsic motivation factor explains 5.1 per cent; eigenvalue 1.9. Next, measurement items were validated employing the confirmatory factor analysis (CFA). Four items with low loadings were excluded from the FoS factor to ensure acceptable convergent validity. The results confirm the constructs ($\chi^2$ value (417) = 894.89, $p > 0.05$ ($\chi^2$/df < 3); comparative fit index (CFI) = 0.961; normed fit index (NFI) = 0.929; root mean square error of approximation (RMSEA) = 0.046) and their distinct character. CFA shows that scale items loaded satisfactorily on the relevant latent variables and the items only loaded on the scales were designed to measure. All loadings were statistically significant (< 0.5) supporting the scales’ reliability and content validity (Hair et al., 2010). Convergent and discriminant validity and internal consistency were examined using Cronbach’s $\alpha$, average variance extracted (AVE) and composite reliability (CR). All displayed acceptable validity and reliability of the measurements. Table I illustrates the items’ standardised loading, AVE, $\alpha$’s and CR for the model components. In AVE measurements, PCP had a construct value of 0.54, GSE had a construct value of 0.63, perceived discrimination 0.63, intrinsic motivation 0.56 and FoS 0.51, indicating an acceptable convergent validity for all constructs.
<table>
<thead>
<tr>
<th>Variables and items</th>
<th>Std. loading*</th>
<th>AVE(^a)</th>
<th>Cronbach’s (\alpha)</th>
<th>CR(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PCP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I have a good opportunity for promotion in my current work</td>
<td>0.84</td>
<td>0.54</td>
<td>0.89</td>
<td>0.89</td>
</tr>
<tr>
<td>We have fairly good chances for promotion</td>
<td>0.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My employer is interested in the future promotion of its workers</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have a good chance for promotion</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It will be easy for me to get ahead in my firm</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my firm, promotion is based on ability</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am in a dead-end job(^c)</td>
<td>0.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intrinsic motivation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The job I do is important to me</td>
<td>0.62</td>
<td>0.56</td>
<td>0.85</td>
<td>0.86</td>
</tr>
<tr>
<td>I find my job exciting and challenging</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My work enables me to learn new and interesting things</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am in this job for the money(^c)</td>
<td>0.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My job is uninteresting to me(^c)</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-efficacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I will be able to achieve most of the goals that I have set for myself</td>
<td>0.61</td>
<td>0.63</td>
<td>0.94</td>
<td>0.93</td>
</tr>
<tr>
<td>When facing difficult tasks, I am certain that I will accomplish them</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In general, I think I can obtain outcomes that are important to me</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe I can succeed at most any endeavour to which I set my mind</td>
<td>0.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I will be able to successfully overcome many challenges</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am confident that I can effectively perform many different tasks</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compared to other people, I can do most tasks very well</td>
<td>0.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Even when things are tough, I can perform quite well</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FoS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel uneasy being the centre of attention in a group</td>
<td>0.70</td>
<td>0.51</td>
<td>0.83</td>
<td>0.81</td>
</tr>
<tr>
<td>When I notice that things have been going particularly well for me, I get the feeling that it just cannot last</td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If someone calls attention to me when I am doing well, I feel awkward or embarrassed</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I am praised for something, I sometimes wonder if I will be able to do as well next time</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think that to want something very much is a sure-fire way to end up disappointed</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived discrimination</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In general, in my organisation, more opportunities for promotion are available to people from certain races/gender</td>
<td>0.73</td>
<td>0.63</td>
<td>0.94</td>
<td>0.92</td>
</tr>
<tr>
<td>In my organisation, more privileges are available to people from certain races/gender</td>
<td>0.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my organisation, certain people have received some kinds of advantages, due to their race or gender</td>
<td>0.95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my organisation, certain people have received preferential treatment because of their race or gender</td>
<td>0.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At times, I have been the victim of race or gender discrimination in my organisation</td>
<td>0.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At times, people have been the victim of race or gender discrimination in my organisation</td>
<td>0.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my organisation, people from my race/gender have to work harder than others to get the same level of recognition</td>
<td>0.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my organisation, people from certain races/gender have to work harder than others to get the same level of recognition</td>
<td>0.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my organisation, my suggestions or ideas are often ignored because of my race/gender</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my organisation, peoples’ suggestions or ideas are often ignored because of their race/gender</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** \(^a\)Average variance extracted; \(^b\)composite reliability; \(^c\)reverse coded. \(^*\)Standardized coefficients, \(p < 0.001\)
Furthermore, comparing correlation estimates’ square between any couple of these constructs with AVE values demonstrates higher values for AVE in all cases. This corroborates all constructs’ discriminant validity. (The relationships between constructs and the maximum shared squared variance are presented in Table II.) CR measurements were 0.89 for PCP, 0.93 for GSE, 0.92 for perceived discrimination, 0.86 for intrinsic motivation and 0.83 for FoS. Cronbach’s αs were 0.89 for PCP, 0.94 for GSE, 0.94 for perceived discrimination, 0.85 for intrinsic motivation and 0.81 for FoS. These values display measurements’ good internal reliability.

Model testing

Based on the proposed theories and the hypothesised relationships, path analysis was conducted on the five-construct causal model, using the structural equation modelling, based on the maximum likelihood approach. The factors gleaned are treated as latent variables. We followed Bagozzi and Edwards’ (1998) procedure and compared a number of alternative models. The model with the best fit was retained as final. The model’s overall fit statistics (goodness of fit) show an acceptable level of fit ($\chi^2$ value (423) = 922.35, $p > 0.05$ ($\chi^2$/df < 3); CFI = 0.959; NFI = 0.927; RMSEA = 0.046), indicating that the path model is valid. The path model, regression standardised coefficients and significance levels are illustrated in Figure 2. The model demonstrates the latent variables’ direct and indirect effects on PCP. The model’s latent variables accounted for 30 per cent of PCP’s total variance ($R^2 = 0.30$). Parameter estimates and structural relationships are displayed in Table III.

In the final model, perceived discrimination was positively associated with FoS ($\beta = 0.30$, $p < 0.01$), supporting $H_1$. FoS was negatively associated with self-efficacy ($\beta = -0.34$, $p < 0.01$) supporting $H_2$. GSE was positively and directly associated with intrinsic motivation ($\beta = 0.29$, $p < 0.01$), and intrinsic motivation was positively associated with PCP.

Table II.
Correlational relationships between constructs (Cov), AVE and maximum shared squared variance (MSV)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PCP</td>
<td>0.54</td>
<td>0.55**</td>
<td>0.17**</td>
<td>-0.07</td>
<td>-0.16**</td>
</tr>
<tr>
<td>2. Intrinsic motivation</td>
<td>0.30</td>
<td>0.56</td>
<td>0.28**</td>
<td>-0.01</td>
<td>-0.27**</td>
</tr>
<tr>
<td>3. Self-efficacy</td>
<td>0.03</td>
<td>0.08</td>
<td>0.63</td>
<td>-0.17**</td>
<td>-0.33**</td>
</tr>
<tr>
<td>4. Perceived discrimination</td>
<td>0.01</td>
<td>0.00</td>
<td>0.03</td>
<td>0.63</td>
<td>0.30**</td>
</tr>
<tr>
<td>5. FoS</td>
<td>0.03</td>
<td>0.07</td>
<td>0.11</td>
<td>0.09</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Notes: $n = 553$. Correlations are in the upper right-hand side while MSV’s are in the lower left-hand side. AVE’s are in italics (diagonal). **$p < 0.01$

Figure 2.
Structural model – path analysis results

Notes: *Parameters are standardised parameter estimates and only significant paths are shown. $R^2$ is located in the upper right-hand corner. **$p < 0.01$
Therefore, H3 and H4 were corroborated. No significant relationships were found between perceived discrimination and PCP and between FoS and PCP. Hence, H5 and H6 were rejected.

Nevertheless, the relationships between perceived discrimination and PCP and between FoS and PCP were rather indirect (bootstrap with 95% CI: −0.010 to −0.028, \( p < 0.01 \); bootstrap with 95% CI: −0.043 to −0.110, \( p < 0.01 \), respectively), through the mediation of GSE. Additionally, GSE was indirectly associated with PCP (bootstrap with 95% CI: 0.310 to 0.141, \( p < 0.05 \), respectively) through the mediation of intrinsic motivation.

### Discussion

Our findings show that self-efficacious and intrinsically motivated employees are significantly more likely to perceive their chances of promotion positively despite the fact that initially both their perceived discrimination and FoS diminish PCP. We corroborated the hypothesis postulating that employees fearing success (and failure) will be less self-efficacious (Caraway et al., 2003). FoS thwarts self-actualisation, and the fulfilment of one’s potential (Tresemer, 2012). This is because individuals afflicted with this syndrome fear their potential greatness, and thus refrain from fulfilling their aptitudes or attempt to evade their destiny. In contemporary highly competitive and achievement-oriented environments, subjects with high FoS uphold a self-defeating strategy (Bramante, 2015), since they are less inclined to strive for success. Hence, they are less likely to benefit from the attainment of success, as shown by their lower intrinsic motivation. Perceived workplace discrimination, our second negative forerunner, has been commonly shown to engender an instantaneous sense of conflict, duress and injustice (Bell, 2012). A strong sense of perceived or actual discrimination induces employees’ discouragement. Consequently, the evolving aura of helplessness further disheartens the realisation of their potential. Manifestly, the two negative inducements for self-efficacy (FoS and perceived discrimination) are positively correlated. Indeed, when perceived discrimination and FoS as precursors directly predict PCP, the relationships prove negative (though statistically insignificant), commensurate with previous literature (cf. Foley et al., 2002), corroborating these inverse associations. This negative interrelatedness provides an appropriate preamble to the research model at large. This is because we aimed to show that in the end – regardless of the negative circumstances wherein perceived discrimination and FoS impede self-esteem – if employees affected by both phenomena were empowered towards enhancing their self-efficacy and intrinsic motivation, in the long run they perceive their chances of promotion positively. As hypothesised, and commensurated with previous studies, we found that highly efficacious employees are more intrinsically motivated and, in turn, perceive their upward mobility favourably. Indeed, GSE aims at a comprehensive and stable sense of personal competence, which expectedly augments intrinsic motivation (Mathies and Viet Ngo, 2014). Applied to somewhat different settings that refer to the wider domain of

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Accepted</th>
<th>Standardized effect</th>
<th>Regression weights (direct)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>Direct</td>
</tr>
<tr>
<td>Perceived discrimination → FoS</td>
<td>Y</td>
<td>0.304</td>
<td>0.304</td>
</tr>
<tr>
<td>Fear of success → Self-efficacy</td>
<td>Y</td>
<td>−0.343</td>
<td>−0.343</td>
</tr>
<tr>
<td>Self-efficacy → Intrinsic motivation</td>
<td>Y</td>
<td>0.289</td>
<td>0.289</td>
</tr>
<tr>
<td>Intrinsic motivation → Perceived chances of promotion</td>
<td>Y</td>
<td>0.549</td>
<td>0.549</td>
</tr>
<tr>
<td>Perceived discrimination → PCP</td>
<td>N</td>
<td>−0.017</td>
<td>0.000</td>
</tr>
<tr>
<td>FoS → PCP</td>
<td>N</td>
<td>−0.054</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table III. Parameter estimates and structural relationships: direct and indirect
careers which necessarily includes promotion, it was found that higher levels of career
decision making self-efficacy are associated with both a more differentiated vocational
self-concept and to greater engagement with career exploration activities (Gushue et al., 2006).

The choice of FoS and perceived discrimination as our model’s “launching” theoretical
constructs is because both are ostensibly negatively related to intra-firm mobility, lateral
and chiefly vertical. Regardless of the organisational and personal circumstances
surrounding and affecting employees’ perceived workplace discrimination and innate
FoS, both appear to be mutually reinforcing, though our path analysis shows the former to
affect the latter. Discriminated-against employees or those merely perceiving workplace
discrimination would necessarily fear success or failure. Naturally, prejudice, unfairness or
biased attitudes intensify existing or perceived apprehensions (Ganapathy and
Mayilsamy, 2013), which in turn, reduce promotion expectations. As argued in the
introduction, scholarly and practitioner interest in the wider domain of intra-organisational
mobility is on the upswing (Chudzikowski, 2012). Increasingly diverse workforces and,
predominantly, the ascendance of female employees (Peterson, 2012) necessitate further
research concerning workplace discrimination and FoS as factors affecting vocational
environments. Since both are inherent human phenomena, they are innately intertwined with,
and have an inexorable effect on employees’ aspirations for either promotion or lateral
organisational mobility. Our findings have significant implications for hands-on managers
because enhancing employees’ self-efficacy and focussing explicitly on various forms of
intrinsic motivation may allay their FoS, much like the alleviation of their perceived workplace
discrimination. This applies specifically to female employees whose FoS and workplace
discrimination have been found to exceed that of their male counterparts (Lühe, 2014).

We employed well-developed and empirically validated theoretical constructs that form
the building blocks of our research model. That said, the research model forms unique and
hitherto untested effects that on the whole contribute to the ever-important research on
career success at large and notably, promotion expectations. Thus, our findings integrate
with and contribute to a critical domain of career paths and markedly vocational success.
This relates to various aspects including proactive employee personality (Wang et al., 2017),
in current boundaryless career world that poses challenges in the contemporary volatile job
market. This also applies to the wider domain of human capital where internal promotion
and external recruitment have been shown to be effective means to achieve top managerial
positions (Frederiksen, and Kato, 2017).

Limitations

Our study has several limitations. First, data were cross-sectional, meaning we cannot
unambiguously ascertain the direction of the associations found. Research employing a
longitudinal design is warranted to further unravel causal relationships between FoS,
perceived discrimination, the mediating constructs (GSE and motivation), and the resultant
PCP. Temporal data set would be advantageously designed if each of the constructs was
measured sequentially as presented in our study. Whilst not unequivocally causal,
sequential measurements appear useful in terms of controlling for time-lags; hence, they are
likely to reflect the dynamics of the process at hand (Taris and Kompier, 2014). Additionally,
incorporating objective measures would overcome drawbacks intrinsic to research
employing self-reported data. Even though self-perceptions appear appropriate in
evaluating both antecedents and outcome variables in similar models, this involves a risk
of common method bias. Whilst our sample was relatively large, thus adequately
representative, it was based solely on Israeli Jewish respondents. A challenging scholarly
endeavour would include samples from different national cultures and ethnic groups.
Despite accelerated globalisation, we trust that the inclusion of distinct national cultures
and ethnic groups may potentially enrich this line of research and supplement theoretical
depth, specifically given contemporary diverse workforces. Comparisons amongst cultures and ethnic groups, vis-à-vis each of the theoretical constructs, and a model that incorporates respondents from different national cultures and ethnic groups, would be instrumental in this avowedly important vocational aspect.

Conclusions and implications
We endorse the view that in contemporary workplaces, aspects on top of promotion, constitute key to career success (Sutherland, 2017). That said, promotion remains a pivotal facet to evaluate career success (Zivnuska et al., 2017). Workplace promotion characteristically signifies an important career aspect. Intra-organisational workplace, lateral and horizontal mobility and advancement are regarded key to improving employees’ professional and managerial status, overall satisfaction and contribution thereof. Promotion, actual or perceived, is affected by a host of factors, not least of which are explicit or implicit workplace discrimination and the FoS phenomenon. Discrimination and FoS are liable to undermine employees’ overall personal and organisational functioning. Workplace promotion or career ambitions are innately embedded and should be viewed in light of any perceived impediment. Our model shows how enhanced self-efficacy and heightened intrinsic motivation may be instrumental in augmenting perceptions of workplace promotion. Generally, ambitious employees constitute an advantage and channelling this avowedly critical aspiration judiciously, such that it integrates with and enhances overall organisational functioning (Bryan and Joyce, 2007). Thoughtful attention to boosting self-efficacy and the resultant intrinsic motivation may not only result in higher job satisfaction and improved performance, but it may predict how employees perceive their chances for promotion, thereby enabling judicious decisions concerning promotion. That said, heightening SE is not invariable positive. It is also liable to engender excessive expectations which employees find hard to accomplish. Thus, these disproportionate aspirations may, in turn evoke adverse behavioural and attitudinal effects on exceedingly self-efficacious employees (Fine et al., 2016). This phenomenon occurs according to the Social Cognitive Theory that posits discrepancy resulting from adoption of goal challenges jointly with reactive discrepancy reduction in fulfilling them (Bandura and Locke, 2003).

With respect to the wider domain of career success, future studies should extend the scope of workplace promotion by extending the scope into such other factors affecting vocational success as protean careers (Herrmann et al., 2015). This is because current career paths necessarily imply being multiskilled, gaining qualifications and enriching relationships, both intra-organisational and otherwise, such that employees adapt quickly and thrive in ever-changing and often hyper competitive workplaces.

References


Bell, M.P. (2012), Diversity in Organizations, South-Western/Cengage Learning, Mason, OH.


Corresponding author
Shalom Levy can be contacted at: shalom@ariel.ac.il

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Exports-performance relationship in Russian manufacturing companies

Does foreign ownership play an enhancing role?

Anna Bykova
National Research University Higher School of Economics, Moscow, Russia, and
Felix Lopez-Iturriaga
University of Valladolid, Valladolid, Spain and National Research University Higher School of Economics, Moscow, Russia

Abstract
Purpose – The purpose of this paper is to examine the relationship between export activity and firm performance for a positive impact of foreign direct investments (FDIs). The authors also analyze two possible causes of the effect: technology transfer and financial support. The theoretical background is rooted in the resource-based approach taking into account multinational companies’ perspective and the specifics of emerging markets.
Design/methodology/approach – The authors propose testable hypotheses based on a review of the theory. To test the hypotheses, the authors build a sample of over 500 Russian public manufacturing firms covering the period from 2004 to 2014 and estimate regression models. Given concerns about endogeneity, the instrumental variable approach for panel data, using the GMM-estimator, is implemented.
Findings – Consistent with the view that FDIs generate spillover effects, the results support the positive impact of foreign ownership on the link between exports and firms’ performance. The results underline the importance of foreign ownership: shareholders from developed countries can provide benefits to exporting companies through transferring advanced technologies and loosening financial constraints by lowering interest and raising availability of bank loans.
Originality/value – The authors provide new insights on the relationship between exports and firm performance. Given our focus on Russia, a market with high potential to draw foreign investments, the research sheds some light on how emerging country firms can benefit from having foreign shareholders with paying attention to geographical distribution of such investments. Specifically, through the overcoming of technological barriers and loosening of financial constraints, the authors show empirically that foreign capital can make up for weak local institutional infrastructure and enhance the company’s returns from internationalization.

Keywords Russia, Firm performance, Internationalization, Ownership structure, Exports, Foreign direct investment

Paper type Research paper

1. Introduction
The effect of firms’ internationalization on corporate performance is a long-standing phenomenon in the business strategy (Hitt et al., 2006; Lu et al., 2014). Since the seminal works of Bernard and Jensen (1999) and Melitz (2003), the mainstream view has been that exporting is one of the pathways to overcome the fixed costs associated with entry into foreign markets. Exporting is seen as a relatively easy and rapid foreign market entry mode, requiring reduced financial and human resources. Previous research has focused on the
differences in firms’ involvement in exports and the determinants of foreign trade participation. In contrast, there is little in the way of systematic evidence to confirm how firms actually connect with foreign customers and suppliers, as well as the factors that can help them do so, especially in developing countries. Among the papers that do exist, there are a few that highlight the significant link between exports and firms’ financial results when taking into account different internal and external factors, i.e., the size and age or institutional environment (Li et al., 2017). However, ownership structure, as a whole, and foreign ownership, in particular, have almost been neglected in the literature as drivers of the relationship between internalization and performance.

We try to fill this gap by addressing the enhancing role of foreign ownership in the exports-performance relationship involving Russian firms, while testing the hypotheses on the way in which foreign ownership provides domestic affiliates of multinational enterprises (MNEs) with access to additional competitive advantages through connections with foreign shareholders. These advantages help firms to achieve better levels of performance from exporting. We assume that foreign equity indirectly affects the relationship between exports and corporate performance. We also address the underlying factors that make foreign ownership substantial in such a relationship by addressing the technological and financial advantages of the countries from which foreign shareholders come.

This issue is especially important for emerging countries, since national economic development and international competitiveness strongly depend on how firms are built on global value chains and improve the internal resources within the context of their activity (Filatotchev et al., 2008). Russia is a suitable environment in which to analyze this topic for several reasons. First, exports by Russian firms increased by around 250 percent between 2004 and 2013, which equates to the second highest growth in exports for G20 countries. According to the study of 500 Russian manufacturing firms, the share of exporting firms is four times higher for foreign-invested companies than domestic-invested firms, and almost twice as high as the average of the sample (Golikova and Kuznetsov, 2016). At the same time, Russia has different characteristics compared to developed countries and other emerging economies, where the effect of internationalization has been studied. Second, since 2012, Russia has undertaken enormous trade and foreign direct investment (FDI) liberalization. As a result, Russia became one of the three largest recipients of inward FDI in 2013 (UNCTAD, 2013). Finally, given the results of their meta-analysis on Russian studies, Iwasaki and Mizobata (2017) concluded that the number of works on the topic is still limited and does not allow for analysis over time, which in turn implicates a number of caveats for studying this topic.

We analyze a sample of more than 500 non-financial listed Russian firms in the period from 2004 to 2014. Our results show that exporting companies with foreign shareholders outperformed their counterparts with purely domestic capital. We also find that the origin of foreign ownership is relevant, since this positive effect is especially strong in countries with a higher degree of technological development or more developed capital markets. In turn, technology acquisition or the loosening of financial constraints with the help of shareholders from developed markets seems to be an effective mechanism leading to the impact of foreign ownership, which improves the performance of exporting firms from developing countries. These results are robust across different specifications of firm performance, foreign ownership and alternative model specifications.

The remainder of this paper is structured as follows. Section 2 provides a brief overview of the extant literature on the link between exports and firms’ performance, as well as the role of foreign ownership as a moderator of this link. This section also introduces the hypotheses to be empirically tested. Section 3 outlines the methodological framework and the sample, while Section 4 tests the hypotheses, before presenting and discussing the results. Conclusions are given in the final section.
2. Literature review
The existing literature has covered, from both a macroeconomic and a microeconomic point of view, the relationship between export and performance in the context of emerging markets, along with the role of foreign ownership as an enhancer of this link. First, we review the research on the direct impact of exports on business performance; continue with the moderating effect of foreign equity ownership and the mechanisms through which foreign ownership moderates such a relationship.

2.1 The link between exports and company performance: ambiguous evidence
In the global economy, international trade and FDI are regarded as key elements driving the sustained economic growth in developing countries (Virakul, 2015). Much has been written on the nexus between international trade and growth at the macro level and on export-led growth strategies. However, Melitz (2003) raises the question about why exporters may be more productive than non-exporters, if they both experience the same external conditions. Bernard et al. (2007) emphasized that the answer may be found from a microeconomic perspective and show that the significant differences in the performance of companies are strongly correlated with the decision to participate in international transactions.

The empirical evidence is still not enough for the developing world (Claessens and Yurtoglu, 2013). Using data on 27 transitional economies, Gorodnichenko et al. (2010) showed that export leads to innovative activity growth. Vaatannen et al. (2009), meanwhile, analyzed emerging Russian multinational companies, showing that international activity has a significant effect on performance. Similarly, Golikova et al.’s (2012) survey of 1,000 Russian companies confirmed that strong competition in foreign markets had forced them to implement innovations, resulting in better performance. At the same time, a number of studies have failed to observe the performance gap between exporters and local market companies, even identifying negative impacts in some cases. In particular, Aw et al. (2007) and Li et al. (2017) were unable to recognize any differences in the corporate performance of South Korean manufacturing, whereas Shcherbakov (2012) found that the relationship between the degree of internationalization and the performance of 50 Russian companies, in the period from 2005 to 2010, had a non-linear shape, while almost all companies are located in the negative part of the curve. One of the possible reasons for this relates to the low-level endowment of specific resources (Shakina et al., 2017). Firms do not have the ability to learn from foreign markets and cannot overcome the “sunk costs” phenomenon, which is significantly relative to firms’ own capacity to support them.

In summary, we still lack a generally accepted model of the relation between exports and performance for developing countries. Based on the reviewed literature, we can conclude that the foundations of the resource-based view (Barney, 1991) offer a suitable theoretical explanation for why MNEs’ affiliates may outperform domestically oriented firms, given that this framework emphasizes the importance of firm-specific resources when generating and maintaining sustainable competitive advantage (López Rodríguez and García Rodríguez, 2005). To obtain a better understanding of the phenomenon of internationalization in developing countries, a certain match between a firm’s resource base, FDI injections and its performance is needed.

2.2 The antecedents of the strengthening effect of foreign ownership
Despite a number of studies identifying several firm resources (i.e. demographic, structural, organizational and managerial) as determinants of the internationalization and performance link, there is little evidence about foreign ownership, which is of particular importance to developing countries (Stepanov and Suvorov, 2017). Moreover, previous literature has mainly focused on the direct, rather than the moderating, effect of foreign ownership on exports and performance. Greenaway et al. (2007) observed the positive influence of FDI on
return on assets (ROA); Mihai and Mihai (2013) made the same observation with regard to Romanian firms. On the contrary, Fatima (2016) found that FDI horizontal linkages decrease company productivity. Bessonova et al. (2003) reported that for Russian firms the share of FDI in capital has not influenced company productivity, especially after the 1998 crisis. Yudaeva et al. (2003) observed that foreign firms are more productive than domestic ones.

The results from analyzing large amounts of panel data on firms from 28 CEE countries with high institutional development variation from 2002 to 2009 highlighted a positive relation between foreign ownership and export and employment growth (Balsmeier and Czarnitzki, 2014). A recent study from Boddin et al. (2017), using an international sample of 30 developing countries, including Russia, concluded that foreign ownership significantly increases the propensity of firms to engage in international trade, by 17.6 percentage points. The FDI spillover effect is especially strong for firms in low-income countries.

However, as shown by Filatotchev et al. (2008), exports and returns from this activity are closely associated with ownership structure, particularly with foreign shareholders. The last is considered as an internal resource for boosting expansion by developing export infrastructure, accumulating general knowledge in export operations or training specialists in firm exports overseas, which, in turn, will improve the competitiveness of the firm (Huang et al., 2013). A lack of foreign presence consequently leads to inferior knowledge of foreign markets and reduced “market access spillovers,” i.e. access to a broader array of financial opportunities to fund investments and innovations (Buckley et al., 2010). At the same time, according to Lensink and Naaborg (2007), the lower performance of foreign banks could result from the existence of information asymmetry, which induces the foreign parent to only approve low-risk credit proposals submitted by the foreign subsidiary.

Based on the conflicting evidence, we expect that, as a mechanism to exploit the value of internal resources, exports generate more performance when not only domestic but also foreign shareholders own the company. Therefore, given the lack of a backdrop of previous studies concerning the indirect effect of foreign ownership on the export-performance link, we explore the following main hypothesis:

**H1.** Foreign ownership has a positive moderation effect to relationship between exports and corporate performance in Russian manufacturing firms.

### 2.3 The mechanisms leading to foreign ownership impact

Recent research has shown that a large part of this effect belongs to the effect of the country of ownership origin (i.e. Nepelski and De Prato, 2015; Wignaraja, 2012). It has been argued that the higher the technological gap between the home and host countries, the stronger the effect. Iwasaki and Mizobata (2017) observed the strong positive effect of foreign investors from technologically and financially more advanced countries. Despite the amount of research on the foreign ownership and corporate performance link, the exact mechanisms by which FDI facilitates the exports-performance relation are still not well understood.

Given the emphasis on increasing the competitiveness of foreign affiliates with the specifics of developing countries, in our paper we investigate two mechanisms related to the country of origin effect, which can improve firms’ resource endowment and foster the link between exports and performance: namely, technology acquisition, through which technologies and managerial practices are imitated, and the loosening of financial constraints by providing better access to external finance via connections that foreign shareholders have (Manova and Zhang, 2009).

A related strand of literature, which draws on innovation and learning processes in developing countries, refers to technologies acquisition from developed countries as being a major source of export advantage at the firm level (Belitz and Mölders, 2016). MNEs “meet” local firms with new technologies, which they do not know or where it is too costly for them
to be introduced. Wignaraja (2012) found that for 205 clothing enterprises in Sri Lanka domestic technological activity and FDI from developed countries are complements, rather than substitutes. Nepelski and De Prato (2015) noticed that there is an increasing demand among external actors for technological development in developing countries. However, Golikova and Kuznetsov (2016) showed that, in the case of 500 Russian firms involved in eight manufacturing industries, foreign investors do not consider their affiliates as part of the value chain, which is why they have no incentives to improve technologies. In their study on Indonesian firms, Blomstrom and Sjöholm (1999) found that MNEs failed to facilitate technology diffusion for local affiliates. Similarly, Suyanto and Salim (2013) found evidence that FDI decreases the technical efficiency of local Indonesian pharmaceutical firms. Wooster and Diebel (2010) found no evidence of any statistically significant spillover effects in a meta-regression analysis of 32 spillover studies of developing countries. In addressing this controversial evidence, we state our second sub-hypothesis as follows:

H2a. The level of technological availability in the largest foreign shareholder’s country of origin positively moderates the relationship between exports and firms’ performance.

There is consensus in the literature that underdeveloped domestic capital markets can constrain the international expansion of firms. Beck (2002) concluded that foreign owners might provide better access to external finance, allowing firms to more easily bear the fixed costs of exporting, given that developing countries tend to have poorly developed financial markets, resulting in limited financing opportunities for firms. In this sense, the financial profile of a country can be defined either as bank oriented or as market oriented. Based on a sample of Spanish firms, Campa and Shaver (2002) found that, relative to non-exporters, exporters enjoy a more stable cash flow and, therefore, capital investment. Foreign shareholders can ease access to financial funds and loosen financial constraints. Alvarez and López (2013) demonstrated that financial development increased the probability of exports in Chilean manufacturing sectors with foreign ownership. However, De Rosa (2006), for all Russian companies with more than 100 employees for the period 1996-2000, failed to discover that the presence of foreign owners was significant in determining both export propensity and intensity, thereby confirming that FDI is not usually intended for increasing financial resources. Girma et al. (2004) found the same results when studying the role of foreign ownership and financial constraints in Chinese firms, with an emphasis on innovation activity. Minetti and Zhu (2011) proved that firms with foreign ownership have lower levels of liquidity, which in turn depress both domestic and foreign sales and reduce the probability of exporting. Accordingly, our second sub-hypothesis can be stated in the following way:

H2b. The availability level of financial resources (either banks or capital markets) in the largest foreign shareholder’s country of origin positively moderates the relationship between exports and firms’ performance.

3. Data, variables and method

3.1 Data

Our database provided by the Ruslana from Bureau Van Dijk and was complemented with more firm-level data, which concern ownership structure and corporate exports from public sources. Our sample is made up of 518 Russian public firms (on average) covering the period from 2004 to 2014, which amounts to 5,702 firm-year observations. According to the Federal State Statistics Service, 2017 (Rosstat), the whole population of public companies who disclose their information consists of 2,700 companies. Our sample covers around 20 percent of the whole population and represents all key players in the country as most important companies disclosing the information are in the sample. The proportion of exporters in our
sample is around 60 percent of firms. More than half of the firms occasionally exported in the last three years. We identify the outliers using the system of multivariate outlier detection (Hadi, 1994). For a firm to be included in our database, we require the firm to be once listed and active as of 2004 and to have been active for at least seven years.

We focus on manufacturing firms because, contrary to other large Russian exporting industries, such as oil and minerals, the manufacturing sector is the one that most adds value and, in turn, has the ability to implement the advantages brought in by foreign shareholders. Furthermore, according to Russian macroeconomic statistics, manufacturing holds the leading position in terms of foreign investment attractiveness. The number of projects when a foreign investor acquires more than a 10 percent share of the company's equity reached 171 in 2014.

Rosstat reports that Russian companies exported 30 percent of GDP in 2012. According to the UNCTAD classification, the share of high-skill and technology-intensive manufacturing increased from 30 to 41 percent between 2004 and 2014. Microeconomic data show that manufacturing companies are quite heterogeneous, while 89 percent of exporters are firms with foreign capital (Golikova and Kuznetsov, 2016).

The distribution of the sample according to the manufacturing sub-sectors is shown in Table I, in line with the three-digit level North American Industry Classification System (NAICS) classification. Apart from the sample’s skeweness to large companies, our sample is representative in terms of sector distribution of Russian manufacturing economic sectors.

As can be seen in Table II, only 7 percent prioritize the export of their products to the Community of Independent States (CIS) countries, whereas 23 percent export to developed markets and 35 percent have chosen emerging markets as their priority.

### 3.2 Model and variables

Since we are interested in testing the moderation effects, a number of interacted variables has been defined, which combine export activity with ownership structure, such as $FOCC_{it} \times EXP_{it}$. Thus, the baseline model can be expressed as a linear panel model with individual effects as follows:

$$
CorpPer_{it} = \beta_0 + \beta_1 EXP_{it} + \beta_2 FOCC_{it} + \beta_3 EXP_{it} \times FOCC_{it} + \beta_4 Controls_{it} + \epsilon_{it} 
$$

(1)

where $CorpPer_{it}$ represents the performance of firm $i$ in year $t$, $EXP_{it}$ represents the company exports activity of firm $i$ in year $t$, $FOCC_{it}$ represents the foreign control ownership of firm $i$ in year $t$, $FOCC_{it} \times EXP_{it}$ represents the interaction effect between foreign ownership and exports activity of firm $i$ in year $t$, $Controls_{it}$ represents the control variables of firm $i$ in year $t$, and $\epsilon_{it}$ represents the error term of firm $i$ in year $t$.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Extract</th>
<th>Food</th>
<th>Textile</th>
<th>Wood</th>
<th>Chemical</th>
<th>Nonmetal</th>
<th>Metal</th>
<th>Machinery</th>
<th>Electric</th>
<th>Transport</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share (%)</td>
<td>11.2</td>
<td>11.0</td>
<td>0.9</td>
<td>3.3</td>
<td>11.2</td>
<td>9.4</td>
<td>12.4</td>
<td>12.6</td>
<td>12.3</td>
<td>13.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table I. Sample distribution by sectors

<table>
<thead>
<tr>
<th>Industry</th>
<th>Developed</th>
<th>Emerging</th>
<th>CIS</th>
<th>Unrecognized$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share (%)</td>
<td>23.0</td>
<td>35.0</td>
<td>7.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: That is why 35 percent of the observations were not counted due to the equal numbers of countries where company exports. $^a$The estimation is based on the number of countries with the particular direction

<table>
<thead>
<tr>
<th>Industry</th>
<th>Developed</th>
<th>Emerging</th>
<th>CIS</th>
<th>Unrecognized$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share (%)</td>
<td>23.0</td>
<td>35.0</td>
<td>7.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table II. Sample distribution by priority export direction
3.2.1 Dependent variable. Firms’ performance has been measured using two accounting-based indicators commonly used in corporate finance studies such as Guner et al. (2016), Gedajlovic et al. (2005) or Kumar (2004). According to Mashayekhi and Bazzaz (2008), such measurements, presenting the managerial actions outcome and fundamentals of business performance in a holistic way, are preferred over other indicators for corporate governance and firm performance research. We use the ROA, which is a measure of the operational efficiency as the most popular accounting-based metric according to the Al-Matari et al.’s (2014) study. For robustness check, we use another accounting measure, namely the return on equity (ROE).

3.2.2 Independent variables. To enhance the comparability of our results with previous research and given our focus on the differences between exporting and non-exporting firms, we follow the recent studies by Munch and Schaur (2018) and Gibson and Pavlou (2017) and define exports as a dummy variable, which equals 1 if the firm has exported in period \( t \), and 0 otherwise. A review of theory demonstrated that even the dichotomous exports variable could capture various effects of internationalization. Thus, Greenaway et al. (2007) showed that entering the international market changes the firm’s behavior: companies start to prefer implementing modern technologies, including foreign ones. Yang et al. (2009) used an exports dummy and discovered that for Chinese companies merely starting to export can be an important source of competitive pressures, information and other productivity advantages for firms, leading to significant performance improvements. Balsmeier and Czarnitzki (2014) demonstrated the evidence of the positive influence of export status on different performance indicators for companies from Central and Eastern Germany. Kalyvitis et al. (2016) received similar results for both export dummy and export intensity indicators, studying Greek companies over the period 1999-2007. Moreover, as several studies about Russia (i.e. Golikova et al., 2008; Gonchar and Marek, 2014; Kuznetsov et al., 2011) have concluded, the mere fact that a company engages in exports might be a signal indicating that the firm outperforms its competitors.

For robustness checks, we define an additional metric of exports, called sustainable export. This second dummy variable equals 1 if the firm has exported in each one of the last three years as suggested by Arnold (2015). The same approach was implemented for Russian companies by Golikova et al. (2012) who showed that sustainable exporters obtain higher returns from internationalization than firms exporting occasionally due to having constant incentives to implement new technological and organizational innovations.

Foreign ownership is operationalized through a dummy variable, which equals 1 if a foreign shareholder owns at least 25 percent of shares (Du and Girma, 2012). This threshold is based on the idea that foreign shareholders have incentives to implement strategic changes when they have a high enough fraction of shares. Given the high ownership concentration of Russian firms, this assumption is consistent with Sarkar and Sarkar (2000), who showed that institutional investors only have a positive impact on firms’ performance when their stake is higher than 25 percent.

For robustness checks, we use another dummy for foreign ownership, which equals 1 when the firm has foreign shareholders, irrespective of the fraction of shares as well as continuous variable foreign ownership as a percentage of foreign ownership in shareholder capital.

Regarding our second research question, we introduce variables related to the technological and financial advantages provided by foreign shareholders. In their theoretical model, Helpman et al. (2008) highlighted that productivity growth is endogenous and influenced by firms’ innovation decisions. For firms that export, success in global markets is closely related to the development of capabilities and technological opportunities, which are not necessary for success in the domestic market. We based our work on the approach suggested by Chen (2011) and Jara-Bertin et al. (2015) and matched country-level data from the World Bank with regard to research and development expenditures with
firm-level information. We define technology availability as a dummy variable, which equals 1 when the largest foreign investor’s country of origin is above the mean technological level, and 0 otherwise.

As far as financial development (either bank development or capital markets) is concerned, we refer to the information issued by the World Bank on domestic credit provided by the financial sector and on the market capitalization of listed companies (both as a percentage of GDP). In the same way, we define two dummy variables, namely, bank capital and market capital, when the country of origin of the largest shareholder is above the mean level of the credit provided by the financial intermediaries or market capitalization; otherwise, each variable equals 0.

3.2.3 Control variables. According to the literature, there are a number of factors that can affect the influence of exports on firm performance. First, we use a dummy variable relating to export direction. In general, it can be expected that companies exporting to markets that are more sophisticated benefit from their activity in more challenging contexts. Therefore, the variable equals 1 if the firm has exported to developed countries in period $t$; otherwise, it is 0. The definition of developed countries is based on the list issued by the UN (WESP, 2016) and assumes that firms learn more from partners in those countries than those from developing ones. The use of this variable is based on Barrios et al. (2005) who found evidence that Spanish firms benefitted from research and development spillovers resulting from exporting to OECD countries. Damijan et al. (2013) reported that productivity only increases significantly when exporting to advanced foreign markets. In this vein, Shevtsova (2012) found that Ukrainian firms which export to the EU and other OECD countries achieve higher levels of benefits in terms of their total factor productivity than firms entering the CIS countries. Brambilla et al. (2017) observed that, for Argentinian companies, the geographical export structure has an impact on human capital quality and average wages. However, for Russian and CIS firms, Wilhelmsson and Kozlov (2007) only obtained positive results for labor productivity for the first year of exporting to OECD countries, compared to CIS countries.

The effect of firm size is an empirical issue. On the one hand, the export efficiency of larger firms is likely to be higher than smaller firms on the grounds of resource availability, higher capacity for taking risks, better access to financial funds, easier building of foreign networking relationships, and lower transaction costs. However, smaller firms could perform better in foreign markets because of their inherent flexibility. In line with Babakus et al. (2006), we use the number of employees (natural logarithm) as an indicator of firm size.

Age refers to experience in learning and knowledge (Williams and Shaw, 2011). Some young firms are more successful in dealing with new technologies, which can provide important tools for the success of exports. Nevertheless, old firms might enjoy higher returns because of their experience and ability to build a global network. We estimate the age of the company using the date of incorporation.

Intangible assets reflect the specific company resources that allow for higher diversification and the generation of abnormal financial results. As reported by Malone and Rose (2006), companies with high level of intangibles and FDI are able to demonstrate the positive benefits of internalization. The study by Bontempi and Mairesse (2015) goes beyond the impact of purely capitalized intangible assets.

Employee costs also refer to firms’ resources involving human capital. Franco and Gelübecke (2015) observed statistically significant differences in wages per employee in 2007-2008 for Central and East German service companies that exported and were owned by foreign and domestic shareholders.

There are also a number of industry-level factors that potentially affect the above-mentioned relationship (Zou and Cavusgil, 2002). Industry technological intensity is another industry-level
factor affecting the competitiveness of an industry and, consequently, the ability of firms to enter foreign markets. Firms with a high degree of “research effort” tend to export a higher proportion of their output. Thus, Du et al. (2012), who analyzed Chinese listed companies, found that export activity does not influence firms from mature and low-tech industries, whereas a strong positive effect was observed for companies from medium- and high-tech sectors. According to technological intensity, we group our companies into three clusters using the OECD classification: high-, middle- and low-technology industries (OECD, 2011).

Industry concentration may be important since it reflects the level of competition in an industry. As shown by Zhao and Zou (2002), in highly concentrated industries, a few large firms enjoy a high degree of market power. We operationalize industry concentration using a Herfindahl-Hirschman index (HHI) for the four-digit level of the NAICS. The HHI was estimated based on the data on all firms’ population, which is available from the Ruslana database, covering more than 90 percent of Russian companies.

Industry dummies reflect the classification of each firm into one of the manufacturing sub-sectors, as identified by the NAICS. It is argued that firms are constrained to a certain degree, particularly in the short term, by opportunities available to the industry as a whole. Having formed ten aggregate manufacturing industry groups, we constructed nine dummy variables, where group 10 is the reference group. Finally, we control unobservable macroeconomic effects via dummy variables for years and the economic development of different regions using the gross regional product (GRP) per capita. As noted in Arnold and Hussinger (2010), the GRP per capita coefficient can be a proxy for economic performance and heterogeneity (or convergence) of regions.

A key methodological issue when testing the link between firms’ performance and exports is possible endogeneity, i.e., the causality of the link. This can be due to exports being affected by corporate performance or being correlated with unobserved firm characteristics, which influence a firm’s performance. To address such an issue, we use the instrumental variable approach for panel data, as found in several similar studies (Baum et al., 2007; Caldera, 2010; Hansen, 2010). This involves selecting suitable instruments (Roberts and Whited, 2013). The instruments should be correlated with exports and not have any direct impact on the dependent variable. Following Mody and Ohnsorge (2007) and Park et al. (2010), we use one-year lagged exports since it is expected to affect exports, but not domestic sales and corporate performance of current year.

In Table AI, we present definitions and method of estimation for all the variables.

4. Results
4.1 Descriptive statistics
Some descriptive statistics are reported in Tables III (continuous variables) and IV (dichotomous variables), according to the exporting criterion (work on foreign or local markets). Table III shows the mean, quartiles and standard deviations of the variables, along with a test of means comparison between exporters and non-exporters. As we can see, exporting companies are larger, and have more intangible assets and larger employee costs, along with a higher share of foreign ownership. Moreover, exports are related to better corporate performance: the differences in ROA and ROE are statistically significant, meaning that exports directly contribute to business performance. At the same time, exporting companies do not necessarily enjoy a more productive experience on the market, as the differences in age are not statistically significant.

The results given in Table IV are consistent with the view that exporting and non-exporting Russian companies have different ownership structures and different industry characteristics. Exporting firms often have more foreign shareholders than their non-exporting counterparts, and operate in high-tech and highly concentrated industries. The evidence is similar to that
presented by Oxelheim and Randoy (2003), who indicated that foreign ownership is significantly more important for exporting manufacturing firms, due to highly significant capital costs for these industries.

From Table V, we can say that the correlations among the independent variables are generally low; mean that multicollinearity is not a problem in our estimates. At the same time, in broad terms, the correlation matrix confirms the results of the test of means comparison by showing the correlation between exports and some firm- and industry-level factors. For instance, exports positively correlate with different metrics of foreign ownership as well as working in concentrated and high-tech industries.

4.2 Explanatory analysis

We run the baseline model in which the dependent variable is a firm's performance. To check the specific effect of foreign ownership on exporters' performance, we facilitate the interaction between exports and foreign ownership. In all the models, we control for

<table>
<thead>
<tr>
<th></th>
<th>Whole sample (%)</th>
<th>Exporters (%)</th>
<th>Domestic (%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign ownership (dummy)</td>
<td>21.42</td>
<td>23.07</td>
<td>18.96</td>
<td>0.005</td>
</tr>
<tr>
<td>Operating in high-tech industries</td>
<td>2.92</td>
<td>3.44</td>
<td>2.14</td>
<td>0.006</td>
</tr>
<tr>
<td>Operating in low-tech industries</td>
<td>90.43</td>
<td>89.56</td>
<td>91.73</td>
<td>0.009</td>
</tr>
<tr>
<td>Working on high concentration</td>
<td>9.01</td>
<td>10.07</td>
<td>7.52</td>
<td>0.038</td>
</tr>
<tr>
<td>Working on low concentration</td>
<td>69.54</td>
<td>6.59</td>
<td>7.48</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Whole sample (Mean(SD))</th>
<th>Q25</th>
<th>Q50</th>
<th>Q75</th>
<th>Exporters (Mean (SD))</th>
<th>Non-exporters (Mean (SD))</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>0.047 (0.103)</td>
<td>0.062</td>
<td>0.079</td>
<td>0.099</td>
<td>0.063 (0.098)</td>
<td>0.044 (0.106)</td>
<td>0.005</td>
</tr>
<tr>
<td>ROE</td>
<td>0.075 (0.110)</td>
<td>0.080</td>
<td>0.079</td>
<td>0.193</td>
<td>0.076 (0.107)</td>
<td>0.007 (0.113)</td>
<td>0.093</td>
</tr>
<tr>
<td>Foreign ownership</td>
<td>0.427 (3.299)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.462 (3.220)</td>
<td>0.406 (3.330)</td>
<td>0.054</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>0.007 (0.041)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.008 (0.045)</td>
<td>0.006 (0.038)</td>
<td>0.039</td>
</tr>
<tr>
<td>Cost of employee</td>
<td>1.611 (1.516)</td>
<td>0.811</td>
<td>1.704</td>
<td>2.802</td>
<td>2.163 (1.191)</td>
<td>1.264 (1.594)</td>
<td>0.000</td>
</tr>
<tr>
<td>Size</td>
<td>6.577 (1.688)</td>
<td>5.849</td>
<td>6.811</td>
<td>7.882</td>
<td>7.431 (1.119)</td>
<td>6.066 (1.760)</td>
<td>0.000</td>
</tr>
<tr>
<td>Age</td>
<td>43.782 (45.644)</td>
<td>15.000</td>
<td>21.000</td>
<td>64.000</td>
<td>43.891 (42.397)</td>
<td>43.716 (47.518)</td>
<td>0.905</td>
</tr>
<tr>
<td>GRP per capita</td>
<td>243.706 (220.165)</td>
<td>113.000</td>
<td>181.200</td>
<td>264.479</td>
<td>241.410 (235.173)</td>
<td>245.116 (210.463)</td>
<td>0.634</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>ROE</th>
<th>Exports</th>
<th>Sustainable export</th>
<th>Foreign ownership control</th>
<th>Foreign ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>0.083***</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports</td>
<td>0.043**</td>
<td>0.026*</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable export</td>
<td>0.037**</td>
<td>0.027*</td>
<td>0.889***</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign ownership control</td>
<td>0.005</td>
<td>0.002</td>
<td>0.021</td>
<td>0.026*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign ownership</td>
<td>0.042**</td>
<td>0.001</td>
<td>0.077***</td>
<td>0.082***</td>
<td>0.017</td>
<td>1.000</td>
</tr>
<tr>
<td>VIF</td>
<td>1.03</td>
<td>1.02</td>
<td>5.85</td>
<td>5.54</td>
<td>1.05</td>
<td>1.09</td>
</tr>
</tbody>
</table>

Note: **, ***Significant at 10, 5, and 1 percent levels, respectively.
time and industry effects with a set of year and industry dummy variables. The results of the estimations are presented in Table VI.

First, we can claim that one-year lagged exports represent a relevant instrument for this model based on the results of underidentification (p-value in Anderson’s canonical correlation LM test is 0.001), weak identification tests (Cragg-Donald Wald statistic equals > 10 in each regression) and the Sargan test (the null hypothesis is accepted everywhere).

From the basic specification of the model, there are several relevant issues to consider. First, as the interaction term of export and foreign ownership is positive and significant; we can confirm our $H_1$ and suggest that foreign ownership increases the strength between exports and performance. This, in turn, means that firms with a large stake of foreign ownership enjoy positive spillovers from their shareholders, thereby providing opportunities to overcome fixed costs of exporting and receive positive returns in performance. Huang et al. (2013) reached similar outcomes for a large sample of developing countries, while scholars such as Lensink and Naaborg (2007) found the opposite results.

Furthermore, the fact that being an exporter per se does not significantly impact on a firm’s performance gives us an additional argument for our conclusion. As Russian exporting companies do not have enough resources (on average) allowing them to outperform their local counterparts, they need additional resources as they mainly operate in very traditional and low-tech industries. Damijan et al. (2013), Du et al. (2012), and Lin et al. (2014) for Chinese listed companies obtained similar results, whereas Filatotchev et al. (2008) and Golikova and Kuznetsov (2016) confirmed the opposite hypothesis. In line with Fedorova et al. (2015), we can conclude that there are some additional company characteristics, which a firm should have if it is to benefit from internalization.

Finally, the presence of foreign shareholders seems to have a negative direct impact on ROA, which contradicts the results of most papers on developed markets (Masso et al., 2013), yet reinforces the evidence from developing countries (Fatima, 2016) and Russia (Bessonova et al., 2003; Yudaeva et al., 2003). The joint analysis of the negative impact of FDI received by Russian firms and the positive effect of interaction terms suggests that foreign ownership acts as an enhancer of corporate performance, but only for internationally oriented firms. We agree with Cole et al. (2010), who stated that a critical level of fixed exporting costs could enable export-oriented firms to become MNE network participants.

### Table VI.

<table>
<thead>
<tr>
<th>ROA</th>
<th>Coef. (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>0.008 (0.023)</td>
</tr>
<tr>
<td>Foreign ownership</td>
<td>$-0.162^{**}$ (0.084)</td>
</tr>
<tr>
<td>Exports × foreign ownership</td>
<td>0.104^{**} (0.0547)</td>
</tr>
<tr>
<td>Exports direction</td>
<td>0.028* (0.015)</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>0.684^{***} (0.183)</td>
</tr>
<tr>
<td>Cost of employees</td>
<td>0.006 (0.005)</td>
</tr>
<tr>
<td>Size</td>
<td>0.008 (0.006)</td>
</tr>
<tr>
<td>Age</td>
<td>0.001* (0.000)</td>
</tr>
<tr>
<td>Industry technology intensity</td>
<td>0.108^{**} (0.0433)</td>
</tr>
<tr>
<td>Industry concentration</td>
<td>0.159^{**} (0.055)</td>
</tr>
<tr>
<td>GRP per capita</td>
<td>$-0.000 (0.000)$</td>
</tr>
<tr>
<td>Centered $R^2$</td>
<td>0.036</td>
</tr>
<tr>
<td>Underidentification test</td>
<td>360.836^{***}</td>
</tr>
<tr>
<td>Weak identification test</td>
<td>154.117</td>
</tr>
<tr>
<td>Sargan test</td>
<td>3.742</td>
</tr>
<tr>
<td>F-stat.</td>
<td>2.92^{***}</td>
</tr>
<tr>
<td>Number of observations</td>
<td>5,368</td>
</tr>
</tbody>
</table>

**Note:** *, **, ***Significant at 10, 5, and 1 percent levels, respectively
We now address the effect of the country of origin of the largest foreign shareholder, as stated in our \( H2a \) and \( H2b \). The results of our estimations are presented in Table VII.

First, we can confirm our \( H2a \) because the coefficient of the interaction term between the exports and technology availability variables is positive and significant. This could be evidence that Russian exporting companies with foreign capital from developed countries have the opportunity to implement more developed technologies in their firms, use them to create new competitive products, easily overcome the barriers of foreign markets and outperform firms operating with local markets. Golikova et al. (2012) stated that MNEs’ affiliates with foreign ownership have the highest level of productivity among Russian manufacturing companies. The findings are consistent with theoretical conclusions obtained by Dunning (2014): access to marketing connections and know-how of their parent companies from developed economies and the accumulated learning experience of producing for export makes foreign affiliates from developing countries better placed to tap MNEs’ affiliates than domestic firms. The results are in line with the conclusions reached by Alvarez and López (2013). Moreover, there is also evidence that industries with a large presence of foreign multinationals exhibit faster rates of technological transfer from the frontier, which is consistent with a foreign presence intensifying competition and enhancing incentives to adopt technologies (Boddin et al., 2017).

The financial development of the investment’s country of origin is partially significant in the sense that only one of the two interaction variables, namely, the interaction term between exports and bank capital, is significant. Thus, foreign shareholders provide access to financial resources from more developed banking systems, which, in turn, increase their potential margin from exporting and give them benefits in performance, confirming the evidence presented by Campa and Shaver (2002). In the same vein, Alvarez and López (2013) concluded that external finance (both equity and debt) cannot be easily obtained because of the difficulty in enforcing underlying contracts, while foreign investors make this process easier.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coef. (SE)</th>
<th>Coef. (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>0.034 (0.098)</td>
<td>0.078 (0.072)</td>
</tr>
<tr>
<td>Technology availability</td>
<td>0.044 (0.021)</td>
<td></td>
</tr>
<tr>
<td>Market capital</td>
<td>-0.013 (0.026)</td>
<td>0.003 (0.028)</td>
</tr>
<tr>
<td>Bank capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports × technology availability</td>
<td>0.044** (0.021)</td>
<td></td>
</tr>
<tr>
<td>Exports × market capital</td>
<td>-0.017 (0.050)</td>
<td>0.096* (0.052)</td>
</tr>
<tr>
<td>Exports × bank capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports direction</td>
<td>0.092 (0.058)</td>
<td>0.097 (0.082)</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>1.442* (0.836)</td>
<td>1.467* (0.832)</td>
</tr>
<tr>
<td>Cost of employees</td>
<td>0.025 (0.023)</td>
<td>0.133 (0.042)</td>
</tr>
<tr>
<td>Size</td>
<td>0.001** (0.000)</td>
<td>0.193*** (0.045)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.008 (0.060)</td>
<td>-0.014* (0.007)</td>
</tr>
<tr>
<td>Industry technology intensity</td>
<td>0.014 (0.019)</td>
<td>0.022 (0.057)</td>
</tr>
<tr>
<td>Industry concentration</td>
<td>0.070 (0.045)</td>
<td>0.106 (0.083)</td>
</tr>
<tr>
<td>GRP per capita</td>
<td>0.001 (0.000)</td>
<td>0.001 (0.000)</td>
</tr>
<tr>
<td>Centered ( R^2 )</td>
<td>0.040</td>
<td>0.045</td>
</tr>
<tr>
<td>Underidentification test</td>
<td>48.742***</td>
<td>64.305***</td>
</tr>
<tr>
<td>Weak identification test</td>
<td>37.373</td>
<td>61.626</td>
</tr>
<tr>
<td>Sargan statistic</td>
<td>1.880</td>
<td>1.102</td>
</tr>
<tr>
<td>( F )-stat</td>
<td>2.22**</td>
<td>2.44**</td>
</tr>
<tr>
<td>Number of observations</td>
<td>1.880</td>
<td>1.102</td>
</tr>
</tbody>
</table>

**Note:** *, **, ***Significant at 10, 5, and 1 percent levels, respectively

**Table VII.** Results of model estimation (technology and financial resources availability)
The lack of significance regarding the interaction term between exports and market capital may be explained based on the limited free flow of Russian companies on stock exchanges. Given that funds raised from minority shareholders in capital markets are not relevant for Russian firms, foreign shareholders’ financial expertise regarding this issue is not considered as a relevant resource either. Our conclusions correlate with those reached by De Rosa (2006) and Girma et al. (2004), as well as those in the report on Russian FDI by UNCTAD (2013).

Our results validated the idea that exporting to markets that are more sophisticated improves the performance of firms, as shown by Huang et al. (2013) in the case of Taiwan companies. This evidence is quite important for Russian firms and supports calls for the state to introduce policies to facilitate an export-led growth strategy. Several authors (e.g. Artopoulos et al., 2013; Verhoogen, 2008) have noted that one key benefit of exporting from developing to developed countries is exposure to sophisticated buyers, who have a stronger preference for higher-quality products than local buyers. Moreover, exporting to developed countries involves a demand for human capital quality, whereby export companies are given additional incentives to develop their business model so that they can increase their competitiveness (Verhoogen, 2008). According to our predictions, intangible assets have a strong positive impact on ROA, validating the claims made by Malone and Rose (2006). At the same time, contrary to the findings of a recent study by Shakina et al. (2017), we found no influence of investments on the development of human resources within Russian manufacturing companies. Finally, operating in high-tech industries leads to higher levels of performance, which is a finding that more or less corroborates with evidence presented in other studies based on Russian samples (e.g. Golikova et al., 2012; Golikova and Kuznetsov, 2016). Other firm- and industry-specific issues, such as age, industry concentration and industry-based technological intensity, had no impact on performance in both models.

4.3 Robustness check
We run several robustness analyses to check the consistency of our estimates. We change the dependent variable (ROE), use different measures for exports and FDI (sustainable export and continuous and dummy variables for FDI), as well as implement another statistical method (quantile regression for panel data with endogenous variables). This technique allows for an understanding of the analyzing effect of companies with different levels of performance (Canay, 2011). With a few exceptions, the results broadly corroborate our findings.

5. Conclusion
The objective of this study was to analyze the exports-performance relation in Russian firms, with a focus on the role of foreign ownership from a resource-based perspective. We analyzed a sample of 518 public firms covering the period from 2004 to 2014 in order to test whether foreign presence with regard to equity has a positive impact on the link between export activity and company performance, as measured by ROA and ROE.

As is widely known, the resource-based view of the firm emphasizes the uniqueness of a set of resources as the source of sustained competitive advantages. Building on this idea, our underlying rationale was that FDI could enhance the positive effect of exports on the performance of the firm. In line with this approach, we found that the interaction between exports and foreign ownership increases the performance of a firm. The advantages of the relationship with foreign shareholders in this context are twofold: as a form of diversification of the sources of financial funds, aimed at limiting risk, even if this function is moderated by the risk of exporting; and as a mechanism to become part of global chains, thereby attenuating the sensitivity of the firm toward fluctuations in domestic demand.
Our results also shed some light on the most critical characteristics of the resources by identifying two features of foreign ownership that enhance the firm’s performance. The first characteristic refers to the technological advantages. We found that foreign shareholders from more technologically developed countries increase the performance of the firm. Thus, foreign ownership could be viewed as an opportunity to imitate foreign firms’ technology and thus close the potential technological gap. In turn, FDI could be a source for import substitution, which allows a firm’s competitiveness to be increased by applying the knowledge introduced by shareholders.

The second characteristic involves loosening financial constraints. Our results show that shareholders from countries with more developed financial systems (in terms of banking development) reinforce the positive effect of exports on firm performance. Consequently, these shareholders provide exporting firms with the financial support needed to alleviate possible financial constraints in domestic markets. Moreover, a foreign partner may transfer part of its “creditworthiness” to the domestic company in order to facilitate better financial conditions. In the same vein, by having more international relations, exporting firms are less tied to the domestic cycle and less subject to the financial constraints that result from strict monetary policies and recessions at home.

Our results should be of interest to academia, management and society as a whole. Although our research can be applicable to a number of countries and institutional settings, it is even more relevant for transition economies, in which a general lack of transparency, low standards when conducting business, and inadequate protection of creditor and minority shareholder rights are common characteristics.

For an academic audience, this research contributes to the literature by broadening the scope of empirical evidence for the indirect effect that FDI has on the exports-performance link for firms in emerging economies. Much of the previous research has focused on more developed countries in which resources are more available to firms, while their markets do not suffer from such severe imperfections. According to our approach, the relevant factors for firm performance in emerging markets are not only competences and technological abilities, but also resources, such as contacts and connections with influential shareholders.

For management, we suggest that one way to improve the performance of a firm is to exploit the positive link between exports and firm performance. The ability of the firm to attract FDI and foreign shareholders could result in competitive advantages and improve its financial performance. In turn, managers should look to expand the basis of foreign shareholders, which, in turn, could result in these shareholders alleviating financial constraints or bridging the technological gap.

Our results also have important implications for policymakers in transition economies, given that they support the notion that internationally diversified firms enjoy an advantage over purely domestic firms. Hence, policymakers should support FDI inflows by introducing appropriate polices and reforms. These foreign shareholders are likely to be interested in reliable corporate governance standards and a resilient institutional environment. Williams (2011) has shown that the innovation absorption capacity of Russian industrial enterprises remains low, while technology-based entrepreneurship has failed to generate significant economic impacts. Our results are consistent with those of Smith and Thomas (2017), who confirmed the prominence of FDI as a determinant in innovation outcomes within Russia. In addition, the small size of Russian capital markets and intermediaries relative to more developed countries could result in stricter financial constraints for Russian companies. By implementing policies aimed at attracting foreign investments, policymakers can alleviate the negative impact of such constraints.

To sum up, our research adds to the extant knowledge on the internationalization confirmatory evidence of the positive effect of exports on firm performance for a new institutional setting as is the case of Russia. Moreover, our research highlights the role

Exports-performance relationship

33
of foreign shareholders as enhancers of this positive effect, and identifies two ways for this impact: the exploitation of technological advantages and the alleviation of financial constraints.

However, a number of limitations should also be noted. Perhaps the most important limitation concerns the measurement of the exports variable. The measure does not distinguish between different types of exports. Therefore, an extension of this research could address more precise metrics for export. This would help to answer the question as to whether there is an optimal level of internationalization. A second caveat involves the sample characteristics. The problem of selection bias may have appeared in the analysis since the exporting firms, which existed during that period, might have exhibited low or negative levels of performance. That said, analyzing the moderation effect of foreign ownership on surviving companies is of interest to us, as the possible absent data could be a consequence of missing information or the death of a company. Another extension to this analysis could involve studying the issues in relation to market-based indicators of performance, such as the market-to-book value or Tobin’s Q, and competitiveness indicators, such as productivity. Analyzing the interrelationship between foreign shareholders and other types of ownership, such as state shareholding or large institutional investors, could shed more light on the interaction between the different components of corporate governance and firms’ performance. Such issues are left to future research.

References


Further reading


Appendix

<table>
<thead>
<tr>
<th>Name of the variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Corporate performance</strong></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>Return on assets, %</td>
</tr>
<tr>
<td>ROE</td>
<td>Return on equity, %</td>
</tr>
<tr>
<td><strong>Internationalization</strong></td>
<td></td>
</tr>
<tr>
<td>Exports</td>
<td>Equals 1 when the firm exports in a given year, and 0 otherwise</td>
</tr>
<tr>
<td>Sustainable export</td>
<td>Equals 1 when the firm exports in the three latest years, and 0 otherwise</td>
</tr>
<tr>
<td><strong>Foreign ownership</strong></td>
<td></td>
</tr>
<tr>
<td>Foreign ownership</td>
<td>Equals 1 when the foreign investors own more than 25% of the shares, and 0 otherwise</td>
</tr>
<tr>
<td>Foreign ownership (dummy)</td>
<td>Equals 1 when the firm has foreign investors, and 0 otherwise</td>
</tr>
<tr>
<td>Foreign ownership (%)</td>
<td>% of shares owned by foreign investors</td>
</tr>
<tr>
<td><strong>Channels of foreign investments impact</strong></td>
<td></td>
</tr>
<tr>
<td>Technologies availability</td>
<td>Equals 1 if main shareholder comes from a technologically advanced country, and 0 otherwise</td>
</tr>
<tr>
<td>Bank capital</td>
<td>Equals 1 if main shareholder comes from a country with developed bank system, and 0 otherwise</td>
</tr>
<tr>
<td>Market capital</td>
<td>Equals 1 if main shareholder comes from a country with developed capital markets, and 0 otherwise</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
</tr>
<tr>
<td>Exports direction</td>
<td>Equals 1 when the exports are primarily directed to developed markets, 0 otherwise</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>Share of intangible assets in total assets</td>
</tr>
<tr>
<td>Cost of employees</td>
<td>Employee costs per employee (ln)</td>
</tr>
<tr>
<td>Size</td>
<td>Number of employees (ln)</td>
</tr>
<tr>
<td>Age</td>
<td>Age of the company</td>
</tr>
<tr>
<td>Industry technological intensity</td>
<td>Type of industry according to the OECD classification: low – 0, medium – 1, high-tech – 2</td>
</tr>
<tr>
<td>Industry concentration</td>
<td>Type of industry according to Herfindahl-Hirshman Index for 4-digit classification</td>
</tr>
<tr>
<td>GRP per capita</td>
<td>Gross regional product divided to population of the region where the head quarter of the company is situated</td>
</tr>
</tbody>
</table>

Table AI. List of indicators used in the study
About the authors

Anna Bykova is PhD in Economics, an Associate Professor, and a Research Fellow at National Research University Higher School of Economics. She gives lectures on Fundamentals of Evaluation and Strategic Corporate Finance. Her field of research interests relate with corporate governance, export strategies and companies’ intangibles study. Anna Bykova is the corresponding author and can be contacted at: abykova@hse.ru

Felix Lopez-Iturriaga is PhD in Economics, a Full Professor at the University of Valladolid, Spain and a Leading Research Fellow at the National Research University Higher School of Economics, Russia. He gives lectures in Corporate Finance, Investments and Financial Markets. He has published several books, and many papers in top-ranking international journals. His main research topics are related to auditing, corporate finance, and corporate governance.

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Investigating feedback effects in the field of brand extension using brand concept maps

Pascal Kottemann, Anja Plumeyer and Reinhold Decker

Bielefeld University, Bielefeld, Germany

Abstract

Purpose – The purpose of this paper is to apply the (advanced) brand concept maps (BCM) approach to reinvestigate previous findings on feedback effects resulting from brand extension information (BEI) and to explore whether this information affects the structure of a brand’s associative network.

Design/methodology/approach – This research builds on the associative network memory model, as well as Keller’s conceptualization of customer-based brand equity, and uses a series of empirical studies with a total of 839 respondents in two different countries.

Findings – The findings reveal that BEI has no significant impact on the structure of the parent brand’s associative network at the individual level. Furthermore, key brand image dimensions (i.e. favorability, strength, and uniqueness of brand associations) are not affected.

Research limitations/implications – By applying the (advanced) BCM approach, this paper is able to address shortcomings that are incorporated with the use of Likert scales for measuring a brand’s image and for investigating feedback effects in the field of brand extension. As the results indicate that the identification of feedback effects might be influenced by the approach used to measure a brand’s image, this paper calls for further investigations of feedback effects on a brand’s image.

Originality/value – Data from three empirical studies provide insights into the cognitive processing of BEI and their impact on a brand’s associative network.

Keywords Brand image, Brand extension, Brand associative network, Feedback effects

Paper type Research paper

1. Introduction

Today, firms are forced to periodically introduce new products to the market to achieve competitive advantage and to generate future growth (Brexendorf et al., 2015). A frequently applied strategy is brand extension, that is, “the use of an existing brand name on a new product in a new category to benefit from the existing brand name’s awareness and associations” (Batra et al., 2010, p. 335). For example, products ranging from motorcycles to musical instruments have been introduced under the Yamaha brand, whereas Apple offers products ranging from computers to watches and services (e.g. Apple Music) under its brand.

The use of established brands to introduce new products has also generated remarkable research activities in marketing and consumer behavior over the last decades (e.g. Aaker and Keller, 1990; Ahluwalia and Gurhan-Canli, 2000; Sichtmann and Diamantopoulos, 2013; Volckner and Sattler, 2006). One research stream, among others, has focused on feedback effects resulting from a brand extension that can either enhance or dilute a parent brand’s image (e.g. Gurhan-Canli and Maheswaran, 1998; Lane and Jacobson, 1997; Milberg and Sinn, 2008). However, despite the availability of a large number of different brand image measurement techniques (e.g. Plumeyer et al., 2017), prior research predominantly made use of Likert scales to shed light on the outcomes of new extension products on a parent brand’s image (e.g. John et al., 1998; Martinez and Pina, 2003). This is crucial as the use of Likert scales for the investigation of feedback effects also involves some shortcomings. For example, Likert scales do not provide any information on how a brand’s image is represented in consumers’ minds and on how brand associations are interconnected within the mental network structure (Keller, 1993). These shortcomings are worth mentioning as a comprehensive understanding of brand images (and thus feedback effects) demands the
identification of strong, favorable, and unique brand associations that consumers have in mind and that are organized in a network structure (Gensler et al., 2015; John et al., 2006; Keller, 1993). A promising technique to address the shortcomings of Likert scales in this respect is the brand concept maps (BCM) approach (John et al., 2006) which builds on the associative network memory model (e.g. Anderson, 1983a) and measures brand images according to the structure of the brand’s associative network. Furthermore, the advanced BCM approach explicitly captures information about the favorability of brand associations (Schnittka et al., 2012).

Against this background, this paper is, to the best of the authors’ knowledge, the first to apply the (advanced) BCM approach to investigate feedback effects resulting from brand extension information (BEI). It explores whether BEI affects the structure of a brand’s associative network using three empirical studies with a total of 839 respondents from two different countries. Moreover, this paper focuses on capturing key dimensions of a brand’s image (i.e. the favorability, strength, and uniqueness of brand associations) as drivers of brand equity (Keller, 1993). Thus, this paper contributes to the literature by proposing brand association network techniques as a different way to investigate feedback effects on a brand’s image in the field of brand extension. In doing so, important shortcomings that are incorporated with the use of Likert scales for measuring brand images and for investigating feedback effects in the field of brand extension are addressed. At the same time, this paper enables a deeper look into the consumers’ minds than prior studies that predominantly used Likert scales did.

The paper is divided as follows. In Section 2, the theoretical background is presented and the research hypotheses to be tested are derived. Then, in Section 3, the setup as well as the main findings from three empirical studies are presented. In Section 4, the paper concludes with a synthesis of the findings, managerial implications, limitations, and directions for future research.

2. Theoretical background and hypotheses development

2.1 Brand image and associative network

According to Keller’s (1993) seminal conceptualization of customer-based brand equity, a key element of brand knowledge is brand image which consists of perceptions consumers have in mind about a brand. These perceptions are mirrored by brand associations that contain a brand’s meaning for consumers and vary in terms of their favorability, strength, and uniqueness. In general, favorability expresses how favorable and important brand associations are evaluated. Here, strength means the strength of the connections between informational nodes and the brand node. Uniqueness describes the degree to which certain associations are shared with other competing brands.

The associative network memory model (e.g. Anderson, 1983a) refers to the idea that information is represented in the form of complex associative networks in consumers’ memories (John et al., 2006; Keller, 1993) and is frequently applied in the field of marketing (e.g. Gensler et al., 2015; Schnittka et al., 2012). These networks consist of nodes and links that represent the structure of the brand image. The stronger a node is connected to the brand node or other nodes, the more likely the node is activated in consumers’ memories (French and Smith, 2013; Joiner, 1998; Keller, 1993). Spreading activation theory (Anderson, 1983b; Collins and Loftus, 1975) furthermore posits that the activation of one node spreads to other linked nodes via the underlying network structure in memory.

2.2 Measuring a brand’s associative network

John et al. (2006) introduced the BCM approach as a new method for measuring brand images and revealing the structure of the underlying associative network. The BCM approach builds on the idea of concept maps and elicits brand association networks directly from consumers. The individual maps are then aggregated into a consensus map.
In general, the BCM approach (John et al., 2006) consists of three subsequent stages: elicitation, mapping, and aggregation. First, in the elicitation stage, a list of salient brand associations is identified within a pre-test or based on previous research results. In the subsequent mapping stage, respondents build their individual brand map regarding the target brand using the predetermined brand associations. Additionally, respondents can use different types of lines (i.e. single, double, or triple) to indicate on the map how strongly the individual associations are connected to the brand or to each other (i.e. weak, medium, or strong). In the final aggregation stage, individual brand maps are aggregated into a consensus map based on a set of standardized rules.

Schnittka et al. (2012) extended the original BCM approach with explicit information on the favorability of single brand associations and developed a new metric, the brand association network value (BANV). Based on Fishbein and Ajzen’s (1975) widely accepted multi-attribute attitude model, the BANV considers different dimensions of information that indicate the favorability, strength, and uniqueness of all brand associations that appear in a consumer’s map. Consequently, the BANV metric for consumer $j$ and all brand associations $m$ appearing in the consumer’s individual map is composed of different dimensions: the favorability of brand association $a$ in the eyes of consumer $j$ is reflected by $E_{aj}$, whereas the association’s individual importance for a purchase decision is represented by $I_{aj}$. Furthermore, $S_{aj}$ considers the strength of an association’s direct linkage to its superordinate associations and $L_{aj}$ denotes the level of placement[1]. The BANV metric for consumer $j$ is defined as follows:

\[
BANV_j = \sum_{a=1}^{m} E_{aj} \times S_{aj} \times I_{aj} \times L_{aj} \quad \forall j
\]

In general, the BANV metric enables researchers to “differentiate ‘good’ brand association networks from ‘bad’ ones” (Schnittka et al., 2012, p. 273). Because the BANV metric allows for a detailed view on the favorability, strength, and uniqueness of brand associations, it is a well-suited metric to investigate feedback effects of brand extensions on brand image.

More recently, Meissner et al. (2015) also applied the original BCM approach in computer-aided interviews. The results of their research show that the computer-based BCM approach extends the flexibility and applicability of brand association mapping and thus demonstrate the potential benefits of computer-based brand concept mapping. Consequently, the computer-based BCM approach is supposed to be particularly promising for the generation of large samples in cross-country studies.

2.3 Feedback effects of brand extensions on brand image

Prior research has investigated possible outcomes of brand extensions and emphasized the transfer of positive and/or negative attitudes about a brand extension on the parent brand (e.g. Chen and Chen, 2000; Lane and Jacobson, 1997; Thorbjørnsen, 2005). In this regard, perceived fit (i.e. the perceived similarity between the extension product and elements of the parent brand on dimensions such as product category or brand image; Ahluwalia, 2008; Keller, 2002; Park et al., 1991) has been identified as an important driver of brand extensions’ feedback effects on a parent brand’s image (Völkner et al., 2008). A comprehensive overview of studies that investigated feedback effects of brand extensions on a brand’s image is shown in Table AI[2].

According to the attitude-transfer model, consumers’ attitudes toward a brand will more likely be transferred to the new extension product if the degree of perceived fit between the parent brand and the extension product is high (Aaker and Keller, 1990). Likewise, attitudes are more likely to be transferred from the extension product to its parent brand when the perceived fit is high (Pina et al., 2013). Furthermore, prior research indicates that brand
extensions with a higher level of perceived fit with the parent brand have a more positive effect on the evaluation and on the success of the concerning new product (Ahluwalia, 2008; Keller, 2002; Loken and John, 1993).

Nevertheless, the introduction of new extension products under existing brand names may also backfire on the parent brand. This may include negative feedback effects that impair the image of the parent brand which can occur even with successful extensions (Völckner et al., 2008). For example, Martínez and Pina (2003) found that negative feedback effects on a parent brand’s image might occur if the extension product is less similar to prior products of the parent brand. John et al. (1998) showed that inconsistent brand extensions might negatively influence both the beliefs about individual products as well as the beliefs about the parent brand. However, other studies did not find significant feedback effects (e.g. Diamantopoulos et al., 2005; Lau and Phau, 2007).

To conclude, the literature has not reached consensus with respect to feedback effects of brand extensions up to now. Additionally, as shown in Table AI, prior research has predominantly used Likert scales for the investigation of feedback effects on a brand’s image. Therefore, this paper proposes a different way for measuring a brand’s image and feedback effects in the field of brand extension which is also more in line with Keller’s (1993) seminal work on brand image.

2.4 Hypotheses development

For the motivation and substantiation of the research hypotheses, this paper builds on categorization theory (e.g. Loken et al., 2007; Tversky, 1977) that theoretically explains the importance of the perceived fit of the extensions to the parent brand. In general, categorization theory suggests that consumers categorize objects (e.g. brands) into different cognitive categories the consumers have in mind. If a consumer is exposed to a new object and perceives this object to be well-fitting with an existing cognitive category, the consumer can transfer category associations to the new object (Mervis and Rosch, 1981; Sichtmann and Diamantopoulos, 2013). Likewise, in line with the book-keeping model (e.g. Weber and Crocker, 1983), this new object may also lead to a revision of prior knowledge (e.g. beliefs about parent brand attributes).

Prior research in the field of brand extension has shown that parent brands are stored as a cognitive category in the consumer’s mind (Klink and Smith, 2001). The higher the perceived fit between the cognitive category in mind (i.e. the parent brand) and the new object (i.e. the brand extension), the more likely salient brand associations will be transferred to the extension product (Boush and Loken, 1991). Likewise, prior research reveals that information about a new extension product influences existing cognitive structures in the consumer’s mind (Bettman, 1979) as new associations can be transferred to the parent brand (Czellar, 2003; Lane and Jacobson, 1997; Pina et al., 2010). A newly introduced extension product usually evokes its own set of associations in the consumers’ mind (Martínez and Pina, 2003). These associations can either be well-fitting or less fitting with the existing image of the parent brand (Kim et al., 2001; Loken and John, 1993; Martínez and Pina, 2003; Zimmer and Bhat, 2004). Researchers have also shown that the perceived fit influences the perception of the extension product and the perception of the parent brand (Aaker and Keller, 1990; Loken and John, 1993; Martínez Salinas and Pina Pérez, 2009). Moreover, Martínez and Pina (2010) found that the structure of informational nodes and their connections may vary in a brand’s schema due to BEI. To reinforce this idea and to delve deeper into the feedback effects of BEI on the associative network of the parent brand, this research focuses on the dimensions of brand image, i.e., the favorability, strength, and uniqueness of associations connected to the parent brand.

2.4.1 Favorability of the brand’s associative network. New extension products that build on an established brand activate the associative network of the parent brand as they
capitalize on the parent brand’s name (Dwivedi et al., 2010; Pina et al., 2006). Thus, in line with the associative learning theory, consumers’ evaluations of the extension product can be transferred to the established brand through parallel activation of the nodes of the established brand and the nodes of the new extension product (Anderson, 1983b; Schmittka et al., 2013). The transfer of an attitude from the parent brand to the brand extension depends on the type of information (i.e. well-fitting or less fitting information between the associations of the parent brand and the associations of the extension product) (Czellar, 2003; Dwivedi et al., 2010; Meyvis and Janiszewski, 2004). The process of parallel activation that promotes the transfer of attitudes directly effects the evaluation (i.e. the favorability) of individual brand associations (Kim et al., 2001; Zimmer and Bhat, 2004).

Therefore, the following can be hypothesized:

\[ H1. \text{ BEI has an impact on the favorability of a parent brand’s image.} \]

2.4.2 Strength of the brand’s associative network. According to Czellar (2003), brand extensions can influence the strength of parent brand associations when consumers create stronger associations between their individual beliefs about brand extensions and the parent brand. Although well-fitting BEI activates associations that are assumed to be more similar to those of the parent brand, the associations evoked through less fitting BEI are assumed to be less similar to the existing parent brand associations (Völckner et al., 2008; Zimmer and Bhat, 2004). The degree of similarity between the BEI and an established cognitive category in the consumer’s mind (i.e. the parent brand node) determines the degree of activation of this cognitive category. For instance, higher similarity initiates stronger activation of the parent brand’s associative network and higher accessibility in the consumer’s mind (Anderson, 2010). This strengthens existing nodes and links in the consumer’s mind (Bettman, 1979; Martínez and Pina, 2010; Martínez Salinas and Pina Pérez, 2009). Thus, the following can be hypothesized:

\[ H2. \text{ BEI has an impact on the strength of a parent brand’s image.} \]

2.4.3 Uniqueness of the brand’s associative network. BEI directly impacts the activation of links as well as the strength of nodes and links in the consumer’s mind. When this activation exceeds a certain threshold level, the information contained in this node is recalled (Keller, 1993). As a consequence, nodes may be used more often in the brand’s associative network; this assumption particularly holds for unique brand associations. Unique nodes are assumed to be mentioned more often when the activation exceeds this threshold level, resulting in an increased frequency of mentioning unique brand associations. In contrast, unique nodes may be mentioned less often when the activation falls below this threshold level, resulting in a decreased frequency of mentioning unique brand associations. For example, “swoosh” can be considered a unique association for the brand Nike because this association is not shared with competing brands (e.g. Reebok), while the association “athletic shoes” may be shared among competing brands (Krishnan, 1996). Accordingly, shared brand associations are not suitable as indicators of the uniqueness of a brand’s image. In contrast, the uniqueness of a brand’s image is expressed via the unique associations consumers connect to the brand. This idea leads to the final hypothesis:

\[ H3. \text{ BEI has an impact on the uniqueness of a parent brand’s image.} \]

3. Empirical studies
To test the hypotheses, three empirical studies were conducted with a total of 839 respondents. Three conditions were considered in a between-subject design that varied in terms of the information presented to the respondents: the well-fitting BEI condition, the less fitting BEI condition, and a control condition without any information
about an upcoming brand extension. Respondents were randomly assigned to one of the three experimental conditions. Scenario-based experiments were used which employ real brand(s) and hypothetical extension products as prior research has shown that hypothetical products are useful because they enable the manipulation of the degree of perceived fit with the parent brand and with existing products of the brand (Dall’Olmo Riley et al., 2014).

To examine the feedback effects that result from BEI, the brand images were measured using the BCM approach after a stimulus was presented. The advanced BCM procedure was implemented as described by Schnittka et al. (2012) to examine the favorability, strength, and uniqueness of brand image dimensions. In contrast to Schnittka et al. (2012), an online version of the BCM approach was used for all three studies to realize larger sample sizes and to enable independence from stationary test studios (Meissner et al., 2015).

To investigate the research hypotheses, specific variables were identified regarding the operationalization of the favorability, strength, and uniqueness of a parent brand’s image. H1 was tested using the net valence of favorability as well as the net valence of importance which show the respondents’ evaluations regarding the favorability and importance of associations and cover values between −3 and 3 (French and Smith, 2010; Krishnan, 1996). In general, the net valence of favorability is calculated by the weighted number of positive associations minus the weighted number of negative associations and divided by the total number of associations. Likewise, the net valence of importance is calculated by the weighted number of important associations minus the weighted number of unimportant associations and divided by the total number of associations. To examine H2, variables were compared that reflect the strength of the brand’s associative network, that is, the number of connections used in the brand’s associative network and the mean strength of these connections. Finally, H3 concerning the uniqueness of the brand image was based on the frequency of mentioning unique brand associations.

Overall, three brands from different product categories (i.e. services, sporting goods, and sweets) were used. National (i.e. Haribo) as well as global brands (i.e. McDonald’s and Nike) were investigated in the three studies. Prior research (John et al., 2006; Schnittka et al., 2012) has shown that highly familiar brands initiate brand associative networks that have more complex knowledge structures in terms of brand associations and first-order brand associations (i.e. brand associations that are directly connected to the brand node in the associative network). Accordingly, the mean brand familiarity for all brands tested in the studies had to exceed at least a certain level ($M_{\text{Familiarity}} > 5$). Seven-point multi-item scales (anchored by “strongly disagree” and “strongly agree”) were used for the measures across all studies, with higher scores indicating a more favorable rating.

3.1 Study 1
In Study 1, the McDonald’s brand was used as an example of a service brand. As McDonald’s key customers are mainly young adults, data were collected among students in Germany.

3.1.1 Pre-tests. A pre-test that included 42 highly familiar respondents ($M_{\text{Familiarity}} = 5.635$, $SD = 0.771$) was performed to identify the predetermined brand associations, as well as realistic brand extensions for McDonald’s. As proposed by John et al. (2006), data used to identify these brand associations were gathered from the same population used in the main study. Furthermore, a free-association task was used to evoke consumer responses and to identify salient brand associations. The pre-test generated a total list of 252 brand associations from which the top 20 brand associations were selected. Then, based on prior research results (Aaker, 1996; French and Smith, 2013), five additional brand associations were selected for the main study. The 25 predetermined brand associations included “available everywhere,” “activities,” “Big Mac,” “burger,” “calories,” “cheap,” “causes obesity,” “family-friendly,” “fast food,” “fatty food,” “fries,” “golden arches,” “global brand,” “Happy Meal,” “hunger,” “McCafé,” “McDrive,” “modern,”
“my burger,” “Ronald McDonald,” “short-term saturating,” “sustainable,” “tasty,” “unhealthy,” and “party.”

The respondents in the first pre-test also identified realistic brand extensions that are either well-fitting (i.e. party service) or less fitting (i.e. bank) with McDonald’s. A second pre-test (n = 75) confirmed the choice of the brand extensions: Respondents evaluated the party service fit ($M_{\text{Fit\_party\_service}} = 4.922$, SD = 1.376) statistically significantly higher ($t = 17.566, p < 0.001$) than the bank fit ($M_{\text{Fit\_bank}} = 1.517$, SD = 0.731) with the parent brand McDonald’s.

3.1.2 Stimuli. Two press releases containing information about an upcoming McDonald’s service were presented to the respondents in both BEI conditions. In the well-fitting (less fitting) BEI condition, the respondents were informed that McDonald’s was going to introduce a party service (bank service) in the near future. Although fictitious, these press releases were designed to appear as authentic as possible. Subsequent questions concerning the content of the press releases confirmed that respondents had viewed the stimuli attentively.

3.1.3 Measures. Building on prior research, multi-item scales were used to measure the respondents’ familiarity with the brand, involvement, brand attitude, visit intention for McDonald’s restaurants, and perceived fit regarding the brand extensions (see Table I).

Overall, acceptable levels of Cronbach’s $\alpha$ were achieved for respondents’ familiarity with the brand ($\alpha = 0.827$), involvement ($\alpha = 0.875$), brand attitude ($\alpha = 0.930$), visit intention for McDonald’s restaurants ($\alpha = 0.934$), and perceived fit regarding the brand extensions ($\alpha_{\text{Party service}} = 0.750; \alpha_{\text{Bank}} = 0.716$) across all groups. Given the high internal validity of the multi-item scales, the values for each construct were averaged to form a mean score for each respondent.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarity</td>
<td>Regarding (brand name), I am familiar</td>
<td>Kent and Allen (1994), Schnittka et al. (2012)</td>
</tr>
<tr>
<td></td>
<td>Regarding (brand name), I am experienced</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regarding (brand name), I am knowledgeable</td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>I care about the brand (brand name)</td>
<td>Mittal (1995)</td>
</tr>
<tr>
<td></td>
<td>I am concerned about the brand (brand name)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The brand (brand name) is important to me</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>For me (brand name) is good</td>
<td>Gürhan-Canli and Maheswaran (1998), Osgood et al. (1957), Schnittka et al. (2012)</td>
</tr>
<tr>
<td></td>
<td>For me (brand name) is favorable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For me (brand name) is positive</td>
<td></td>
</tr>
<tr>
<td>Visit intention (McDonald’s)</td>
<td>I would consider visiting McDonald’s restaurants</td>
<td>Dodds et al. (1991)</td>
</tr>
<tr>
<td>Purchase intention (Nike)</td>
<td>The probability that I would consider visiting McDonald’s restaurants is high</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would buy sportswear</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would consider buying my sportswear from (Nike)</td>
<td></td>
</tr>
<tr>
<td>Purchase Intention (Haribo)</td>
<td>The probability that I would consider buying sportswear is high</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would consider buying my sweets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I would consider buying my sweets from (Haribo)</td>
<td></td>
</tr>
<tr>
<td>Perceived fit</td>
<td>A (new service/product) is logical for (brand name)</td>
<td>Völckner et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>A (new service/product) fits (brand name)</td>
<td></td>
</tr>
</tbody>
</table>

Table I. Measures
3.1.4 Results. 3.1.4.1 Sample. The main sample comprised 356 respondents (average age: 22.62 years, 50.0 percent female). In total, 98 respondents were assigned to the well-fitting BEI condition, 106 respondents to the less fitting BEI condition, and 152 respondents to the control condition without extension information. The respondents indicated a high degree of brand familiarity throughout the sample ($M_{\text{Familiarity}} = 5.547, SD = 1.039$). However, respondents showed a rather negative attitude toward McDonald’s ($M_{\text{Attitude}} = 3.346, SD = 1.587$).

3.1.4.2 Check for structural equality of the experimental conditions. First, the structural equality of the three conditions was checked. Analyses of variances did not reveal statistically significant differences across the three conditions in terms of age ($F = 0.126, p = 0.882$), brand familiarity ($F = 0.150, p = 0.861$), involvement ($F = 0.117, p = 0.890$), and attitude toward the brand ($F = 0.324, p = 0.723$). The individual evaluations of the perceived fit of the brand extensions confirmed the second pre-test. The perceived fit of the extension bank was assessed statistically significantly lower ($M_{\text{Fit_bank}} = 1.623, SD = 0.936$) than the extension party service ($M_{\text{Fit_party service}} = 3.970, SD = 1.573, t = 12.823, p < 0.001$).

3.1.4.3 Hypotheses testing. The consensus maps for the three experimental conditions were developed according to the aggregation rules[3] provided by John et al. (2006) (see Figures 1-3). In the figures, core brand associations for McDonald’s are represented in solid circles while non-core associations are represented in dashed-line circles. Triple lines indicate a strong connection, whereas double lines signify a moderate connection. Additionally, according to the advanced BCM approach, further information regarding favorability and importance is integrated. While green (red) circles signify a positive (negative) evaluation of the brand associations across all respondents, a plus (minus) sign indicates higher (lower) mean importance of the corresponding brand association.

The consensus maps provide first impressions of similarities and differences between the brand association networks resulting from feedback effects. Figures 1-3 reveal differences between the brand association networks at first glance. However, it is important to keep in mind that the brand association networks presented here are at the aggregate level. Because the aggregation process of the BCM approach involves a loss of information, the aggregate

Figure 1.
Consensus map for the McDonald’s control scenario

Note: $n = 152$
level is not sufficient for explaining differences between brand association networks in detail. Thus, the individual level of brand associations must be analyzed. Therefore, the BANV measures were calculated for each BCM in the second step. As the BANV comprises the three dimensions of brand associations (i.e. favorability, strength, and uniqueness), the metric offers an overview of possible differences between the brand association networks. Despite the observable differences between the consensus maps, the individual BANV measures ($M_{\text{BANV_Party service}} = 7,664.061$, $M_{\text{BANV_Bank}} = 7,760.925$, $M_{\text{BANV_Control}} = 8,168.336$) did not vary statistically significantly across the three conditions ($F = 0.503$, $p = 0.605$).
Next, each of the three dimensions of brand associations was analyzed in more detail. As no statistically significant differences were detected neither in the net valence of favorability \( F = 0.973, p = 0.379 \) nor in the net valence of importance \( F = 1.174, p = 0.310 \), \( H1 \) was not supported. Regarding \( H2 \), neither the number of connections \( F = 0.630, p = 0.533 \) nor the mean connection strength \( F = 1.231, p = 0.293 \) was statistically significantly different across the experimental groups. Finally, to test \( H3 \), three independent coders (Krippendorff’s \( \alpha = 0.775 \)) coded the brand associations for McDonald’s according to their level of uniqueness in relation to other competing brands (e.g. Burger King). As a result, the associations “Big Mac,” “golden arches,” “Happy Meal,” “McCafé,” “McDrive,” “my burger,” and “Ronald McDonald” were identified as being unique to McDonald’s. In line with these results, and regarding \( H3 \), the frequency of using these unique brand associations (e.g. Big Mac: \( \chi^2 = 1.727, p = 0.422 \)) was statistically insignificant across the conditions. Therefore, \( H3 \) was not supported. Table II summarizes this study’s findings regarding the feedback effects on the brand image dimensions for McDonald’s.

3.1.4.4 Reliability and validity analyses. In an additional step, the data were checked according to reliability and validity criteria. The split-half reliability, proposed by John et al. (2006), was employed to examine the reliability of respondents’ maps regarding the presence of brand associations, first-order associations, and specific brand association connections. The samples were randomly divided into two halves, and John et al.’s (2006) approach was extended by repeating this procedure 1,000 times. To avoid random effects, the mean levels of the \( \phi \) coefficients were calculated. Overall, acceptable mean levels of \( \phi \) coefficients were achieved across all three conditions regarding the presence of brand associations \( (\Phi_{\text{Party service}} = 0.857, \Phi_{\text{Bank}} = 0.880, \Phi_{\text{Control}} = 0.800) \), first-order associations \( (\Phi_{\text{Party service}} = 0.641, \Phi_{\text{Bank}} = 0.533, \Phi_{\text{Control}} = 0.733) \), and specific brand association connections \( (\Phi_{\text{Party service}} = 0.697, \Phi_{\text{Bank}} = 0.686, \Phi_{\text{Control}} = 0.703) \).

Nomological validity was assessed in two ways. First, the BCMs for respondents who differed in familiarity toward McDonald’s were compared (John et al., 2006). Second, the respondents were separated according to their attitude toward McDonald’s, and the resulting BCMs were compared. According to Schmittka et al. (2012), consumers who

<table>
<thead>
<tr>
<th>Brand image dimension</th>
<th>Variable</th>
<th>Condition</th>
<th>Mean</th>
<th>McDonald’s Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entirety</td>
<td>BANV</td>
<td>Well-fitting</td>
<td>7,664.061</td>
<td>( F = 0.503, p = 0.605 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less fitting</td>
<td>7,760.925</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control group</td>
<td>8,168.336</td>
<td></td>
</tr>
<tr>
<td>Favorability</td>
<td>Net valence of favorability</td>
<td>Well-fitting</td>
<td>-0.075</td>
<td>( F = 0.973, p = 0.379 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less fitting</td>
<td>0.107</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control group</td>
<td>0.036</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Net valence of importance</td>
<td>Well-fitting</td>
<td>0.363</td>
<td>( F = 1.174, p = 0.310 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less fitting</td>
<td>0.212</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control group</td>
<td>0.338</td>
<td></td>
</tr>
<tr>
<td>Strength</td>
<td>Number of connections</td>
<td>Well-fitting</td>
<td>18.041</td>
<td>( F = 0.630, p = 0.533 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less fitting</td>
<td>18.245</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control group</td>
<td>19.368</td>
<td></td>
</tr>
</tbody>
</table>

| Uniqueness            | Frequency of mentioning unique brand associations (e.g. “Big Mac”) | Well-fitting | 0.551 | \( \chi^2 = 1.727, p = 0.422 \) |
|                       | Less fitting       | 0.491          |         |
|                       | Control group      | 0.772          |         |

Table II. Feedback effects on brand image dimensions (McDonald’s)
are highly familiar with the brand and those who have a positive attitude toward the brand should have a more favorable brand image and, therefore, should have higher BANVs. As expected, respondents who were highly familiar with the McDonald’s brand ($M = 6.409$, $SD = 0.404$, $n = 153$) showed statistically significantly higher BANVs ($t = 2.663$, $p = 0.008$) compared to respondents who were less familiar with McDonald’s ($M = 4.273$, $SD = 0.857$, $n = 103$). Moreover, the respondents with positive attitudes ($M = 5.187$, $SD = 0.762$, $n = 114$) were found to have a more positive brand image regarding the BANV ($t = 7.136$, $p < 0.001$) compared to respondents with negative attitudes ($M = 1.679$, $SD = 0.614$, $n = 134$). Additionally, the predictive validity was tested by assessing the degree to which individual BCMs can predict individual consumer behavior. Similar to Schnittka et al. (2012), strong positive correlations were found between the BANV ($M = 7.908.211$, $SD = 4.275.551$) and the visit intention for McDonald’s restaurants ($M = 3.426$, $SD = 1.841$, $r = 0.371$, $p < 0.001$).

### Study 2

Prior research has shown that service parent brands might be less vulnerable to the feedback effects of unsuitable new extension products than goods brands (Pina et al., 2013). Thus, a different parent brand from a different product category was used to retest the findings of the first study. Haribo was chosen because of its high representativeness of everyday consumer goods and its popularity among German consumers. The same setting as in Study 1 was used in Study 2.

#### Methodology

In line with Study 1, the respondents identified salient brand associations for Haribo, as well as realistic brand extensions in a pre-test. The respondents selected fruit bonbon as a well-fitting brand extension and beer as a less fitting brand extension for Haribo. In total, 183 familiar respondents (average age: 23.4 years, 47.0 percent female, $M_{\text{Familiarity}} = 5.348$, $SD = 1.009$, $M_{\text{Attitude}} = 5.311$, $SD = 1.023$) were randomly assigned to one of the three experimental conditions. In comparison to McDonald’s in Study 1, the respondents were statistically significantly less familiar with Haribo ($t = 2.128$, $p < 0.05$), but had a more positive attitude ($t = 17.377$, $p \leq 0.001$) toward Haribo. Again, the respondents were presented with press releases containing information about either fruit bonbons or beer.

#### Results

After successfully confirming the structural equality of the three conditions, the researchers ensured that the respondents evaluated fruit bonbons’ perceived fit with the parent brand ($M_{\text{Fit_fruit bonbon}} = 5.784$, $SD = 0.942$) statistically significantly higher than beer’s perceived fit ($M_{\text{Fit_beer}} = 1.975$, $SD = 1.230$, $t = 19.704$, $p < 0.001$). Reinvestigating the hypotheses confirmed the previous results, as the three conditions did not vary statistically significantly. Table III provides an overview of this study’s variables for the parent brand Haribo. The analyses of the reliability and validity criteria again revealed acceptable results.

### Study 3

To further verify the results of the first two studies, a third empirical study was conducted using a different parent brand and a sample of respondents from a different cultural background. A non-student sample was used in Study 3 as recent research has shown that empirical replications should be conducted in order to assess reliability, validity as well as generalizability of prior findings when using student samples (Peterson and Merunka, 2014). Furthermore, prior research has shown that cultural dimensions have an impact on brand perceptions in different countries (Foscht et al., 2008). Thus, to rule out that feedback effects on a brand’s image did not occur because of cultural characteristics, the USA were chosen as the sample setting because cultural differences between the USA and Germany can be observed (The Hofstede Center, 2016).

The target brand for Study 3 was Nike and data were collected using Amazon Mechanical Turk which continues to gain increasing importance in empirical research.
In contrast to the first two studies, the sample offered greater heterogeneity in profession and age. Furthermore, the uniqueness of each brand association was directly evaluated.

### 3.3.1 Methodology

First, the respondents had to identify salient brand associations for Nike, as well as realistic brand extensions. In the corresponding pre-test, treadmill (TV) was identified as a well-fitting (less fitting) brand extension for Nike. In total, 300 respondents (average age: 33.8 years; 51.3 percent female) were randomly assigned to one of the three conditions. Overall, respondents were highly familiar ($M_{\text{Familiarity}} = 5.689$, $SD = 0.990$) and had a positive attitude toward Nike ($M_{\text{Attitude}} = 5.759$, $SD = 1.155$).

Again, two fictitious press releases were presented. Acceptable levels of Cronbach’s $\alpha$ were achieved for the multi-item scales used in this study (all $\alpha \geq 0.826$).

In contrast to the first two studies, respondents evaluated the uniqueness of each association on a seven-point Likert scale (1 = “definitely not unique to Nike,” 7 = “definitely unique to Nike”). As a result, the associations “innovation” ($M = 5.278$, $SD = 1.220$), “Just do it” ($M = 6.467$, $SD = 0.877$), “style” ($M = 5.198$, $SD = 1.394$), and “swoosh” ($M = 6.522$, $SD = 0.899$) were identified as unique associations for the Nike brand and are considered in the following for the investigation of feedback effects in terms of uniqueness.

### 3.3.2 Results

The structural equality of the three conditions was successfully confirmed. Furthermore, the respondents evaluated the perceived fit of a treadmill ($M_{\text{Fit, treadmill}} = 5.551$, $SD = 0.922$) statistically significantly higher than the perceived fit of a TV with Nike ($M_{\text{Fit, TV}} = 2.354$, $SD = 1.346$, $t = 19.945$, $p < 0.001$). The analyses to determine differences across the three conditions and to reinvestigate the hypotheses were conducted in the same manner as in the previous studies. Again, neither the well-fitting nor the less fitting BEI condition affected consumers’ evaluations of the three dimensions of brand image concerning Nike (see Table IV).

Finally, the reliability as well as nomological and predictive validity of the data was investigated. This is important as a sample originating from a different cultural background was used. In line with Studies 1 and 2, the analyses of the reliability and validity criteria revealed acceptable results (see footnote 5).
4. General discussion

The overall aim of this paper was to use the (advanced) BCM approach to reinvestigate previous findings on feedback effects that result from BEI and to show whether BEI affects the structure of a brand’s associative network as well as the connections between brand associations. Therefore, the focus was on the favorability, the strength, and the uniqueness of brand associations. The analysis elaborated how these brand image dimensions are affected by BEI in three empirical studies that used three different target brands.

Based on previous research, research hypotheses were formulated and it was found that BEI has no significant impact on the structure of the parent brand’s associative network.

The findings of three studies suggest that neither well-fitting nor less fitting BEI regarding McDonald’s, Haribo’s, and Nike’s brand extension have an effect on consumers’ brand associative network structure. Different participants, cultural contexts, and parent brands demonstrate that this non-existent effect generalizes. Furthermore, the results indicate that key brand image dimensions are not statistically significantly affected by BEI.

The results are also in line with other findings in the field of brand extension and feedback effects. For example, Diamantopoulos et al. (2005) investigated the impact of brand extension fit on brand personality as an essential part of brand image, but did not find significant changes in brand personality as a result of the introduction of brand extensions. The objective of Lau and Phau (2007) was, among others, to analyze the mediating role of brand image fit between brand personality fit and dilution of brand affect toward the parent brand. Their results similarly indicated that perceived fit does not influence brand affect toward the parent brand. Nevertheless, as opposed to these results, the majority of previous studies reported significant feedback effects (e.g. Martinez and Pina, 2003; Volckner et al., 2008). Thus, the results obtained in this article complement the overall view on brand extension feedback effects and can be seen as a starting point for discussing whether and how strongly the approach used to measure brand image influences the corresponding findings on feedback effects. Furthermore, there is also a need to understand and adequately consider the contextual factors that might affect the relationship between BEI and feedback effects on a parent’s brand image.

The presented results might also indicate a certain degree of extendibility, at least for brands similar to the ones considered here. Prior empirical findings (e.g. Monga and John, 2010)
as well as real-world examples support this assumption. For example, the apparel brand Ralph Lauren, with its product portfolio ranging from sunglasses to paint, dog leashes, and restaurants, successfully extended its original product range by launching new extension products that may be perceived as less fitting at first glance. Accordingly, the findings above support the idea that at least some brands might have more room to maneuver with new extension products and should be able to introduce new products without harmful effects on the parent brand’s image, independent of the level of perceived fit.

4.1 Managerial implications
The presented findings have important implications for marketers considering the introduction of new extension products under an established brand which might be perceived to be less fitting with prior products of the same brand. In general, building a strong brand with a favorable, strong, and unique brand image can help companies protect their brand against negative effects that might occur due to less fitting but potentially profitable new extension products (Keller and Sood, 2003).

A possible explanation for the lack of feedback effects in the present studies might be that a high degree of brand familiarity moderates the process of strengthening brand associations regarding the parent brand. Accordingly, creating and maintaining distinctive and strong brands not only contributes to brand leverage and boosted sales but also might protect companies from negative influences (that may be caused by new, but seemingly less fitting extension products) (Loken and John, 2010). Consequently, companies with strong brands do not necessarily have to fear temporal image deterioration if they decide to extend their established brands as part of a diversification strategy (Dacin and Smith, 1994).

In this regard, the extension of existing product portfolios to products in different categories is the crucial point of lateral diversification. The application of this extension strategy can be expensive but allows, among others, the distribution of financial risks that may result from seasonal and/or externally triggered sales fluctuations, as, for example, in the tobacco industry (e.g. Camel with its popular extension to apparel).

The results obtained in this paper indicate that brand managers should not generally be afraid to extend their offerings to a wider range. Instead, they should develop and apply strategies that are suited for strengthening brand associations that determine the image of their brands. However, aside from these positive aspects, at least in some cases, the structure of a brand’s image can involve an important challenge when the possibilities for improving the brand image by applying new product strategies are limited. Here, other strategies such as co-branding or celebrity endorsements might be more promising (Diamantopoulos et al., 2005).

4.2 Limitations and future research
The present research features some limitations that directly suggest possible directions for future research. First, the extension of the research setting to real-world products should be considered as knowledge structures are formed in particular based on real-world experiences with a brands’ products (Völckner et al., 2008). Furthermore, in real-world settings, consumers usually get more information regarding a new extension product through marketing communications or word-of-mouth (Klink and Smith, 2001; Völckner and Sattler, 2007), compared to experimental settings using fictitious extension products. Second, this research used fictitious press releases to manipulate the respondents. Future research might additionally use visual and/or audiovisual elements to result in more realistic manipulations. Furthermore, real-world products that are labeled with the corresponding parent brand might also be used to give the respondents the opportunity to test the new extension product. Third, this research focused on short-term effects and their impact on a brand’s associative network. Considering that a brand’s image is a long-term construct, the
Investigation of long-term effects may be promising for future research. For example, the respondents may be repeatedly faced with BEI and build their individual brand associative networks regarding the parent brand after a longer period. This idea is in line with mere exposure theory (Zajonc, 1968) which suggests that repeated exposure to stimuli has a stronger influence on consumers’ brand image. Fourth, the respondents from two different countries with a similar socio-cultural structure were asked to indicate their specific brand knowledge. Future research might also incorporate eastern countries that typically show greater cultural distances from western countries. This promises important insights as prior research has shown that brand extension fit is evaluated differently between these cultures (Monga and John, 2007). It would be interesting to assess whether eastern respondents tend to react differently to BEI (with corresponding effects on a parent brand’s associative network). Fifth, this paper solely focused on the favorability, strength, and uniqueness of brand associations. Future research might also differentiate between different types of brand associations, such as attributes, benefits, and attitudes (Keller, 1993). Sixth, Böger et al. (2017) recently proposed a new aggregation mechanism for individual brand association network data and showed that this mechanism significantly improves the aggregation results. Consequently, future research might think about implementing this new aggregation mechanism to investigate the impact of BEI on a parent brand’s image when using the BCM approach.

Notes
1. The level of placement refers to a brand association’s positioning in a BCM. Associations can either be directly connected to the brand, indicating the highest level of placement, or they are indirectly connected to the brand via other brand associations. The level of placement decreases the more other associations are placed between the brand and an association.

2. The overview summarizes the objectives, samples as well as measures used, variables and insights gained by different articles on feedback effects in the field of brand extension.

3. According to John et al. (2006), these aggregation rules include five steps: first, core brand associations to be included in the consensus maps are selected and placed. This involves identifying brand associations that are included in at least 50 percent of maps or included on 45-49 percent of maps if the number of connections is equal to or higher than that of other core brand associations. Second, first-order brand associations are selected. Therefore, core brand associations that have a ratio of first-order mentions of at least 50 percent and have more superordinate connections than subordinate interconnections are selected. Third, links between core brand associations are placed in the consensus map. Fourth, links between core brand associations and non-core brand associations are determined. Fifth, the number of connecting lines (i.e., single, double, or triple) is selected according to the mean number of lines used per link.

4. For both calculations, the focus was on respondents who showed the highest (lowest) degree of brand familiarity and the most positive (negative) brand attitude, respectively.

5. The results are available upon request from the authors.

6. The authors thank the anonymous reviewers for calling the attention to this important point.

References


Corresponding author
Pascal Kottemann can be contacted at: pkottemann@wiwi.uni-bielefeld.de

(The Appendix follows overleaf.)
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Objective</th>
<th>Sample</th>
<th>Measure</th>
<th>Variables</th>
<th>Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loken and John (1993)</td>
<td>To identify under which conditions brand extensions are more or less likely to dilute specific attribute beliefs with the parent brand name</td>
<td>196 women between the ages of 18 and 49 recruited by a marketing research firm in a mall-intercept study</td>
<td>Seven-point scale</td>
<td>Typicality, parent brand beliefs</td>
<td>Dilution effects occur when brand extension attributes are inconsistent with the parent brand beliefs. The dilution is less likely to emerge when consumers perceive the brand extension as atypical of the parent brand.</td>
</tr>
<tr>
<td>Milberg et al. (1997)</td>
<td>To investigate whether sub-branding strategies mitigate negative feedback effects</td>
<td>358 adults between the ages of 18 and 74 surveyed at various public locations in the USA</td>
<td>Two seven-point scales</td>
<td>Parent brand image beliefs, attitudes, manufacturing competencies</td>
<td>Negative feedback effects occur when extensions are perceived as belonging to a dissimilar product category and when extension attribute information is inconsistent with image beliefs associated with the parent brand.</td>
</tr>
<tr>
<td>John et al. (1998)</td>
<td>To investigate whether inconsistent brand extensions dilute beliefs associated with the flagship product and the parent brand name</td>
<td>192 women between the ages of 18 and 49 recruited by a marketing research firm in a mall-intercept study</td>
<td>Three seven-point Likert scales</td>
<td>Parent brand beliefs, individual product beliefs (gentleness/hygiene), extension consistency, extension information comprehension</td>
<td>Beliefs about flagship products are less vulnerable to dilution than beliefs about the parent brand name in general, and therefore, relatively immune to negative feedback from extended products.</td>
</tr>
<tr>
<td>Ahluwalia and Gürhan-Canli (2000)</td>
<td>To investigate feedback effects of brand extensions on parent brand evaluations within the context of the accessibility-diagnosticity model</td>
<td>Study 1a: 86 undergraduates, study 1b: 113 undergraduates, Study 2: 207 undergraduates who received partial course credit</td>
<td>Three seven-point scales</td>
<td>Accessibility, extension category (close/far), information valence (positive/negative), parent brand evaluation and beliefs</td>
<td>Under higher accessibility, negative information about the extension leads to dilution and positive information leads to enhancement of the parent brand regardless of the extension category. Negative information about a close (vs far) extension leads to dilution and positive information about a far (vs close) extension leads to enhancement.</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Objective</th>
<th>Sample</th>
<th>Measure</th>
<th>Variables</th>
<th>Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chen and Chen (2000)</td>
<td>To determine if brand extension failure negatively affects the parent brand</td>
<td>446 respondents from two universities in Taiwan</td>
<td>Seven-point semantic differential scale (17 items)</td>
<td>Perceived quality, functional feature, functional attribute, symbolic association, emotional response, nonfunctional attribute</td>
<td>Unsuccessful brand extensions dilute the parent brand. Effects of brand dilution differ according to the type of equity source possessed by the original brand, but no differences exist in brand dilution effects from close and distant extension failures Differences in beliefs between a positive and a negative experience with a brand extension exist only about unfamiliar parent brands After having gained experiences with a brand extension, consumers change their beliefs about and attitude toward unfamiliar parent brands more compared to familiar parent brands</td>
</tr>
<tr>
<td>Sheinin (2000)</td>
<td>To investigate how positive and negative experiences with brand extensions influence knowledge about parent brands that differ in familiarity</td>
<td>250 MBA students at a private school</td>
<td>Nine-point semantic differential scales</td>
<td>Extension-derived beliefs, initial-brand beliefs, attitude toward parent brands, brand extension experience, parent-brand familiarity</td>
<td></td>
</tr>
<tr>
<td>Martinez and Pina (2003)</td>
<td>To investigate the influence that brand extensions have on brand image</td>
<td>94 students from Spain</td>
<td>Nine seven-point Likert scales</td>
<td>Brand image, fit, quality, difficulty, awareness</td>
<td>Brand extensions influence the brand image after the extension and variables such as the brand image prior to the extension, the perceived quality of the extension and the fit between the parent brand and the new product also affect the image</td>
</tr>
<tr>
<td>Martinez and de Chernatony (2004)</td>
<td>To investigate how variables related to the parent brand and the extension influence parent brand image</td>
<td>389 respondents in face-to-face interviews from UK</td>
<td>Six seven-point Likert scales</td>
<td>Brand image (general brand image and product brand image), quality, familiarity, fit, attitude</td>
<td>Brand extensions dilute the brand’s image, changing the beliefs and associations in consumers’ minds. The dilution effect is greater on product brand image than on general brand image</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Objective</th>
<th>Sample</th>
<th>Measure</th>
<th>Variables</th>
<th>Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamantopoulos et al. (2005)</td>
<td>To investigate the impact of brand extension fit and brand quality on brand personality as an essential part of brand image</td>
<td>102 business executives from an executive MBA course at an English university</td>
<td>Five-dimension brand personality scale (42 items)</td>
<td>Fit, moderating effect of quality</td>
<td>No significant changes in brand personality occurred as a result of the extension introductions</td>
</tr>
<tr>
<td>Pina et al. (2006)</td>
<td>To investigate how corporate image is affected by service companies that extend into new categories</td>
<td>394 respondents between the ages of 20 and 65 in face-to-face interviews in Spain</td>
<td>Eight seven-point Likert scales</td>
<td>Image (before and after brand extension), perceived service quality brand, perceived extension quality, similarity/fit</td>
<td>The extent of perceived fit between the corporate brand and the service extension influences the perceived quality of the extension, which affects corporate image especially for corporate brands that originally had highly rated images</td>
</tr>
<tr>
<td>Lau and Phau (2007)</td>
<td>To understand the antecedents of brand image fit and brand dilution in the context of symbolic brands</td>
<td>148 undergraduate students between the ages of 19 and 24 from a large Australian university</td>
<td>Two-item Likert scale</td>
<td>Congruency, motivation on processing information, prestige orientation, brand personality fit, brand image fit</td>
<td>The dilution of brand affect toward the parent brand is not influenced by brand image fit or brand personality fit</td>
</tr>
<tr>
<td>Martinez et al. (2008)</td>
<td>To investigate the effect of brand extensions on brand image and product brand image</td>
<td>389 respondents from UK and 388 respondents from Spain between the ages of 15 and 24</td>
<td>Six seven-point Likert scales</td>
<td>Brand image (general brand image and product brand image), quality, familiarity, fit, attitude</td>
<td>Brand extensions dilute the brand image in both UK and Spanish markets. Brand image before extension and fit have positive effects on brand image after extension</td>
</tr>
<tr>
<td>Volckner et al. (2008)</td>
<td>To investigate image feedback effects and potential drivers of these effects by analyzing successful real-world extensions</td>
<td>Online access panel setup – respondents for this panel were recruited offline according to a quota sampling in Germany</td>
<td>Five seven-point semantic differential scales</td>
<td>Quality, parent brand strength, advertising support for the brand extension and for the parent brand, extendibility, fit</td>
<td>Even for successful extensions, negative image feedback effects can occur, particularly when the perceived quality of the extension fails to meet the quality level of the parent brand. The likelihood of negative feedback effects decreases as the level of perceived fit and</td>
</tr>
</tbody>
</table>

*(continued)*
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Objective</th>
<th>Sample</th>
<th>Measure</th>
<th>Variables</th>
<th>Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martinez Salinas and Pina Pérez (2009)</td>
<td>To investigate how brand extension evaluation affects the current brand image</td>
<td>699 respondents between the ages of 16 and 65 recruited according to a quota sampling procedure in Spain</td>
<td>Eight seven-point Likert scales</td>
<td>Pre-brand image, fit, moderating effect of consumer innovativeness, extension attitude</td>
<td>Consumers’ perceptions of the general extendibility of the parent brand increases Extension attitude influences brand image, whereas initial-brand associations and perceived fit between the new product and either the remaining products (category fit) or the brand image (image fit) are able to strengthen consumer attitude</td>
</tr>
<tr>
<td>Arslan and Altuna (2010)</td>
<td>To investigate the effects of fit, familiarity, perceived quality, and attitude towards the brand on product brand image after the extension</td>
<td>474 respondents in face-to-face surveys in Turkey</td>
<td>Six five-point Likert scales</td>
<td>Fit, familiarity, quality, attitude toward the brand</td>
<td>Negative brand image effects after extension are greater for brands with higher perceived image and quality than for brands where perceived image and quality is lower. Product brand image is less negatively affected when the extension fits the parent brand and more negatively affected when the fit is poorer</td>
</tr>
<tr>
<td>Dwivedi et al. (2010)</td>
<td>To model the impact of brand extensions on parent brand attitudes</td>
<td>387 male respondents between the ages of 18 and 25 from a university in India</td>
<td>Five seven-point Likert scales</td>
<td>Brand image, perceived fit, parent brand attitude, brand extension attitude</td>
<td>Parent brand image positively affects attitude toward the brand extension and perceived brand extension fit. Parent brand image has a positive effect on parent brand attitude change, whereas brand extension fit positively affects attitude toward the brand extension and parent brand attitude change</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Objective</th>
<th>Sample</th>
<th>Measure</th>
<th>Variables</th>
<th>Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martínez and Pina (2010)</td>
<td>To investigate the effects of brand familiarity, brand attitude, fit, perceived difficulty in manufacturing the extension product, and consumer innovativeness on brand image</td>
<td>699 respondents between the ages of 16 and 65 recruited according to a quota sampling procedure in Spain</td>
<td>Eight seven-point Likert scales</td>
<td>Brand image (initial and final), fit, consumer innovativeness, brand familiarity, difficulty, extension attitude</td>
<td>Brand extensions have feedback effects on brand image depending on the attitude toward the new product and perceived image fit. Consumer innovativeness and brand familiarity indirectly explain consumer response to brand extensions.</td>
</tr>
</tbody>
</table>
Exploring open innovation collaboration between SMEs and larger customers

The case of high-technology firms

Anita Ellen Tobiassen
Oslo Business School, Oslo and Akershus University College of Applied Sciences, Oslo, Norway, and
Inger Beate Pettersen
The Mohn Centre for Innovation and Regional Development, Western Norway University of Applied Sciences, Bergen, Norway

Abstract

Purpose – The purpose of this paper is to explore open innovation (OI) collaborations between high-tech small and medium-sized enterprises (SMEs) and large customers. The research aims to add new insights into how smaller firms attract and build trusting relationships with larger customers for the purpose of innovation, and to highlight customers’ contribution in SMEs’ innovation process.

Design/methodology/approach – This exploratory research is based on three case studies and adopts a process perspective to gather qualitative data on OI collaborations, focusing on the inherent dynamics, and evolution in long-term relationships.

Findings – The study provides insights into how SMEs develop OI relationships with both industry and research customers by building trust through various mechanisms. Motivated by the potential benefits of OI in strengthening the firms’ technological edge, the SME managers proactively and strategically developed and managed their OI relationships. The results proved that large customers contributed greatly to the SMEs’ innovation processes both directly and indirectly.

Practical implications – The research provides advice for smaller firms which are considering adopting an OI strategy with customers through mechanisms such as trust building and enhancing legitimacy.

Originality/value – The research adds to the OI literature on SMEs by exploring how smaller firms manage OI challenges, exploit benefits, and develop trusting relationships with larger customers and research institutions.

Keywords Trust, SME, Open innovation, Building trust, Customer collaboration, Open innovation practices

1. Introduction

Many companies realize that they cannot rely solely on in-house capabilities and resources to innovate in today’s fierce competition, so they seek open innovation (OI) practices (Giannopoulou et al., 2010). Most OI research has concentrated on large firms (Cheng and Huizingh, 2014; Chesbrough, 2003; Gassman et al., 2010), even though small and medium-sized enterprises (SMEs) can gain even more from OI activities than large firms (Huizingh, 2011; Spithoven et al., 2013; Van de Vrande et al., 2009). Therefore, recent research has paid attention to the value of OI practices in SMEs (e.g. Lasagni, 2012; Lee et al., 2010; Parida et al., 2012; Oakley, 2012; Van de Vrande et al., 2009).

SMEs have characteristics distinct from those of large firms, representing advantages and disadvantages in pursuit of OI (Berends et al., 2014; Lasagni, 2012; Spithoven et al., 2013; Xiaobao et al., 2013). SMEs have the advantages of being flexible, less...
bureaucratic, and having relationships with customers, which allow rapid responses to market and technological changes (Berends et al., 2014; Lasagni, 2012; Nieto and Santamaría, 2010). However, scholars emphasize that SMEs may lack internal resources, such as the managerial, technological, research and development (R&D), and financial resources to pursue innovation activities (Berends et al., 2014; Nieto and Santamaría, 2010). Consequently, SMEs can benefit from engaging in OI practices (Huizingh, 2011; Lasagni, 2012), and thereby narrow the innovation gap between SMEs and large firms (Nieto and Santamaría, 2010).

Given that the aim of innovation is to offer superior value for customers in terms of new products and services (Liao et al., 2009), it may be wise for SMEs to establish closer relationships with larger customer firms for the purpose of innovation (Antikainen et al., 2010; Robinson and Stubberud, 2011). This is particularly true for SMEs competing in global business-to-business (B2B) markets (Teece, 2007). However, SMEs seeking to collaborate with (larger) customers may encounter various challenges (Hewitt-Dundas, 2006; Wynarczyk et al., 2013), such as identifying suitable customers for collaboration (Lee et al., 2010), and developing the necessary trusting relationships with customers (Vahter et al., 2014). Additionally, larger customers may find smaller firms less attractive as collaboration partners (Vahter et al., 2014).

In this research, we aim to explore OI in SMEs by building on three case studies of Norwegian high-technology firms competing in global B2B markets. The research focuses on how SMEs develop OI collaboration with larger customers. We concentrate on SMEs’ efforts in building trust and legitimacy, which are essential for OI collaboration to succeed. Few studies have investigated trust-building mechanisms in OI and scholars have called for further research to elucidate this phenomenon (Abu El-Ella et al., 2015; Hossain, 2015). The research adopts a process approach to reveal the mechanisms of trust building.

Moreover, we explore how customers may contribute to the innovation process from early idea development to commercialization (inbound and outbound OI). For SMEs with a limited resource base, it is costly and time consuming to develop relationships with many actors, so they should seek OI partners (customers) that can take multiple roles and contribute to the whole innovation process. In this research, we illuminate how customers may contribute to SMEs through OI in both phases, adding new insights into the potential dynamics and benefits.

The research focuses on two types of customers, denoted industry customers and research customers. Industry customers are firms in various industries that use advanced technology in their daily operations. Research customers are universities and research institutions that use advanced technical equipment to conduct research projects. To our knowledge, studies of research institutions with the dual roles of customers and researchers are scant. Previous research concluded that the ability of SMEs to develop external relationships with customers and research institutions is critical to enhance their innovation performance (Hadjimanolis, 2000; Lasagni, 2012). Our research adds insights into the ways in which SMEs manage and benefit from OI relationships with both customer groups.

The research contributes to the literature in the following ways. First, it reveals insights into how SMEs address OI challenges in collaboration with customers, especially how they develop trusting relationships with larger customers. Second, the research provides a novel and nuanced understanding of the direct and indirect roles of customers in the innovation process and reveals the dynamic relations between smaller firms and their larger customers. The research also provides managerial advice for SMEs considering OI.

The paper is structured as follows. Section 2 presents the theoretical background. Section 3 contains the methodology and business cases, and is followed by a presentation of the empirical findings in Section 4. Section 5 discusses the findings, while Section 6 concludes and outlines theoretical contributions. Thereafter, some practical implications, limitations, and directions for future research are discussed in Sections 7 and 8.
2. Theoretical background

2.1 OI and SMEs

The ways in which firms use ideas and knowledge from external actors in their innovation processes are at the center of the OI model (Laursen and Salter, 2006). SMEs have been found to benefit greatly from strengthening their external relationships to improve their innovative performance and to engage in OI practices (Huizingh, 2011; Lasagni, 2012; Nieto and Santamaría, 2010).

OI contrasts with closed innovation, whereby the firm relies on its internal resources to create and commercialize new products (Grönlund et al., 2010; Van de Vrande et al., 2009). Degree of openness can be defined by the number of linkages and the extent to which a firm draws upon external sources in the innovation process (Laursen and Salter, 2006). SMEs tend to be less open than larger firms in terms of breadth of linkages to other firms, but they can simultaneously gain more from increasing this breadth (Vahter et al., 2014). However, a wide variety of partners increases the level of complexity of the partnerships (Bengtsson et al., 2014), which can be challenging for SMEs to manage with limited managerial resources. Regarding types of partner, collaboration with suppliers and customers has the greatest impact on firm innovativeness; this effect is stronger for medium-sized firms than for small ones (Nieto and Santamaría, 2010). In addition, collaboration with research institutes and universities is positive for innovation (Lasagni, 2012; Lee et al., 2010).

OI encompasses inbound, outbound, and coupled processes (Gassmann et al., 2010) and each of these processes can be more or less open (Huizingh, 2011). Inbound OI refers to activities to capture and benefit from external sources of knowledge to complement, strengthen, or accelerate in-house R&D activities. Outbound OI means innovation activities to leverage existing technological capabilities outside the organization’s boundaries, including internal and external paths of commercialization (Chesbrough and Crowther, 2006). Coupled OI refers to co-creation through alliances and joint ventures during which give and take are crucial for success (Enkel et al., 2009).

2.2 Collaboration between SMEs and customers

Innovation performance is crucial for high-technology SMEs competing internationally; they must continuously bring new technology to the market. OI can increase their propensity to introduce novel and breakthrough innovations (Herstad et al., 2008; Nieto and Santamaría, 2010), and accelerate market introduction (Enkel et al., 2009; Lasagni, 2012). Therefore, it is wise for high-technology SMEs to collaborate with external partners, such as customers, in their innovation process (Lasagni, 2012; Sandmeier et al., 2010). Collaboration with customers can improve SMEs’ ability to meet customer demands, keep up with competitors (Berends et al., 2014; Van de Vrande et al., 2009), and reduce the risk of market failure when introducing new technology (Tether, 2002). Collaborating with financially attractive customers or those with the characteristics of leading customers can increase new product success (Gruner and Homburg, 2000). This is important in the early stages of a product’s life cycle when the state of technology is in flux (Laursen and Salter, 2006). Leading customers are characterized by identifying needs before the market and by designing or obtaining solutions to those needs (Von Hippel, 1986). Particularly if SMEs are targeting radical innovations, it is wise to team up with leading customers (Parida et al., 2012).

However, the intensity of collaboration may differ widely (Parida et al., 2012). Tomlinson and Fai (2013) argue that smaller firms should nurture close collaboration across a range of innovation activities to aid innovation performance. Collaboration with customers during the early stages of the innovation process allows SMEs to draw on ideas and expand the pool of technological opportunities open to them (Bianchi et al., 2010). Furthermore, success in innovation depends on successful commercialization of products. SMEs can benefit greatly from support at this stage because of their lack of adequate resources for
commercialization (Berends et al., 2014; Lee et al., 2010). Sometimes markets must be created for the new technology (Garcia and Calantone, 2002) and smaller firms may lack the necessary financial and marketing resources, legitimacy, and reputation in the market to succeed (Berends et al., 2014; Carayannopoulos, 2009).

2.3 Attracting collaboration partners and developing trusting relationships

Identifying and attracting the “right” customers to collaborate with is essential for SMEs (Gruner and Homburg, 2000; Vahter et al., 2014). A challenge for SMEs is that they may not have the necessary search capabilities and networks to identify possible collaboration partners (Lee et al., 2010; Vahter et al., 2014) or the selection and management capabilities once an appropriate partner is found (Lichtenthaler, 2008; Nieto and Santamaría, 2010). Scholars argue that firms should use a systematic approach to explore potential partners for technological collaboration (e.g. Yoon and Song, 2014). Mindruta et al. (2016) underline that some firms cannot ally with their most preferred partner because of competition in the market for collaboration partners. Therefore, it is wise for SME managers to think through how their investments in resources and capabilities may shape their attractiveness to potential collaboration partners (Mindruta et al., 2016). An alternative solution for SMEs is to use intermediaries to find the right partner (Lee et al., 2010).

SMEs may face greater barriers than larger firms do in building formal business relationships once a possible collaboration partner is identified (Nieto and Santamaría, 2010). This can be problematic in a B2B relationship because new technologies and solutions are typically developed in a context of interdependence between the partners with extensive interaction and considerable complexity (Abu El-Ella et al., 2015; La Rocca et al., 2016). This requires a trusting relationship between the parties. Trust can be defined as a willingness to rely on an exchange partner in which one has confidence based on a “belief, sentiment, or an expectation about an exchange partner that results from the partner’s expertise, reliability and intentionality” (Huang and Wilkinson, 2013, p. 455). Trust is not static, but a dynamic and dyadic phenomenon that evolves through the actions and interactions within a business relationship (e.g. an OI relationship) (Hardwick et al., 2013). As the relationship evolves, the firms will develop tacit and intangible attributes that arise from actual experience, including a degree of collaboration, reliability, expertise, and culture of another firm, all of which affect the nature and degree of trust between people and firms involved (Abu El-Ella et al., 2015; Huang and Wilkinson, 2013). Therefore, it is critical for SMEs to develop and enhance their legitimacy to become valuable and trustworthy OI partners for customer firms.

OI is not without potential downsides for SMEs; e.g. opportunistic behavior from collaboration partners and thereby loss of knowledge (Oakey, 2012). This can be critical for smaller high-technology firms because their technology and products are their main strategic assets and openness may jeopardize the value of these assets (Oakey, 2012). Therefore, it may be wise for smaller firms to choose depth over breadth in collaboration with external sources to build trusting relationships, given the limited managerial resources of smaller firms. However, opportunistic behavior may be negated if the relationship between an SME and its collaboration partners is strong and trusting (Tomlinson and Fai, 2013). Lee et al. (2010) argue that SMEs prefer to collaborate with universities and research institutions than with other firms if there is a danger of technology exposure, although the number of such alliances is low.

Furthermore, to collaborate with and profit from customers’ expertise, smaller firms need a certain level of absorptive capacity (Cohen and Levinthal, 1990; Huang and Rice, 2009; Lasagni, 2012). Research has shown that SMEs typically lack this capacity, preventing them from engaging fully in OI (Nieto and Santamaría, 2010; Wynarczyk et al., 2013). Another challenge is to sustain internal commitment over time to realize the benefits of OI
OI may also entail changes in organizational structure and culture to facilitate OI processes (Dahlander and Gann, 2010), even though smaller firms are generally more flexible and dynamic than larger firms (Lasagni, 2012).

2.4 Synthesis and research questions
In summary, prior research suggests that high-technology SMEs competing in international B2B markets can benefit from engaging in OI. SMEs generally lack the necessary resources to innovate and commercialize their technology. Therefore, engaging in OI collaboration with larger customers can be a way to stay ahead of global competition. However, SMEs are also likely to face great challenges in establishing and maintaining external relationships, such as building long-term trusting relationships with collaboration partners. There is a limited body of research on challenges to SMEs in this area, and scholars (e.g. Abu El-Ella et al., 2015; Hossain, 2015) have called for further research on the mechanisms employed by SMEs to build and maintain trusting OI relationships. Therefore, we pose the following research question:

RQ1. How do SMEs attract and develop trusting OI relationships with customers?

Moreover, it is interesting to explore customers’ contribution to the innovation process from idea development to commercialization, i.e. in inbound and outbound OI processes. We define the inbound phase as the stages of idea and concept development, product development, and product testing, and the outbound phase as the commercialization stage of the innovation process (marketing and sales). Research shows that customer collaboration can provide SMEs with resources and enhance their innovation performance (Lasagni, 2012; Parida et al., 2012; Van de Vrande et al., 2009). We argue that customers’ contributions in the phases of the innovation process are highly interlinked with SMEs’ willingness to invest managerial and technological resources, and to build trusting relationships with customers over time (RQ1). Thus, this research investigates this reciprocal process and its dynamics by linking SMEs’ use of managerial and technological resources in building a long-term OI relationship (RQ1) to the benefits of customers’ diverse contributions (RQ2), and vice versa. Hence, we pose the following research question:

RQ2. How do customers contribute to SMEs’ OI processes?

3. Methodology and business context
3.1 Research approach
Scholars have called for in-depth qualitative research to explore OI practices in SMEs (Freel and Robson, 2016; Van de Vrande et al., 2009). Therefore, this research adopts a qualitative approach and a multiple case study design to examine how SMEs realize OI collaboration with customers. A case study approach allows for the research of phenomena in their natural setting (Yin, 2009). This enables us to understand “how” and “why” questions, with the primary aim of gaining a deeper understanding of OI collaboration between SMEs and larger customers. The study does not seek to provide generalized answers in a statistical sense, but rather to achieve theoretical generalizations (Yin, 2009).

We used the following selection criteria to select three cases of SMEs exploring OI: smaller firms with fewer than 50 employees, to avoid potential resource bias; firms with high-tech products and a strong R&D orientation competing in global markets, which require innovative capabilities; firms located in the same geographical area to control for potential bias related to differences in innovation across regions (Acs and Terjesen, 2013); and firms led by a CEO who is also the founder, to ensure accurate knowledge of the initial start-up stage of the firm. We selected cases primarily to explore and develop insights into
the phenomenon of SMEs and OI and to predict similar results (literal replication) (Yin, 2009). The research on the case firms – Alpha, Beta, and Charlie (fictive names) – constituted a subproject in a larger research project on the internationalization of SMEs in a Norwegian industry cluster specializing in subsea life-of-field solutions. The selected case firms appeared to be relatively unique cases, owing to their high-tech and R&D orientation, their small size (few employees), and a long-term strategy of developing OI relationships with industry and research customers.

We adopted a key-informant methodology to collect data in 2008 and 2012 from three interviews in Alpha and Charlie, respectively, and two in Beta (Kumar et al., 1993). We mainly selected the founders/managers of the SMEs as key informants because we expected they could provide comprehensive and detailed information. The owners/founders of the firms (referred to as CEOs in analysis) had been in management positions since their firms were founded.

The two authors conducted most interviews together. The first interviews (in 2008) took a process approach to gain a thorough and in-depth understanding of the firms; i.e. the informants were asked to reflect on and explain in retrospect the firms’ history from their start-ups, covering a variety of topics related to innovation and internationalization, including idea development, technology development, marketing and sales, internationalization, and networking. This approach provided us with insights into OI by the firms. Subsequent interviews (in 2012) were limited to OI issues. The last interview with Charlie was with two informants (within the fields of marketing and engineering). We interviewed one research customer that (to a varying degree) collaborated with the three firms to increase our understanding of OI themes from a research customer’s perspective.

A semi-structured interview guide concentrating on relevant topics formed the basis for the interviews. An extract from the interview guides can be found in the Appendix. The interviews lasted between 0.5 and 1.5 hours, and were followed up by questions via e-mail. The interviews were recorded and transcribed. The primary data were supplemented with the secondary data from sources such as industry magazines, firm and customer websites, and newspaper articles. This information gave us a broader insight into OI in the firms and enhanced the research quality (e.g. Eisenhardt, 1989; Yin, 2009).

The data analysis was carried out in several steps. First, we coded the interviews from the first interview round using a theory-driven approach of identifying themes based on the interview guide (cf. interview guide in the Appendix) (Miles et al., 2014). However, we also applied an open-coding approach (Miles et al., 2014) because of the open questions in the interview guide (e.g. Can you tell us about the history of the company? What was your business idea?). We then conducted the second round of interviews, concentrating on the following OI concepts and themes: development of OI relationships over time (how the firms acted), customer collaboration, involvement, and contributions at different stages (inbound and outbound). In these interviews, we also asked the informants to “confirm” our first impressions about OI in the firms. The coding of this data material was largely in accord with the codes previously established. The coding process was done manually, going back and forth between the authors. Third, we created an overview for each case in a “narrative” writing style to reflect the holism and complexity of the cases, with a particular focus on the main research questions.

3.2 The case firms
3.2.1 Alpha. Alpha was founded in 1991 and employed around 30 people in 2012. Alpha is a subsea provider to the oil and gas industry, marine research, and the defense industry. Alpha delivers a combination of hardware, software, service, training, and operational support. More than 50 percent of its turnover comes from exports. In 2003, a Norwegian multinational corporation (and previous customer) bought 70 percent of its shares and key
employees own the rest. Alpha experienced increased export commitment with the new owner bringing in financial capital, international networks, and competence. R&D is at the core of the firm’s philosophy; thus, the firm has an R&D department centered on technology and product development. Since its foundation, Alpha has focused on collaboration with customers nationally and internationally (e.g. Sweden, Portugal).

3.2.2 Beta. Five founders previously working in the same company established Beta in 2000. In 2012, Beta had 30 employees (mostly engineers and scientists); one-third of the employees were engaged directly in technology development. Beta is a provider of high-tech equipment for subsea installations in different market segments, e.g. a research segment (marine and climate research), naval defense, and the oil and gas industry. Their business started with deliveries to the defense industry, but their technology was developed further for other market segments. Beta emphasizes its continual technological and product development. Around 30 percent of its turnover comes from exports. Its goal is to increase international turnover. Beta has cooperated with industry and research customers since its foundation.

3.2.3 Charlie. Charlie was established at the beginning of the 1990s and had 18 employees in 2012. Charlie’s main market segments are fisheries, marine research, and offshore industries. Around 80 percent of its turnover comes from exports. The firm delivers a set of products from standardized to very advanced. Charlie invests much time and resources to develop, refine, and adapt its products continually to be competitive in its chosen segments. More than 50 percent of the employees work on technology development.

A brief overview of the case firms is given in Table I.

4. Empirical findings
In this section, we present empirical data illustrating how the SMEs realize OI collaboration with industry and research customers. We use the three firm cases to enlighten our research questions, using quotes to illustrate the firms’ specific experiences and perceptions. We include data from one research customer to add the customer perspective.

4.1 Attracting collaboration partners and developing trusting relationships with customers
The firms’ managers were proactive in seeking collaboration partners. In the start-up phase of Alpha and Beta, the founders contacted potential industry and research customers whom they thought could be interested in their ideas. They pursued collaborations with their customers to learn about the customers’ needs and to reduce the risks in the commercialization stage of product development. The founders assumed that collaboration would enhance the chance of sales if the customers could influence the

<table>
<thead>
<tr>
<th></th>
<th>Alpha</th>
<th>Beta</th>
<th>Charlie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year established</td>
<td>1991</td>
<td>1999</td>
<td>Early 1990s</td>
</tr>
<tr>
<td>No of employees (2012)</td>
<td>30</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>R&amp;D department dedicated to R&amp;D</td>
<td>One-third of employees involved in R&amp;D</td>
<td>More than 50% of workforce involved in R&amp;D</td>
</tr>
<tr>
<td>Product and market segments</td>
<td>Products and operational services for the oil and gas industry, marine research, and defense industry</td>
<td>High-tech equipment for the oil and gas industry, marine and climate research, and defense industry</td>
<td>Advanced and more standardized products/systems for the fishery industry, marine research, and offshore industry</td>
</tr>
<tr>
<td>International sales</td>
<td>50%</td>
<td>30%</td>
<td>80%</td>
</tr>
<tr>
<td>Interviews</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Table I. Case firms
innovation process and the final products. This was particularly important because they were developing products that were rather new to the market:

When you introduce a new product, you have to create a market at the same time as you are developing the product […] First, you have to create the market, and when you have created the market, then it takes off on its own (CEO, Beta).

Fortunately, some potential industry and research customers were interested in what the SMEs had to offer and wanted to collaborate. Alpha started to collaborate with industry and research customers nationally and internationally, and Beta nationally. Social networks from previous jobs, general information from newspapers, industry magazines and the like formed the basis for the contacts. As illustrated by Beta:

I read an article in the newspaper about this company, and saw a picture of a “factory” on the seabed. And we thought, “here are possibilities for us.” I then contacted an acquaintance working in the oil company, and yes, they had thought of the idea previously, but were not sure how to proceed. But we, (Beta) with our competence could “tell them” how to do it. And then we started the collaboration with the oil company, and the company contributed financial capital (CEO, Beta).

Charlie did not collaborate deeply with customers in its innovation process during its early years, except through dialogue and feedback from customers in the fishing industry regarding tailoring of products. During these years, Charlie sold equipment to a marine research institute. Charlie’s founder/manager realized that it would be advantageous for the firm to establish closer collaboration with their research customer because it was at the technological forefront of its field and could strengthen the small firm’s technological advantage. Therefore, the manager decided to give the research customer extra good service to “be noticed” by the research customer:

When we saw what the research institute was doing, we wanted to keep working with them. Therefore, we focused on giving it very good service and support […] It started there (CEO, Charlie).

This approach was successful. By being a very proactive and customer-oriented supplier, the research customer gradually found Charlie to be a trustworthy supplier and became interested in collaborating with and involving Charlie in innovation because it found Charlie’s manager to be genuinely interested in innovation and not only a “profit-seeker.”

This tends to happen gradually; you buy some equipment and a relationship develops. Charlie gave us reasonable terms. If you had someone that thought only of short-term profit, we might well have stopped earlier and not developed this close collaboration (Research customer).

When the researchers saw that we had suitable products, they came to us with ideas. Researchers have ideas all the time. What is often missing is the available time to carry out ideas. They want collaboration partners and we have been able to pick up some of their ideas because of the supplier-customer relationship we had with them (CEO, Charlie).

Over the years, the relationship between Charlie and the research customer became more extensive. As a result, the research customer included Charlie as one of several partners in a center for research-based innovation. Charlie was by far the smallest partner in that network.

Alpha and Beta emphasized close contact and trust building with industry and research customers. They chose to collaborate closely with a few customers, and thereby demonstrated their competence and long-term commitment. Alpha was very clear about this. The informant said it was too resource demanding for a small firm to initiate new relationships frequently:

Our philosophy is long-term collaboration, and we prefer working with customers that share this vision. We prefer to work with those we know well from before, with companies that has grown and developed together with us (CEO, Alpha).
With the trust of their larger customers gained, initiation of new projects and the development of ongoing OI projects became easier:

We are in workshops with research institutions, and product ideas sometimes come out of that […] Or they may specify a one-off need. Then we tailor new products for them (CEO Alpha).

The trust-building processes encompassed both customer groups. For example, Beta was able to persuade a prior contact in an oil company to test a technology concept in a pilot project. Soon after that, another oil company became interested in the technology and it evolved into a larger research project. Beta collaborated closely with R&D departments in oil companies, which later became pilot customers and buyers of the technology. It was important to build relations with the “right people,” e.g. in R&D departments, because they acted as gatekeepers and decision makers for buying new technology. During this process, Beta had to convince and “educate” the oil companies in the functionality of the new technology, which was a challenging process. During the research project, Beta was able to demonstrate that the technology actually worked; this enhanced its position as a trustworthy supplier and collaboration partner:

The research centers are our most important path to the users in their companies. They market the technology internally. When you have field-proven one technology project, later projects pass easier (CEO, Beta).

Equally important was that employees from the SMEs spent much time in the field with customers, and were thereby able to test the technology and receive feedback on it. In addition, working together in the field strengthened social relations and trust. Moreover, the small firms emphasized following customers up closely to provide good service and support, and thus build trust. However, these activities were resource demanding for the firms:

We have an open dialog with the customers, which is quite resource hungry for us, but if we can put a bit of effort into that, then we can ensure that the customers get what they really want. And we have a good dialog with them afterwards, so we will hear any frustrations they have and ideas for improvements. At first glance, that is an expensive and time-consuming process, but then there is a saying; that we will get happy customers and will learn to work together with you, and then you get more orders (Engineer, Charlie).

Other challenges arose as well, such as dealing with differences in organizational cultures. Charlie’s manager reflected on issues related to differences in organizational cultures between a small firm and larger organizations, and particularly research customers. He underscored that research institutions differ from smaller firms with their focus on publications and their long-term orientation concerning innovation and other issues. He argued that smaller firms must be aware of such cultural differences and seek to address them to collaborate successfully with research institutions:

The challenge is greater for us than for them (research institutions) I think, but this is a challenge we have to deal with because the result is worthy of some effort. However, it is important to explain to the employees how it works (CEO, Charlie).

However, research customers also perceived various challenges in the OI collaboration, emphasizing the limited number of key people in smaller firms and the consequences:

You are very dependent on individuals; it is not a collaboration between systems—you depend on the person you are working with […] Relationships may quickly sour; you are very vulnerable if your company is dependent on such (fragile) relationships (Research customer).

Overall, the informants gave the impression that they were more concerned about the advantages of OI compared with its potential risks. The informants said they feared neither the risk of losing valuable R&D knowledge through the collaboration with larger customers
nor the risk of opportunistic behavior. Being a very small firm could be beneficial in this respect, which may be attributable to the repeated interactions between the small firms and their customers:

The customers have sympathy for us; we are so small that there is No. risk that they will “steal” ideas or employees from us. We see only advantages in collaboration (CEO, Beta).

Although long-term collaboration was preferred, Alpha underlined that long-term collaboration with specific industry customers could represent a “lock-in” effect and limit the possibilities for collaboration with others. The firm actually turned down interesting requests from potential industry customers because these customers were competitors of the incumbent.

4.2 Customer contributions to the OI process

The customers contributed to various stages of the innovation process. Ideas were generated by the SMEs, by the customers or by the actors together, e.g. in a common workshop. In general, dialogue and collaboration in the early stages of the innovation process (idea and concept development) affected the extent to which the SME continued to pursue an idea. For example, Beta collaborated closely with oil companies in the exploratory and creative phase of technology development during its early years. The research work packages were defined in collaboration with the oil companies, and at important milestones later in the process, the oil companies contributed knowledge and influenced decisions on the further technology trajectory.

The firms found collaboration at the testing stage to be critical for the quality of the products and commercialization. This was above all true for products meant for the conservative oil and gas industry, but also for products aimed at research customers and other industries. Sometimes the SMEs and the research customers worked closely together for weeks at this stage, as employees from the firms participated in tours on research vessels and were permitted to test their technology in real-life situations:

Collaborating with the research customer helps us “lift” the technology, and it gives us access to their boats. Had we only run our own developments, we would have needed a way to test them at sea; we get this for free through the research customer. We can go along on their missions because they are interested in buying our technology (Engineer, Charlie).

A lot of the field-testing is done on our research vessels; we allocate the necessary time to do this at sea. Charlie does not have the wherewithal for this – so this is where we come in and advise on how the technology can be adapted to practical applications in fishing. I believe that this is the key for them to come up with good products that there will be a demand for down the line (Research customer).

Both industry and research customers contributed during the commercialization stage (marketing and sales) of new products. For example, Beta’s pilot customer, a national oil company, helped spread Beta’s technology internationally through its operator partners, and thus accelerated Beta’s initial internationalization process. In the conservative oil industry, it is difficult for smaller firms to sell new technology because most oil companies emphasize the principle of proven technology. Yet when Beta referred to a large Norwegian oil company and its actual use of the technology, other oil companies were more liable to buy it. In addition, collaboration with research customers gave the smaller firms access to international networks, i.e. other research institutes and universities became customers and consequently opened new international markets for their products. Thus, both the industry and research customers acted as references and door openers for new customers:

If we look at the university—or the other research institutions we collaborate with, it often has large research projects in which e.g. 30 foreign researchers participate. When you deliver your equipment to the university, you get in touch with these actors, and you get new networks because of the connection you have with the university (CEO, Alpha).
The informants believed that research customers’ publications had some marketing effect too. In publications, the authors referred to the firms’ contribution and highlighted their products, which developed the SMEs’ international legitimacy:

It is in the nature of researchers to inform others about what they are doing. And they normally also inform them about collaboration, about the equipment they use and so on. In this way, they inform their colleagues about us (CEO, Charlie).

As the SMEs became more mature, it became even more vital for them to collaborate with research customers, independent of how large a proportion they represented of the SMEs’ total turnover. The informants claimed that products and technology developed together with research customers could be redesigned and developed further, and applied in other segments, so these represented a springboard to competition in other market segments, e.g. the marine and offshore industry. Because the research customers were “lead” users of advanced technology, collaborating with them sustained the SMEs’ technological edge. The informants argued that the collaboration was important to gain knowledge of the research and technology frontier to stay competitive in developing advanced “radical” products, e.g. “What is coming up? Where should we go?” Accordingly, the CEO of Beta, which collaborated with a research customer in marine research, stated:

Even though the value lies in the oil industry, it is important to position ourselves because we know that it will be a market in these areas (the Far North). And those who have gained experience from the Far North and know how to build instruments for this climate and have a “track record” will have an advantage, I think. Of course, we also find it fun and interesting, but then, it is to achieve a technological advantage (CEO, Beta).

Consequently, developing advanced products for the use in climate research would better prepare the firm to compete to supply the oil industry in these geographical areas. The informants further stated that collaboration with research customers had positive effects besides technology development. As mentioned above, it gave the firms access to larger and international networks, as well as international markets for their products. It was also positive for recruitment. Both Beta and Charlie had recruited master’s and PhD students who had worked with the firms during their research. Third, the collaboration seemed to enhance the internal workforce’s motivation because it was inspiring to work “side by side” with researchers and be part of a larger network. Furthermore, it gave increased access to financial resources for technology development, because research institutions in Norway are heavily funded by the government.

5. Discussion
The discussion of the empirical findings is organized according to the two research questions.

5.1 Attracting collaboration partners and developing trusting relationships with customers
The SME managers consciously, proactively, and relatively systematically searched for potential collaboration partners via various approaches, from “market research” to the use of existing social ties, and proved able to find and attract valuable partners in these ways. Hence, the SMEs independently managed to find OI partners from both industry and research customers, and did not need intermediaries as other research has suggested (e.g. Lee et al., 2010; Tomlinson and Fai, 2013). Our findings indicate that the customers were interested in collaboration because they needed advanced technology to conduct their activities and the SMEs possessed the necessary competence and capacity to develop this in collaboration with the customers. It is also worth mentioning that the firm managers had extensive industrial experience, which may have facilitated the process of gaining acceptance for their expertise and knowledge (Huang and Wilkinson, 2013).
The case firms preferred to collaborate closely with the same few customers over time. Evidently, the case firms made substantial efforts to build and to maintain trusting relationships with larger customers through several mechanisms, such as demonstrating expertise, reliability, and intentionality over time by maintaining their role as suppliers and collaboration partners. The SMEs deliberately used service-minded and customer-oriented behavior toward their customers and could pick up ideas from customers and develop them further to satisfy their needs, which demonstrates a high level of absorptive capacity, contrary to the claims of prior research (e.g. Nieto and Santamaría, 2010; Wynarczyk et al., 2013). The reason may be that our case firms are high-technology firms with a strong R&D orientation, reducing the general problem of low levels of absorptive capacity in smaller firms.

Furthermore, the SMEs seemed able to adapt to differences in organizational culture between smaller firms and larger customers, particularly research customers, which facilitated and strengthened the OI relationship. The SME managers were proactive in educating and making their own employees aware of the cultural differences, and in coaching them in managing them, thus contributing to building an OI culture with customers. In this way, the SMEs overcame organization challenges in managing OI (Van de Vrande et al., 2009).

As time went by, the relationships between the SMEs and their customers evolved into increased interdependence, collaboration, and commitment between the parties (López et al., 2015). The OI relationship of Charlie illustrates this. This firm first engaged in a regular supplier-customer relationship that evolved into a formal and comprehensive OI relationship, i.e. a more coupled OI process, as the firm gained trust from and legitimacy with their research customer. As the subsequent relationships developed, the initiation of collaboration projects became blurred; the SMEs involved their customers and the customers involved the SMEs. In other words, OI between the SMEs and customers developed in the direction of reciprocity (Chesbrough and Crowther, 2006).

This finding contrasts with those of other studies, which emphasize SMEs’ problems with asymmetry and unequal power balance (e.g. Nieto and Santamaría, 2010).

The SMEs’ OI collaborations with research institutions appeared to differ from those reported in previous research descriptions, and deserve specific attention. Our findings show that the case firms were very aware of the value of research institutions from an early stage, and could initiate OI relationships. These findings both contrast with and confirm previous research. Some scholars assert that SMEs most commonly face barriers in industry-university relationships (López et al., 2015; Tether, 2002). Yet, some innovative SMEs in high-tech industries with high R&D intensity are likely to collaborate with research institutions (Lasagni, 2012; Nieto and Santamaría, 2010). The data revealed that the firms’ awareness of the value of collaborating with research customers increased as the firms matured and the OI collaboration evolved. This finding contrasts with those of previous studies of SMEs’ relationships with research institutions (e.g. Lasagni, 2012). The firms’ relationships were based on the research institutions being customers, so research institutions are engaged both as customers and as contributors to new technology in the firms. They are researchers with advanced knowledge and are “lead customers” taking multiple roles beyond their normal activities. Traditionally, research institutions produce and disseminate scientific and technological knowledge for innovation transfer through university–firm collaborations (López et al., 2015; Nieto and Santamaría, 2010). Hence, the specific nature and evolvement of the OI relationships revealed in this study may have facilitated the development of an extensive and complex relationship, making it easier to overcome barriers to collaboration between smaller firms and research institutions.

Overall, the findings revealed that the firm managers’ attitudes and behavior were a necessary condition for OI in the SMEs, as stated by Lasagni (2012). The managers had a
clear vision of their firms being technological frontrunners to compete in global markets and seemed to act strategically regarding their choice of collaboration partners. The firm managers initiated contact with customers, demonstrating strong efforts and being proactive in initiating ideas and compensating for the inherent vulnerabilities of the relationship, cultivating trust and reliability, as Abu El-Ella et al. (2015) claimed was important. Unlike those in other studies (e.g. Nieto and Santamaría, 2010), the managers did not fear the high costs of managing and coordinating the OI relationship. Our research shows that even smaller firms can enhance their attractiveness through various mechanisms, such as clearly demonstrating their competence and value as collaboration partners, and by being service minded and customer oriented. Thus, this research adds new knowledge on the useful mechanisms to manage OI relationships called for by scholars (Abu El-Ella et al., 2015; Hossain, 2015; Nieto and Santamaría, 2010). In Figure 1, we illustrate how the case firms developed trusting OI relationships.

5.2 Customer contributions to the OI innovation process

The data analysis revealed that customers both directly and indirectly contributed to the SMEs innovation process in the inbound and outbound phases of OI. Lee et al. (2010) found that OI practices in SMEs are more common in the later innovation stages, such as commercialization. Our results indicate that OI is just as important in the earlier stages of innovation. The customers clarified and improved ideas, providing complementary competence and facilities, and hence advanced “the frontier technology” adapted to customer needs in line with research such as that by Lasagni (2012) and Nieto and Santamaría (2010).

Our study also revealed several positive indirect effects of customer contribution, not least from research customers, such as increased access to competence through recruitment of master’s and PhD candidates and a stimulating R&D working environment. Small high-technology firms generally depend greatly on their ability to attract and mobilize the knowledge of their employees (Løwendahl et al., 2001), and may be perceived as less attractive than larger companies. Hence, the OI collaboration may have compensated for the common disadvantage of SMEs in access to human capital and skills (Nieto and Santamaría, 2010).

Furthermore, the analysis shows that the customers played a certain role in the commercialization stage (outbound phase of OI), both directly and indirectly. Looking at the direct effects, we saw that collaboration with customers reduced risk during the commercialization stage because the customers acted as pilot customers and became

---

**Figure 1.** Development of trusting OI relationships by SMEs: important mechanisms/actions in the process.

- **Relationships and trust-building mechanisms in the process**
  - SME managers proactively seek OI partners (customers)
  - SME managers and OI partners collaborate on projects
  - SME managers and OI partners share knowledge and expertise
  - SME managers and OI partners establish trust and reliability
  - SME managers and OI partners handle organizational cultural differences

- **Achieved over time**
  - Trusted supplier of technology
  - Trusted OI partner
  - Trusted research partner
committed to buying the products. This finding agrees with that of Van de Vrande et al. (2009). Moreover, the customers provided the SMEs with international networks, legitimacy, and credibility, and acted as important references, which are essential aspects of SMEs’ success in international markets (Pettersen and Tobiassen, 2012).

Further, the firms enhanced their collaboration with research customers as they matured. We argue that this relates to the research customers’ various contributions to the firms. Even though the research customers were less vital for the SMEs’ turnover, these customers became gradually more important in the firms’ ambition to maintain their technological advantage in global markets. Therefore, OI relationships permitted the SMEs to gain “windows” into emerging technologies and stay competitive in dynamic international markets.

Furthermore, the SMEs tended to redesign technology developed in collaboration with research customers and to adapt it to other related market segments. We may refer to this innovation practice as ambidextrous, balancing exploration and exploitation in an innovation cycle. This finding concurs with that of Prajogo et al. (2013), who suggested that exploration innovation may trigger a series of exploitation innovations. The ability and resource capacity to pursue ambidextrous practices tend to exist in firms with greater resources (Prajogo et al., 2013). However, OI collaboration with the research customers allowed exploration activities in the first place (customers’ contribution) and triggered exploitation activities to be pursued later by the smaller firms. The findings are summarized in Table II.

To summarize, customers’ contributions to the innovation process were valuable for the case firms, and provided them with technological and market knowledge, international networks, legitimacy, and reputation (Lasagni, 2012; Nieto and Santamaria, 2010). The customers contributed both directly and indirectly to the innovation process. Research customers appeared to be somewhat more involved in the innovation process than industry customers. The reason may be that universities and research institutes generally possess a culture of open science and are encouraged to contribute to knowledge and technology transfer to the outside world (Striukova and Rayna, 2015). In addition, research customers qualified as lead customers with advanced needs, and this made them interested in collaboration with the SMEs.

6. Conclusions
This paper contributes an enriched understanding of OI from SMEs’ perspectives based on three cases. The study substantiates the advantages of OI reported in previous studies (e.g. Lasagni, 2012; Lee et al., 2010) and adds new insights. The case firms aimed to be technological frontrunners to compete in global markets so they emphasized the positive

<table>
<thead>
<tr>
<th></th>
<th>Direct effects</th>
<th>Indirect effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound phase</td>
<td>Provided information about user needs</td>
<td>Provided a stimulating R&amp;D working environment for SME employees</td>
</tr>
<tr>
<td></td>
<td>Provided ideas for advanced technology</td>
<td>Increased access to competence through recruitment of master’s and PhD candidates</td>
</tr>
<tr>
<td></td>
<td>Facilitated access to technology testing in the field</td>
<td>Provided access to research funding</td>
</tr>
<tr>
<td></td>
<td>Strengthened the technological edge of the firms</td>
<td>Strengthened the competitive position in market segments</td>
</tr>
<tr>
<td>Outbound phase</td>
<td>Reduced market risk by being pilot customers</td>
<td>Facilitated redesign of technology for new and related market segments</td>
</tr>
<tr>
<td></td>
<td>Provided referrals to international customers and (accelerated) international sales</td>
<td>Published articles documenting the functionality of SME technology</td>
</tr>
<tr>
<td></td>
<td>Published articles documenting the functionality of SME technology</td>
<td>Increased legitimacy, credibility, and reputation</td>
</tr>
</tbody>
</table>

Table II.
Customers’ contribution to the innovation process
effects of OI collaboration. Over time, the research customers became more important for the SMEs because they functioned as lead customers and research partners.

The research contributes to previous research by revealing the critical role of SME managers in initiating and sustaining OI relationships through trust-building mechanisms. Despite scarce internal resources, the managers proactively initiated OI collaborations. Nevertheless, smaller firms are not necessarily “in control” of their own OI strategies because they depend on customers’ willingness to engage in OI over time. Therefore, it is essential to understand how the founders and managers of SMEs engage in various activities to enhance their legitimacy and trustworthiness to qualify as a long-term OI collaboration partner for larger customer firms; this research contributes to this literature. Through such behavior, the relationships evolved into reciprocity and interdependence.

Our research also revealed novel and nuanced knowledge of customers’ contributions in the OI process. The data showed an interaction and dynamic regarding customers’ contributions to the innovation process, which affected the SMEs’ willingness to invest time and resources in developing the OI relationships or that of the customers to develop the SME. Moreover, the research adds knowledge to the literature on SMEs’ evolving aims and drives for OI throughout their life cycles, from risk reduction in the start-up phase to long-term goals of being technological leaders as the firms grow and mature.

7. Practical implications
The findings have some practical implications. The cases reveal that managers play a critical role in OI innovation. First, SMEs should recognize the benefits of an OI strategy of collaboration with customers, and particularly with customers that are technological leaders. Second, because SMEs often lack networking capabilities (Vahter et al., 2014), it may be wise to collaborate with customers that can play multiple roles, e.g., innovation partner and provider of the international networks that are important for commercialization (Hite and Hesterly, 2001). Third, we argue that it may be valuable to collaborate with research institutions – regardless of whether these institutions are customers – because they are involved in fundamental research, and can be vital for radical innovations. However, this requires managers to be able to communicate and to build trusting relations with research institutions (López et al., 2015). Finally, SME managers should be proactive, consciously seeking out appropriate collaboration partners and not leaving the initiative to customers or other actors.

8. Limitations and future research
The research has some limitations because we base our findings on three case firms from one geographical region. Consequently, it is difficult to generalize our findings. The qualitative methodology has some evident weaknesses, but allowed us to reveal in retrospect in-depth qualitative data on the trust-building process in OI relationships. Hence, the methodology chosen is appropriate to capture complex relationships evolving over time and it strengthens research validity (Yin, 2009).

We propose further studies using a process approach to develop new knowledge of the phenomenon of OI among SMEs. First, because the OI process is found to be reciprocal and interdependent, we encourage new research that emphasizes the dyadic relationship between partners. Moreover, it is critical to understand the dynamics and evolution of trust and related mechanisms in OI from both sides of the relationship (Abu El-Ella et al., 2015). To investigate the phenomenon of OI between collaboration partners, researchers could adopt a longitudinal approach to explore the supposed reciprocity and dynamics involved and to avoid eventual retrospective bias.
References


**Appendix. Examples of questions in the interview guide relevant for this article**

*First interview round*

1. Can you tell us about the history of the company? What was your business idea? Who were the founders, customers, and collaboration partners in the start-up phase?

2. Can you describe the main technology or products of the company?
(3) Did you collaborate with other companies/organizations in the innovation process?:
   • If so, who were the main collaboration partners? Were they local, national, or international?
(4) What was the main role (and contribution) of the collaboration partners?
(5) Did the role of the collaboration partners change over time, and if so, in what way?
(6) When did the firm start to internationalize? What were the main motives for internationalization?
(7) Can you describe how the internationalization process started (e.g. identification of market opportunities, customers) and did you draw on your network/collaboration partners in this process?

Second interview round
These questions are based on data revealed in the first-round interviews, related to the firms’ collaboration with customers in the innovation process. Do you have a policy for collaboration with external partners, e.g. customers? If so, why?:
(1) Can you explain in more detail how you initiated and developed the relationships with customers: i.e. research customers and those in other industries?
(2) Can you explain how the firm collaborates with customers in the innovation process?:
   • In which stages are customers involved: deep collaboration vs customization?
(3) Why do you want to collaborate with research customers/research institutions?:
   • What are their contributions to the firm?
(4) What are the advantages and disadvantages of customer collaboration?
(5) Can you explain further how the collaboration actually operates (e.g. involvement in which stages)?
(6) How are customers involved in the commercialization and internationalization process?

Corresponding author
Anita Ellen Tobiassen can be contacted at: anita-ellen.tobiassen@hioa.no

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Development and validation of the team influence relations scale (TIReS)

Beyond the measurement of individual influence in teams

Barbara Kozusznik, Mateusz Paliga and Barbara Smorczewska
University of Silesia in Katowice, Katowice, Poland

Damian Grabowski
SWPS University of Social Sciences and Humanities, Warsaw, Poland, and
Malgorzata Wanda Kozusznik
IDOCAL, University of Valencia, Valencia, Spain

Abstract

Purpose – The purpose of this paper is to develop and validate the Team Influence Relations Scale (TIReS), a new instrument to measure the relation of influence in a team that overcomes a predominating individual approach to influence in teams. The TIReS stems from the concepts of team subjectivity and deinfluentization that perceive influence as a collective phenomenon in a triangular influence model.

Design/methodology/approach – In the first study the authors subjected the data, gathered from 280 employees from Polish private sector companies, to the principal axis factoring analysis, yielding 12 best-fitting items loading on two factors (i.e. meaning reduction and space offering). In the second study the authors employed confirmatory factor analyses to test data from 784 workers from private sector organizations in Poland.

Findings – The results yielded a six-factor structure for the TIReS (root mean square error of approximation = 0.077, comparative fit index = 0.93, NNFI = 0.91, standardized root mean square residual = 0.073) with two sub-dimensions for each influence source in a team (i.e. the individual, the leader, the team as a whole). The results provide evidence for the internal consistency reliability of the TIReS (Cronbach’s α ranging from 0.87 to 0.95 for TIReS factors) and its satisfactory criterion-related validity.

Originality/value – The TIReS addresses a gap in currently available questionnaires to measure the relation of influence in teams considering three sources of influence in a team. The importance of team influence relations measurement is discussed.

Keywords Scale development, Teams, Deinfluentization, Team influence regulation

Paper type Research paper

Introduction

Teams are important actors in functioning and effectiveness of organizations (DeChurch and Mesmer-Magnus, 2010). Still, the predominant literature on influence in organizations considers the individual (i.e. the employee, the supervisor) as a determinant source of influence for organizational success (e.g. Bass, 1990; Haslam, 2001; Hollander, 1985; Turner, 1991). However, theoretical considerations (Biela, 1993; Kozusznik, 1996, 2005) and research (Kipnis and Schmidt, 1982; Schriesheim and Hinkin, 1990; Yukl et al., 2008) suggest that teams, as “subjective wholes,” can be also important sources of influence. Despite the importance of teams for contemporary organizations, team influence has been understudied.

The preparation of this manuscript has been supported by the project “Relational competence as a determinant of efficiency and effectiveness of inter-firm relations,” financed by the Polish National Science Centre (Decision Number DEC-012/05/B/H4/03635). The financing sponsor enabled the data collection process. The collaboration of MWK was supported by the “INN_TBE: building technologies accelerator (BTA), CPI-14-372” (2014/10900) grant.
possibly due to a limitation in measurement methods that fail to capture the complex nature of influence in teams that resides among their different constituents (i.e. the individual, the supervisor, and the team as a whole), which makes it impossible to assess the dynamics of flow or relocation of influence between different constituents of a team over time.

In order to address these limitations, the purpose of the present study is to develop and validate the Team Influence Regulations Scale (TIReS) which takes into account three influence sources in a team (i.e. the leader, the individual, the team as a whole) by including three commensurable dimensions, that could be used in different occupations. Achieving this objective would allow us to provide empirical evidence on a role of team influence to approximate with more rigor to a complex nature of team phenomena and the complexity of team dynamics, which is qualitatively novel. In practice, the TIReS would allow the detection of overuse, underuse and full use of influence by three sources available in a team and could be used to raise awareness and train teams how to make full use of their capital to achieve human and economic benefits for individuals and organizations.

The overvaluation of individual influence in organizations

The vast majority of organizations base their activity on work in teams (DeChurch and Mesmer-Magnus, 2010), where a variety of experiences, skills and knowledge meet (e.g. Guillaume et al., 2014), expecting teams to act effectively. The cornerstones of success are sought therefore both in individuals’ abilities and in a synergy effect, which is an outcome of cooperation among people in departments and projects (Euwema et al., 2015; Kozlowski and Ilgen, 2006). Undoubtedly, teams bring added value to organizations, however, companies seem not to make full use of all teams’ characteristics by overrating the individual influence and neglecting team synergy benefits (Huffmeier et al., 2014; Mathieu et al., 2008). In this way, a discord appears between the meaning given to teamwork in organizations and the excessive control that is practiced in teams by managers, supervisors, leaders, and even by ordinary workers (Nosal, 2010).

The overreliance on individual control is reflected in the fact that individual influence has become one of the most studied phenomena in organizational psychology. In the broadest sense, influence is an interactive process in which an agent attempts to convince a target to believe and/or act in certain ways, and it refers to behavioral tactics that administrators use to change attitudes and behaviors of subordinates (downward), peers (lateral), and superiors (upward) to reach organizational and personal goals (Yukl and Falbe, 1990). One of the most widely accepted conceptualizations of social power and influence is the French and Raven’s (1959) power taxonomy that considers five bases of power (i.e. reward, coercive, legitimate, referent, and expert). This taxonomy was later expanded by Raven (1992) who identified the sixth type of power (i.e. informational) and specified that “[d]istinctions were made between personal and impersonal forms of reward and coercive power, while legitimate power was partitioned into four types (i.e. position, reciprocity, equity, and dependence)” (Elias, 2008, p. 271). He identified positive and negative forms of expert and referent power and partitioned informational power into direct and indirect forms (Elias, 2008). Finally, Raven (1992) formulated the power/interaction model, offering a theoretical perspective on factors that help to determine what means of social power an individual agent (supervisor) will use when attempting to influence a target (subordinate).

Furthermore, interpersonal influence has long been recognized as a crucial element of leadership (e.g. Chemers, 2000; Fiedler, 1967; Yukl, 2010), team management (e.g. Kipnis, 1990), and a success or failure factor for teams and organizations (e.g. Bass, 1990; Haslam, 2001; Turner, 1991). Interpersonal influence is a process of social influence in which one person is able to expect support from others in accomplishment of a common task (Chemers, 2000; Yukl, 2010). Its effectiveness has been studied on the basis of the
assumption that it is best to examine narrow individual behaviors “used by power holders to change the behavior of other people” (Kipnis, 1990, p. 16) called influence tactics.

Although studies of individual influence brought many practical recommendations, this individual approach to influence has some important limitations. First, it overemphasizes a role of a manager and his/her strong influence, often overused. Second, it focuses predominantly on the relation in a manager-subordinate dyad (Barry, 2001), failing to consider a complex scenario of influence in teams that can include a collection of influences exerted by different sources of influence in and by a team (Kożusznik, 2005; Kożusznik and Polak, 2015), team influence being more than the influence exerted by a leader. Hence, the contribution of the present study is to go over and beyond the individual level of influence and investigate the team level which is oftentimes avoided by researchers because of its assumed complexity, being sometimes called the “black box” of team processes (Umans, 2008).

**Influence flow in teams: team subjectivity and deinfluentization**

The “game,” or a spontaneous flow of influence that may occur in teams, might be explained by the phenomenon of deinfluentization (DEI) (Kożusznik, 1996, 2005, 2006) grounded in the situational theories of management (Fiedler, 1967; Evans, 1970; House, 1971). DEI describes an ability, willingness and skill to regulate one’s (not only the leader’s) own influence, and particularly its withdrawal. It entails a conscious detection of influence as well as weakening, reduction, or even removal of one’s influence in the event when the influence of another person or group meets better the requirements of a situation (Kożusznik, 2006). DEI includes two dimensions: reducing one’s own meaning which refers to auto-suppressing one’s will or attempts to force or persuade someone to do something when someone else’s influence is more appropriate; and offering space for others which, among others, refers to such active behaviors as offering psychological and physical space for others to talk (e.g. by preventing talkative individuals from dominating the discussion without offending them), so that all members can participate in a discussion, taking care of the private distance or waiting out pauses.

DEI draws from Lewin’s (1952) idea of a natural and spontaneous “power game” in organizations, which is a struggle for influence among three main elements in the workplace: the leader, the individual worker, and the whole team to achieve team effectiveness. As a result of this struggle, the influence should be transmitted in a natural way to its adequate source (Lewin, 1952). For example, there are situations in which group influence is ineffective because people require the competence of the leader (Hersey and Blanchard, 1977) (i.e. a leader with low DEI). However, in a stressful or conflict situation, it is better to take advantage of leaderless discussions than to use formal authority and the influence of the leader (Maier, 1973) (i.e. a leader with high DEI). Often, we might witness an overuse of individual power and influence, especially coming from the leader, who “usurps the right” to exert influence on functioning of the team. Bearing this in mind, DEI can be referred to as a meta-skill that allows for the regulation of influence, an effective use of each element of teamwork and its potential, accomplish its tasks (Kożusznik et al., 2015; Kożusznik and Polak, 2015).

The fact that the influence can be exerted by a team as a whole refers to a phenomenon, denominated team subjectivity in organization (Biela, 1993; Kożusznik, 1996, 2005), defined as treating a team as a whole entity that functions as a unique body. A subjective team has its own “personality” (Gardner and Quigley, 2015), self-awareness, motivation, and self-development strategies, and is characterized by a spontaneous ability to regulate the influence within itself – from the manager (who plays the central role) to the distribution of power among other members. There might be some organizational factors that might allow all team elements to use their influence (Kożusznik, 1996). In this way, team subjectivity is related to the existing research on teams that indicated that the basis for proper team
functioning consists of such dimensions as: job design (Tannenbaum et al., 1992),
interdependence (Mintzberg, 1979; Shea and Guzzo, 1987), composition (Gladstein, 1984),
context (Pasmore et al., 1982; Hackman, 1987), and process (Guzzo and Shea, 1992;
Bandura, 1982). All these characteristics are creating conditions for subjectivity by allowing
all elements of a team to use their influence, which determines team effectiveness
(Koźusznik, 1996).

Measurement of influence in teams
The methods used to obtain information on different facets of influence in teams can be
classified into: scales for influence measurement oriented at the individual, mostly at a
leader (e.g. leadership styles and behavior, leadership competencies, influence tactics, or
influence profiles of team members scales); scales for influence measurement focused on
team dimensions; and scales not initially created to measure influence, however, relevant for
the study of influence in teams (e.g. shared leadership scales). Below, we briefly describe
these methods, together with their limitations.

Methods for influence measurement oriented at the individual
Leadership style and behavior questionnaires. First, numerous measures of organizational
influence comprehend interpersonal influence as an essential element of leadership
(e.g. Chemers, 2000), understood as a stable pattern of (social) influences and behaviors used
by the leader, in which one person is able to expect aid and support of others in the
accomplishment of a common task (Altmåe et al., 2013; Chemers, 2000), usually used in
gaining employee commitment (e.g. Charbonneau, 2004) or helping a group of people in
achieving their goals (Harmaakorpi and Niukkanen, 2007). These methods evaluate
leadership behavior taxonomies, leadership styles (e.g. Fiedler, 1967; Likert, 1961;
Maier, 1973; Vroom and Yetton, 1973), leadership tactics (Yukl, 2010), leadership attributes
(i.e. personality, attitudes) (Müller and Turner, 2010), or organizational influence strategies
and profiles (e.g. Kipnis and Schmidt, 1982). Finally, there are self-report methods that ask
leaders to indicate how often they performed different behaviors (Frost and Stahelski, 1988),
as well as methods that use other informants and ask employees about their perceptions of
their supervisors’ influence behaviors (e.g. Hinkin and Schriesheim, 1989).

Influence profiles and tactics of team members. To overcome some of the limitations of
leaders’ influence styles, Kipnis and Schmidt (1982) created the Profile of Organizational
Influence Strategies (POIS), considered among the first self-rating inventory of
intra-organizational influence tactics (Blickle, 2000) that captures the totality of upward
influence behaviors in organizations. It is addressed to all team members, yielding a profile
of strategies used by employees to influence their supervisors at work.

Over time, POIS was revised (Schriesheim and Hinkin, 1990) and adapted as a new
method, the Influence Behavior Questionnaire (IBQ) (Yukl et al., 2008) that refers to a stable
set of soft (e.g. rational persuasion, inspirational appeal) and hard (e.g. legitimating,
pressure) influence tactics (Mullaney, 2013; Yukl et al., 2008), as the “actual means used by
power holders to change the behavior of other people” (Kipnis, 1990, p. 16).

The limitation of the methods that measure influence strategies used by leaders or by
individual employees is that they concentrate on the influence of only one of the elements
constituting a subjective team (i.e. the leaders, the individual employees). Therefore, these
methods do not allow for assessing team influence that consists of a collection of influences
erected by each and every individual worker, by the supervisor, and by a work team as a
whole. Since the world of organizations is a world of power and influence (Yukl, 2010) and
the “game of influence” in organization (Lewin, 1952) can vary in every team, the only way
to reflect its real nature is to obtain simultaneous information on all the concurrent types of
influence from each element of the team. Also, they allow for assessing only narrow behaviors (tactics), which does not reflect the complexity of influence in a team. A specific limitation of the POIS is weak validation (Schriesheim and Hinkin, 1990) and of the IBQ is that targets of influence may perceive the tactics used on them in a different way, even if agents of influence assume that their tactics are perceived as evident (Mullaney, 2013). Simultaneously, agents may unwittingly use different influence tactics on various targets, assuming that those tactics are the same (Kramer, 2007). Also, in teams, there can be different proportions of forcing and non-forcing influence tactics (Emans et al., 2003). Finally, it is extremely important to use methods that are not limited to the self-report and to include other informants (e.g. about the supervisor’s influence), by employing a referent-shift consensus model (Chan, 1998). This recommendation, however, is not considered in existing methods.

Methods for influence measurement oriented at team dimensions
In order to shift from an individual to a team perspective and investigate the team influence on its members in terms of normative influence on team members, Jønsson and Jeppesen (2013) adapted the Hinkin and Schriesheim (1989) measure, by substituting the word “supervisor” with “team” in every item loading on five facilitative social influence dimensions (i.e. team: reward, skill support, self-approval, coercion, responsibility).

The methods oriented at team dimensions are limited since they do not allow for obtaining simultaneous information on all concurrent types of influence from all team elements and on the influence flow among them over time. Therefore, despite the importance of enabling theory to “explicitly incorporate a conceptual consideration of multiple levels and time” (Kozlowski, 2015, p. 291), these methods make it only possible to assess a “static” picture of team influence.

Relevant but not explicit methods for team influence measurement
Shared leadership scales. Furthermore, there are some relevant influence-related methods, although not directly aimed at measuring three facets of team influence (i.e. the individual, the leader, and the team). Shared leadership is a construct that is closely related to team influence since it involves different aspects specifically connected with team influence, such as share in: goal establishment, flaming, vision, problem diagnosis, decision making, determining resource allocation, determining team action, or fulfillment of team obligations. A measure that evaluates perception of shared leadership in a team is the Shared Leadership Perception Survey (Wood, 2005), built from four subscales (i.e. joint completion of tasks, mutual skill development, decentralized interaction among personnel, and emotional support). Also, the Team Multifactor Leadership Questionnaire (Avolio et al., 1995) assesses the leadership of a team by measuring the frequency of leaders’ behaviors on five dimensions (i.e. inspirational motivation, intellectual stimulation, individual consideration, management-by-exception leadership, and passive-avoidant/laissez-faire leadership). Shared Professional Leadership Inventory for Teams (Grille and Kauffeld, 2015) measures four aspects of shared leadership behavior (i.e. task leadership orientation, relation leadership orientation, change leadership orientation, and micropolitical leadership orientation). Finally, Kivipold and Vadi (2010) elaborated a questionnaire about organizational (institutional) leadership, closely related to shared leadership. The authors concluded that individual leadership (based on top-down influence) is a phenomenon unfit to modern economic environment. They created a five-dimensional (i.e. alignment and cohesion, informal communication, extent of centralization, control-feedback system, and organizational performance) measure of capability of collective leadership at the organizational level.
Other relevant, closely related scales. There are other methods that have not been conceived to measure explicitly team influence. However, they contain subscales that measure constructs clearly related to team influence. This is in the case of the exit survey method developed by Ostafichuk et al. (2014) consisting of six dimensions (i.e. unity, communications, distribution of responsibility, problem solving, conflict management and team self-evaluation). The limitations of these scales are similar to the previous ones, as they do not allow to measure the influence in three facets of the subjective team, which impedes modeling dynamics of an influence flow in a team across its different constituents.

The existing methods to measure influence can provide valuable information about aggregated individual influence in teams or the average perceived influence exerted by the team leader. However, their key limitations, coupled with suggestions of other researchers to make a shift from individual to collective tools to assess teams in order to predict team outcomes (Woolley et al., 2010), have served as an impetus for creating a new measurement tool to measure influence in teams. Therefore, the purpose of the present study is to develop and validate the TIREs, that is composed of three commensurable dimensions referring to three sources of influence in a team (i.e. the individual, the leader, and the team as a whole), and that could be used in different occupations.

Following the typology of composition models (Chan, 1998), whereas mean individual employee influence in teams can be measured using aggregated scores on the existing self-report measures (i.e. direct consensus model), team influence should be measured by applying methods that allow for using the referent-shift model. While both composition models use a within-group consensus, as indexed by an agreement of lower level attributes, to compose a lower level construct to a higher-level construct, “in referent-shift consensus composition [models], the lower level attributes being assessed for consensus are conceptually distinct though derived from the original individual-level construct” (Chan, 1998, p. 238). Indeed, influence of a team is not the same as aggregation of individual influences in the team. Therefore, there is a need for a new method that would allow for it.

Study 1: development of the TIREs scale
Items included in the TIREs questionnaire were initially selected from the 20-item DEI-beh method (Kożusznik et al., 2015) that measures different behaviors related to influence regulation in teams (see Kożusznik et al., 2015 for a detailed item pool generation process). The scale includes two subscales, meaning reduction (ten items, sample item “I remain silent although I could take part in a conversation,” Cronbach’s $\alpha = 0.78$) and Space Offering (ten items, sample item “I care about an appropriate and convenient distance between people during a conversation,” Cronbach’s $\alpha = 0.73$). The response scale ranged from 1 (never) to 7 (always).

In order to create the TIREs, we ensured that all the items would refer to three sources of influence: the individual worker, the supervisor, and the team as a whole. With this in mind, we eliminated one item and added two items that could refer to three sources of influence of our interest. Given that the TIREs scale would include three targets of evaluation (i.e. the employee, the leader, and the team) that would have to be evaluated by each employee, we aimed at retaining only the best items from the DEI-beh to optimize the length of the TIREs. To select them, in Study 1, we first explored relationships among 21 items in the item pool. Second, we ran the Exploratory Factor Analysis (EFA) to reveal the factorial structure of the TIREs. The items were required to have sufficient associations with their respective dimensions proposed in the DEI-beh (Kożusznik et al., 2015).

In total, 12 items from the DEI-beh scale selected in Study 1 measured two dimensions: meaning reduction and space offering. We used a new sample to analyze the selected 12 items, the internal consistency reliability of the subscales, as well as the subscale correlations. Also, the confirmatory factor analyses (CFA) were performed on the sample...
divided into two groups to compare the unidimensional, the three-factor, and the six-factor solution for the TIReS. Finally, we examined possible convergences of the TIReS scores with scores on other questionnaires designed to evaluate work group characteristics.

Method
Sample and procedure. In Study 1, a sample of 280 employees (93 male, 182 female; five participants failed to specify their sex) from Polish private sector companies completed the questionnaire. All participants were Polish and ranged in age from 19 to 63 years ($M = 31.94$, $SD = 10.18$). Once the companies had been contacted and agreed to participate, members of the research team administered the modified DEI-beh self-completion questionnaire to the employees who volunteered to participate in the study. We assured anonymity of the data.

Results
Item-item correlations. The inter-item correlations for all 21 items carried out using the STATISTICA software (StatSoft Inc., 2014) suggested retaining all the items, as none of them was “positively correlated with some and negatively correlated with others” (DeVellis, 2003, p. 106).

EFA. We performed the EFA using inter-correlation matrices among 21 items, the principal axis factoring analysis, and an oblique rotation by direct oblimin. These procedures yielded a six-factor structure, following the rule of eigenvalues 1.0, while the scree plot suggested a bifactorial solution, which was also theoretically well-grounded. Following Cattell’s (1966) suggestion for the scree test, we put forward a bifactorial solution to explore how the items from the remaining factors distribute in the two proposed factors. In order to obtain satisfactory structures, each item had to have significant factor loadings of 0.35 (Overall and Klett, 1972). The results of the EFA on 21 items yielded two categories explaining 34 percent of the variance of DEI behaviors. The two factors were meaning reduction and space offering that accounted for 23 and 10 percent, respectively. The average factor loadings for the items were 0.68 for the meaning reduction scale and 0.61 for the space offering scale. There were two cases of cross-loadings and one case of an insufficient loading (0.35, according to Overall and Klett, 1972) on either of the two factors. On the basis of the EFA, we selected 12 items that showed the best loading on the two factors that are displayed in the Table I.

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1 (meaning reduction)</th>
<th>Factor 2 (space offering)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is able to remain silent although they could take part in a conversation</td>
<td>0.791</td>
<td>-0.115</td>
</tr>
<tr>
<td>2. Is able to wait through a break in a conversation</td>
<td>0.636</td>
<td>-0.017</td>
</tr>
<tr>
<td>3. Is able to abstain from commenting</td>
<td>0.764</td>
<td>-0.001</td>
</tr>
<tr>
<td>4. Cares about maintaining proper space in contacts with others</td>
<td>0.213</td>
<td>0.556</td>
</tr>
<tr>
<td>5. Can diminish one’s own importance in a conversation</td>
<td>0.572</td>
<td>0.028</td>
</tr>
<tr>
<td>6. Can stop one’s statement (“bite one’s tongue”)</td>
<td>0.716</td>
<td>0.028</td>
</tr>
<tr>
<td>7. Can lower one’s gaze not to cause embarrassment to an interlocutor</td>
<td>0.548</td>
<td>0.086</td>
</tr>
<tr>
<td>8. Protects those who speak from verbal attacks</td>
<td>-0.019</td>
<td>0.591</td>
</tr>
<tr>
<td>9. Keeps an eye contact with an interlocutor</td>
<td>-0.055</td>
<td>0.592</td>
</tr>
<tr>
<td>10. Arranges space to make it comfortable for conversation participants</td>
<td>-0.083</td>
<td>0.762</td>
</tr>
<tr>
<td>11. Approves of other people’s ideas</td>
<td>0.037</td>
<td>0.542</td>
</tr>
<tr>
<td>12. Cares about appropriate and convenient distance between people</td>
<td>0.032</td>
<td>0.715</td>
</tr>
</tbody>
</table>

Notes: $n = 280$. Factor loadings of items grouped under each specific factor are italics. The Kaiser-Meyer-Olkin measure (KMO) = 0.825
Item-subscale correlation. Simultaneously, Pearson’s product-moment correlation coefficients were computed among each of the 21 items and the total corrected score of its corresponding subscale. We followed the recommendation of “Cronbach’s α if the item is deleted” that suggested excluding two items, both being indicated in the EFA as the most problematic ones.

In conclusion, the reductionist approach based on the item-item and item-subscale correlations, as well as the factor loadings in Study 1, has shown to be an appropriate application, and the initial item pool was reduced from 21 to 12 items (six from the meaning reduction scale and six from the space offering scale). The α coefficients for the final 12 selected items in this sample were 0.70 for the meaning reduction and 0.76 for space offering scale. Cronbach’s α for the global scale was 0.77, which was satisfactory (Nunnally, 1978).

Whereas the EFA is a theory-generating method that can suggest a structure for a measure (Sayers et al., 1996), the “confirmatory factor analysis is powerful because it provides explicit hypothesis testing for factor analytic problems” and it is “the more theoretically important […] of the two major factor analytic approaches” (Gorsuch, 1983, p. 134). That is why, in Study 2, we aimed at further evaluation of the items and the subscales, searching for additional information on the dimensionality of the meaning reduction and space offering scales to measure three sources of influence in teams.

Study 2: scale refinement and evaluation

Method

Sample and procedure. A sample of 784 employees (550 male, 234 female) from private sector companies completed the questionnaire. Employees aged 26-35 years accounted for 32 percent of the pool, those aged 36-45 years constituted 34 percent of all the respondents, people aged 46-55 years represented 23 percent of all the participants. The others, at the age of under 25 years and over 55 years, accounted for 11 percent of the pool. The participants were workers from companies registered in the Infoveriti database. The companies were invited to take part in the research. The participation was voluntary and anonymous. Initially, the data were gathered with the use of the Computer Assisted Telephone Interviewing method by a company specializing in data gathering. Consequently, the paper and pencil interviewing method was used by trained surveyors under the supervision of the research authors to enhance the quality of data.

Measures. TlReS. The type of influence exerted by each of the three influence sources was measured by the TlReS developed in Study 1. The 36 items of the TlReS were administered to employees who evaluated the influence regulation carried out by each of the three targets of evaluations (considered influence sources): their supervisor, their team they work in, and themselves, as well as two aspects of evaluation: meaning reduction and space offering, which all together formed six dimensions of the scale: leader’s meaning reduction (LMR, six items), leader’s space offering (LSO, six items), team’s meaning reduction (TMR, six items), team’s space offering (TSO, six items), individual’s meaning reduction (IMR, six items), and individual’s space offering (ISO, six items). Therefore, each of three targets and aspects of evaluation that correspond with a hypothetical approach to influence regulation, were assessed by the same employee. The scale was constructed and administered in Polish. The five-point response scale was used in the questionnaire, ranging from 1 (never) to 5 (always). The instruction was formulated as follows: “Indicate to what extent you agree with the following statements about your leader/manager/boss, your team (as a group of people) and yourself. Accordingly, you should answer every question three times.”

Work group characteristics measure – shortened. Work group characteristics were measured by a questionnaire based on the work group characteristics measure (Campion et al., 1993) shortened to 19 items by the research team.
of the scale was in English, it was translated into Polish by a bilingual psychologist proficient in the respective languages. The Polish version of the scale was given to a Polish work and organizational psychology professor for comments on clarity and comprehension of the items. It was then subjected to the back-translation procedure (Brislin, 1970) and compared to the original to make sure that the meaning of the items remained the same. Also, for practical reasons, the tool was shortened from 54 items loading on 19 factors to 19 items. In total, 13 expert raters (work and organizational psychologists) were asked to choose one item that – in their opinion – reflected the essence of each factor. Fleiss’ $\kappa$ of 0.36 indicates fair agreement among judges. Cronbach’s $\alpha$ was 0.85 for the global score of the shortened work group characteristics measure, 0.73 for job design scale, 0.70 for the interdependence scale, 0.72 for the composition scale, 0.69 for the context scale, and 0.79 for the process scale.

Results

Item analysis. Means and standard deviations for each subscale of the TIReS are shown in Table II. We carried out a classic item analysis and we computed item-item correlations for each of three scales. Correlations among the items in the leader regulation scale ranged from 0.31 to 0.83 ($M = 0.51$), among the items in the team regulation scale correlations ranged from 0.09 to 0.58 ($M = 0.35$), and correlations among the items in the individual influence regulation scale ranged from 0.26 to 0.73 ($M = 0.47$). Since no items with simultaneous positive and negative correlations were found, no items were excluded from the pool (see DeVellis, 2003).

Item-scale correlation. Furthermore, Pearson’s product-moment correlation coefficients were computed between each item and its corresponding TIReS dimension. All item-scale correlations were $p < 0.001$. The highest item-scale correlation was 0.86 for the dimension of LMR and Item 3 (“Is able to abstain from commenting”), the lowest was 0.57 for the dimension of TSO and Item 4 (“Cares about maintaining proper space in contacts with others”). All 36 items showed an item-scale correlation greater than 0.50 (32 of them oscillate around 0.70 and above), which indicates their satisfactory contribution to scale reliability.

Internal consistency reliability. Cronbach’s $\alpha$ coefficients for three sources of influence scales (i.e. leader, team, and individual) and for their respective subscales (i.e. meaning reduction and space offering) are shown in Table II. Cronbach’s $\alpha$ coefficients for the composite scores of the leader’s, team and individual’s influence regulation scales are 0.93, 0.87, and 0.91, respectively. All scales reached the value of more than 0.80, indicating their suitability for the scale. The results of the “$\alpha$ if deleted” suggested keeping all the items. Cronbach’s $\alpha$ for the TIReS scales ranged from 0.80 to 0.89 (mean Cronbach’s $\alpha[2] = 0.86$). In conclusion, the item-item and item-subscale correlations, as well as internal consistency reliability analyses suggested that the items emerging from the EFA constitute a cohesive scale to measure each of three sources of influence.

Confirmatory factor analysis. In order to assess whether we can find support for the proposed factor solution in the empirical data, we carried out CFA (Konarski, 2009) using Robust Maximum Likelihood estimator for covariance matrices for non-normally distributed data on a sample of 784 employees. This sample was randomly divided using Statistica software (Statsoft Inc., 2014) into two groups: A (390 persons) and B (394 persons). In the second sample, we checked the fit of a six-factor model to the data (the same models were checked in samples A and B). Since building the TIReS method is predominantly theory-based, it is recommended to carry out a cross-validation (Zawadzki, 2006), including analyses on one “learn” sample and then on another “test” sample (Wojdylo and Retowski, 2012). We applied the exhaustive cross-validation to the CFA on the two samples using Lisrel 9.1 software (Jöreskog and Sörbom, 2012).
### Table II.

<table>
<thead>
<tr>
<th>Names of factors and items</th>
<th>Leader RCS M</th>
<th>SD</th>
<th>Team RCS M</th>
<th>SD</th>
<th>Individual RCS M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1. Meaning reduction ($\alpha = 0.89$ for Leader, $\alpha = 0.80$ for team and $\alpha = 0.85$ for individual)</td>
<td>3.06 1.07</td>
<td></td>
<td>3.51 0.78</td>
<td></td>
<td>3.95 1.01</td>
<td></td>
</tr>
<tr>
<td>1. Is able to remain silent although they could take part in a conversation</td>
<td>0.83 3.13 1.18</td>
<td>0.69</td>
<td>3.68 0.78</td>
<td>0.73</td>
<td>4.10 0.99</td>
<td></td>
</tr>
<tr>
<td>2. Is able to wait through a break in a conversation</td>
<td>0.85 3.22 1.09</td>
<td>0.73</td>
<td>3.55 0.71</td>
<td>0.78</td>
<td>4.02 0.92</td>
<td></td>
</tr>
<tr>
<td>3. Is able to abstain from commenting</td>
<td>0.86 3.08 1.08</td>
<td>0.72</td>
<td>3.52 0.74</td>
<td>0.80</td>
<td>3.97 1.00</td>
<td></td>
</tr>
<tr>
<td>5. Can diminish one’s own importance in a conversation</td>
<td>0.77 3.02 0.99</td>
<td>0.71</td>
<td>3.48 0.78</td>
<td>0.78</td>
<td>3.88 0.99</td>
<td></td>
</tr>
<tr>
<td>6. Can stop one’s statement (“bite one’s tongue”)</td>
<td>0.78 2.90 1.04</td>
<td>0.71</td>
<td>3.39 0.83</td>
<td>0.74</td>
<td>3.79 1.10</td>
<td></td>
</tr>
<tr>
<td>7. Can lower one’s gaze not to cause embarrassment to an interlocutor</td>
<td>0.74 3.01 0.99</td>
<td>0.66</td>
<td>3.47 0.79</td>
<td>0.73</td>
<td>3.91 1.01</td>
<td></td>
</tr>
<tr>
<td>F2. Space offering ($\alpha = 0.89$ for leader, $\alpha = 0.81$ for team and $\alpha = 0.89$ for individual)</td>
<td>3.11 1.00</td>
<td></td>
<td>3.50 0.78</td>
<td></td>
<td>4.00 0.99</td>
<td></td>
</tr>
<tr>
<td>4. Cares about maintaining proper space in contacts with others</td>
<td>0.75 3.13 1.04</td>
<td>0.57</td>
<td>3.52 0.78</td>
<td>0.65</td>
<td>3.98 0.94</td>
<td></td>
</tr>
<tr>
<td>8. Protects those who speak from verbal attacks</td>
<td>0.78 3.04 0.95</td>
<td>0.72</td>
<td>3.49 0.75</td>
<td>0.82</td>
<td>3.97 1.02</td>
<td></td>
</tr>
<tr>
<td>9. Keeps an eye contact with an interlocutor</td>
<td>0.78 3.17 1.03</td>
<td>0.74</td>
<td>3.50 0.78</td>
<td>0.83</td>
<td>3.98 1.00</td>
<td></td>
</tr>
<tr>
<td>10. Arranges space to make it comfortable for conversation participants</td>
<td>0.85 3.09 0.96</td>
<td>0.78</td>
<td>3.48 0.78</td>
<td>0.85</td>
<td>3.99 1.00</td>
<td></td>
</tr>
<tr>
<td>11. Approves of other people’s ideas</td>
<td>0.82 3.09 0.99</td>
<td>0.75</td>
<td>3.48 0.78</td>
<td>0.82</td>
<td>3.99 0.99</td>
<td></td>
</tr>
<tr>
<td>12. Cares about appropriate and convenient distance between people</td>
<td>0.84 3.11 0.98</td>
<td>0.75</td>
<td>3.55 0.81</td>
<td>0.83</td>
<td>4.07 0.98</td>
<td></td>
</tr>
<tr>
<td>Composite TIReS score</td>
<td>3.08 1.03</td>
<td></td>
<td>3.51 0.78</td>
<td></td>
<td>3.97 1.00</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** $n = 784$. TIReS, team influence regulation scale
In order to assess the fit of the model, we examined the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the normed fit index (NFI), and the standardized root mean square residual (SRMR) (Schermelleh-Engel et al., 2003). Cutoff values of 0.06 for RMSEA; of 0.95 for CFI and NFI; and of 0.08 for SRMR indicate an excellent fit between the hypothesized model and the observed data, whereas, we considered an acceptable fit of a model that fulfills the following criteria: RMSEA \( \leq 0.08 \), CFI \( \geq 0.90 \), NFI \( \leq 0.10 \) (Browne and Cudeck, 1992; Byrne, 2010; Hox and Bechger, 1998; Hu and Bentler, 1998; MacCallum et al., 1996; Schermelleh-Engel et al., 2003).

We tested and compared the fit of three alternative models: a single-factor model; a three-factor model; and a six-factor model. In the single-factor model, all 36 items loaded on a single factor. In the second three-factor model, there were three factors: leader’s DEI, team’s DEI, and employee’s DEI. Each of these three factors had 12 items loading on them. In the six-factor model, there were six factors: LMR (six items), LSO (six items), TMR (six items), TSO (six items), IMR (six items), and ISO (six items). The six-factor model obtained the best fit (\( \chi^2 = 2,123.87; \chi^2/df = 3.67; \text{RMSEA} = 0.083; \text{CFI} = 0.92; \text{NFI} = 0.90; \text{SRMR} = 0.076 \)) with SRMR lower than 0.08, as well as CFI and NFI satisfying the criterion of 0.90 in the first sample, in comparison to the three-factor model (\( \chi^2 = 3,038.36; \chi^2/df = 5.14; \text{RMSEA} = 0.10; \text{CFI} = 0.88; \text{NFI} = 0.85; \text{SRMR} = 0.077; \Delta \chi^2 = 914.49, p < 0.001 \)) and the single-factor model (\( \chi^2 = 10,708.59; \chi^2/df = 18.02; \text{RMSEA} = 0.21; \text{CFI} = 0.49; \text{NFI} = 0.48; \text{SRMR} = 0.20; \Delta \chi^2 = 8,584.72, p < 0.001 \), as compared to the three-factor model). In the second sample, we verified the fit of one-, three-, and six-factor models to the data and, again, the six-factor model obtained the best fit (\( \chi^2 = 1,944.58; \chi^2/df = 3.36; \text{RMSEA} = 0.077; \text{CFI} = 0.93; \text{NFI} = 0.91; \text{SRMR} = 0.073 \) ) (see Figure 1). Although in the first sample, the RMSEA slightly surpassed the cut-point of 0.08, the other fit indices suggested an acceptable fit. Also, in the second sample, all the indices showed an acceptable fit. All this makes us consider the six-factor solution adequate for the TIReS.

In addition, we carried out a multiple-group CFA (3) following the guidelines of Milfont and Fischer (2010) to check whether the TIReS tool is invariant in different groups of Polish employees. To this end, we made a comparison of three models of the full TIReS method: configural invariance; metric invariance; and scalar invariance, in two groups of employees: group A (n = 390) and group B (n = 394). As Cheung and Rensvold (2002) demonstrated, when testing across two groups, a change in the value of CFI \( \leq 0.01 \) indicates that the null hypothesis of invariance should not be rejected, that means that there is measurement equivalence. The results of the multiple-group CFA indicated that there is metric invariance of the TIReS in two groups of employees (df \( = 1208; \chi^2 = 4,118.30; \Delta \chi^2 = 37.67; \text{RMSEA} = 0.078; \text{CFI} = 0.93; \Delta \text{CFI} = 0.00; \text{TLI} = 0.92; \Delta \text{TLI} = 0.00 \), which means that the TIReS instrument measures the same psychological construct in both groups (Milfont and Fischer, 2010).

Criterion-related validity. Next, criterion validity of the TIReS was conducted by relating the TIReS to the shortened Work Group Characteristics Measure (Campion et al., 1993). The levels and the correlations between variables can be found in Table III. High scores in Work Group Characteristics Measure suggest high team effectiveness. The results indicate a positive correlation between the ability to reduce influence by a team with all effectiveness characteristics, except the category of Composition. Also, as shown in Table III, readiness to reduce influence by the manager and the team is related to effectiveness characteristics grouped in categories such as: job design, interdependence, context, and process.

Discussion

The purpose of this study was to develop the TIReS, a new compact tool grounded in situational theories of management (Fiedler, 1967; Evans, 1970; House, 1971), to measure the relation of influence in teams considering three sources of influence in a team, including: the
Development and validation of the TIReS

individual, the leader, and the team as a whole, and general enough to be used across a variety of professions and organizations. To our knowledge, this is the first tool aimed at assessing influence regulation by these three agents of influence in a team. The results suggest the TIReS is valuable for theory and practice given its good psychometric properties.

Note: Factor loadings (standardized solution $\lambda - X$, $X - X$) for each item

Figure 1. Confirmatory factor analysis model
The CFA shows a six-factor structure of the influence regulation that is carried out by all three elements of a team (i.e. the leader, the individual, and the team) as evaluated by employees, including two aspects of influence regulation (i.e. meaning reduction and space offering), which resonates with the theory of regulation of social influence in organization termed deinfluentization (DEI) (Kozusznik, 1996, 2005, 2006). The procedure adopted in the current study includes carrying out an EFA on one sample (Study 1) and a cross-validation using CFA on two different samples (Study 2), which is a relevant and valuable procedure used for scale validation (see, e.g. Lim et al., 2007; Wojdylo and Retowski, 2012).

The internal consistency reliability is considered highly satisfactory. The analysis of criterion-related validity shows significant correlations between several TIReS factors and the shortened Work Group Characteristic Measure, giving support to our thesis that such job-related factors as job design (Tannenbaum et al., 1992), interdependence (Mintzberg, 1979; Shea and Guzzo, 1987), composition (Gladstein, 1984), context (Pasmore et al., 1982; Hackman, 1987), and process (Guzzo and Shea, 1992; Bandura, 1982) can be creating conditions for

<table>
<thead>
<tr>
<th></th>
<th>Global leader DEI</th>
<th>LMR</th>
<th>LSO</th>
<th>Global team DEI</th>
<th>TMR</th>
<th>TSO</th>
<th>Global individual DEI</th>
<th>IMR</th>
<th>ISO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job design</strong></td>
<td>0.23</td>
<td>0.20</td>
<td>0.24</td>
<td>0.40</td>
<td>0.33</td>
<td>0.38</td>
<td>0.12</td>
<td>0.10</td>
<td>0.11</td>
</tr>
<tr>
<td>Self-management</td>
<td>0.15</td>
<td>0.14</td>
<td>0.14</td>
<td>0.25</td>
<td>0.21</td>
<td>0.24</td>
<td>0.09</td>
<td>0.08</td>
<td>0.09</td>
</tr>
<tr>
<td>Participation</td>
<td>0.14</td>
<td>0.09</td>
<td>0.18</td>
<td>0.31</td>
<td>0.24</td>
<td>0.32</td>
<td>0.14</td>
<td>0.11</td>
<td>0.14</td>
</tr>
<tr>
<td>Task variety</td>
<td>0.13</td>
<td>0.11</td>
<td>0.12</td>
<td>0.35</td>
<td>0.31</td>
<td>0.31</td>
<td>0.14</td>
<td>0.13</td>
<td>0.14</td>
</tr>
<tr>
<td>Task significance</td>
<td>0.20</td>
<td>0.18</td>
<td>0.19</td>
<td>0.25</td>
<td>0.20</td>
<td>0.24</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Task identity</td>
<td>0.21</td>
<td>0.18</td>
<td>0.21</td>
<td>0.22</td>
<td>0.19</td>
<td>0.21</td>
<td>−0.03</td>
<td>0.00</td>
<td>−0.06</td>
</tr>
<tr>
<td><strong>Interdependence</strong></td>
<td>0.24</td>
<td>0.26</td>
<td>0.18</td>
<td>0.14</td>
<td>0.15</td>
<td>0.11</td>
<td>−0.07</td>
<td>−0.01</td>
<td>−0.12</td>
</tr>
<tr>
<td>Task interdependence</td>
<td>0.21</td>
<td>0.23</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
<td>0.14</td>
<td>−0.07</td>
<td>−0.03</td>
<td>−0.10</td>
</tr>
<tr>
<td>Goal interdependence</td>
<td>0.20</td>
<td>0.21</td>
<td>0.15</td>
<td>0.13</td>
<td>0.12</td>
<td>0.11</td>
<td>−0.03</td>
<td>0.02</td>
<td>−0.07</td>
</tr>
<tr>
<td>Interdependent feedback</td>
<td>0.16</td>
<td>0.17</td>
<td>0.11</td>
<td>0.05</td>
<td>0.07</td>
<td>0.02</td>
<td>−0.07</td>
<td>−0.02</td>
<td>−0.11</td>
</tr>
<tr>
<td>Composition</td>
<td>0.04</td>
<td>0.10</td>
<td>−0.02</td>
<td>0.01</td>
<td>−0.05</td>
<td>−0.11</td>
<td>−0.04</td>
<td>−0.15</td>
<td>−0.15</td>
</tr>
<tr>
<td>Heterogeneity</td>
<td>0.07</td>
<td>0.10</td>
<td>0.03</td>
<td>−0.01</td>
<td>0.01</td>
<td>−0.03</td>
<td>−0.12</td>
<td>−0.08</td>
<td>−0.14</td>
</tr>
<tr>
<td>Flexibility</td>
<td>−0.01</td>
<td>0.06</td>
<td>−0.08</td>
<td>−0.05</td>
<td>−0.02</td>
<td>−0.07</td>
<td>−0.05</td>
<td>0.00</td>
<td>−0.09</td>
</tr>
<tr>
<td>Size</td>
<td>−0.06</td>
<td>0.00</td>
<td>−0.11</td>
<td>−0.10</td>
<td>−0.05</td>
<td>−0.13</td>
<td>−0.08</td>
<td>−0.03</td>
<td>−0.12</td>
</tr>
<tr>
<td>Pref. for group work</td>
<td>0.13</td>
<td>0.15</td>
<td>0.09</td>
<td>0.09</td>
<td>0.10</td>
<td>0.07</td>
<td>−0.07</td>
<td>−0.02</td>
<td>−0.10</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>0.34</td>
<td>0.36</td>
<td>0.26</td>
<td>0.27</td>
<td>0.26</td>
<td>0.23</td>
<td>−0.03</td>
<td>0.02</td>
<td>−0.07</td>
</tr>
<tr>
<td>Training</td>
<td>0.29</td>
<td>0.36</td>
<td>0.18</td>
<td>0.16</td>
<td>0.17</td>
<td>0.11</td>
<td>−0.10</td>
<td>−0.04</td>
<td>−0.14</td>
</tr>
<tr>
<td>Managerial support</td>
<td>0.26</td>
<td>0.26</td>
<td>0.23</td>
<td>0.26</td>
<td>0.23</td>
<td>0.23</td>
<td>0.02</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>Communic. between groups</td>
<td>0.24</td>
<td>0.22</td>
<td>0.22</td>
<td>0.23</td>
<td>0.21</td>
<td>0.21</td>
<td>0.02</td>
<td>0.06</td>
<td>−0.03</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>0.28</td>
<td>0.30</td>
<td>0.21</td>
<td>0.22</td>
<td>0.20</td>
<td>0.19</td>
<td>0.04</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>Potency</td>
<td>0.23</td>
<td>0.24</td>
<td>0.19</td>
<td>0.17</td>
<td>0.15</td>
<td>0.16</td>
<td>0.01</td>
<td>0.03</td>
<td>−0.01</td>
</tr>
<tr>
<td>Social support</td>
<td>0.24</td>
<td>0.25</td>
<td>0.18</td>
<td>0.20</td>
<td>0.18</td>
<td>0.18</td>
<td>0.03</td>
<td>0.04</td>
<td>0.01</td>
</tr>
<tr>
<td>Work sharing</td>
<td>0.22</td>
<td>0.24</td>
<td>0.17</td>
<td>0.18</td>
<td>0.17</td>
<td>0.15</td>
<td>0.04</td>
<td>0.05</td>
<td>0.03</td>
</tr>
<tr>
<td>Communic. within group</td>
<td>0.19</td>
<td>0.22</td>
<td>0.14</td>
<td>0.14</td>
<td>0.13</td>
<td>0.12</td>
<td>0.06</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Work group characteristic measure – shortened</strong></td>
<td>0.31</td>
<td>0.33</td>
<td>0.24</td>
<td>0.29</td>
<td>0.27</td>
<td>0.25</td>
<td>0.00</td>
<td>0.04</td>
<td>−0.05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMR</th>
<th>LSO</th>
<th>TMR</th>
<th>TSO</th>
<th>IMR</th>
<th>ISO</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.69</td>
<td>0.23</td>
<td>0.18</td>
<td>0.15</td>
<td>−0.18</td>
<td>0.33</td>
</tr>
<tr>
<td>0.23</td>
<td>0.18</td>
<td>0.70</td>
<td>0.33</td>
<td>0.37</td>
<td>0.81</td>
</tr>
<tr>
<td>−0.25</td>
<td>−0.23</td>
<td>0.24</td>
<td>0.37</td>
<td>−0.69</td>
<td>−0.18</td>
</tr>
</tbody>
</table>

**Notes:** n = 784. L_MR, leader’s meaning reduction; L_SO, leader’s space offering; T_MR, team’s meaning reduction; T_SO, team’s space offering; I_MR, individual’s meaning reduction; I_SO, individual’s space offering. Correlations 0.08 and above are significant at p < 0.05, and correlations above 0.11 are significant at p < 0.001.

The CFA shows a six-factor structure of the influence regulation that is carried out by all three elements of a team (i.e. the leader, the individual, and the team) as evaluated by employees, including two aspects of influence regulation (i.e. meaning reduction and space offering), which resonates with the theory of regulation of social influence in organization termed deinfluentization (DEI) (Kozusznik, 1996, 2005, 2006). The procedure adopted in the current study includes carrying out an EFA on one sample (Study 1) and a cross-validation using CFA on two different samples (Study 2), which is a relevant and valuable procedure used for scale validation (see, e.g. Lim et al., 2007; Wojdylo and Retowski, 2012).

The internal consistency reliability is considered highly satisfactory. The analysis of criterion-related validity shows significant correlations between several TIReS factors and the shortened Work Group Characteristic Measure, giving support to our thesis that such job-related factors as job design (Tannenbaum et al., 1992), interdependence (Mintzberg, 1979; Shea and Guzzo, 1987), composition (Gladstein, 1984), context (Pasmore et al., 1982; Hackman, 1987), and process (Guzzo and Shea, 1992; Bandura, 1982) can be creating conditions for
subjectivity by allowing all team elements to use their influence, which impacts team effectiveness (Koźusznik, 1996). Also, significant negative correlations between the factors of leader’s and individual’s influence regulation, as well as positive and significant correlations between the factors of team’s influence regulation and leader’s and individual’s team regulation can be an illustration of the fact that the questionnaire measures “the power game” (Lewin, 1952) phenomenon.

In general, the results show that a team is able to exert influence, which goes in line with the idea of subjectivity in teams (Biela, 1993; Koźusznik, 1996, 2005) that understands a team as an entity that functions as a unique body. Also, they expand the individual concept of DEI that refers to the ability, willingness and skill to regulate one’s influence (Koźusznik, 2005, 2006) to include collectivities, such as entire teams, showing that the influence a team can regulate includes two dimensions: meaning reduction and space offering.

The present study is in accord with the approaches to leadership positing that the most adequate source of influence may vary depending on situational characteristics (e.g. Hersey and Blanchard, 1977; Maier, 1973). Since the aim of influence reduction is to use the influence of those “players in the game of influence” (i.e. the leader, the individual, the team) that is more effective for the requirements of a situation (Koźusznik, 2006), we might expect that a team that is able to reduce its own influence is more likely to be effective (Koźusznik, 1996).

Also, the results give support to the suggestion in the extant literature that it is possible to overcome limitations in the research in the area of influence based exclusively on influence tactics (Mullaney, 2013; Yukl, 2010) and complement it with a study of a spontaneous game of influence (Lewin, 1952). In this way, the present study goes beyond the individual level of influence and, through investigating complexities at the team level, helps to open the “black box” of team processes (Umans, 2008).

The results suggest it is legitimate to use the TIReS to assess team as independent entities that are more than the sum of their parts, where synergy effects appear to be key for organizational success (Euwema et al., 2015; Kozlowski and Ilgen, 2006). Through the use of the TIReS, we may be able to overcome the limiting tendency in the organizations to overrate the individual influence and neglect team synergy benefits, which impedes making full use of all teams’ characteristics (Huffmeier et al., 2014; Mathieu et al., 2008). Finally, the possibility to measure the influence exerted by all three elements of a team using the TIReS could help to establish a relationship between different proportions of forcing and non-forcing influence tactics and positive team outcomes, as suggested by Emans et al. (2003). We suggest all these issues should be addressed more in depth in future research.

The TIReS method has several contributions. First, it overcomes the limitation of the existing methods that do not allow assessing team influence that consists of a collection of influences exerted by all the elements of a team (i.e. the leader, the individual, and the team as a whole). Second, in contrast to the existing methods, the TIReS makes it possible to assess much more than narrow behaviors (tactics), which helps to reflect the complexity of influence in a team. Third, it can be administered to different informants (i.e. employees, supervisors), allowing for spotting differences in perceptions of supervisors’ influence by their subordinates in such cases when supervisors unwittingly use different influence tactics on various targets, assuming that those tactics are the same (Kramer, 2007). Fourth, the TIReS is not limited to leader’s self-report when evaluating leader’s influence as it employs the referent-shift consensus model (Chan, 1998), which is not considered in the existing methods to measure influence in teams. Fifth, the TIReS allows obtaining simultaneous information on different concurrent types of influence from each element of the team. In this way, the TIReS can be employed in studies on the influence flow and dynamics among the individual, the supervisor, and the team as a whole, which enables theory to study dynamics, “explicitly incorporate a conceptual consideration of multiple levels and time” (Kozlowski, 2015, p. 291), and study the influence game (Lewin, 1952) that
can take place between three sources of influence in teams. This might be possible if using the TIReS in adequate research design (e.g. diary, experience sampling methods) that offer capturing the dynamics of phenomena in the moment, or right after they occur. This would help us provide empirical evidence on the dynamic character of theoretical models and approximate with more rigor to the complexities of the relationships studied, which is qualitatively novel. Finally, the creation of the TIReS addresses the need to approach the study of organizations with collective instruments. Specifically, as Kivipold and Vadi (2010) and Woolley et al. (2010) suggest, there should be a shift from individual to collective tools to assess team effectiveness and to make use of the full potential at the level of team.

The TIReS opens new possibilities for research, as it allows for studying configurations of influence stemming from its three different sources in teams that may form collective patterns, understanding of which may be necessary to capture the complex nature of influence in a team. First, future research should make a shift from studying individual influence to studying team influence in order to explore the full potential of team influence relations. Second, researchers should investigate what configurations of the leader’s, team and individual’s influence are best suited for different situational, organizational and environmental demands, as well as associated with team effectiveness in different contexts and different types of teams (e.g. rescue teams, research teams, anti-terrorist teams). Finally, researchers should employ designs that allow modeling dynamics of team influence over time.

Interpretations based on this study should require caution due to some limitations. First, in our study we used a convenience sample, and future research should study influence regulation in teams using broader samples. Second, a minor issue in our study was the case of one item with a slight cross-loading in the EFA concerning the secondary factors. However, the cross-loading was kept to a minimum and the following analyses (CFA, Cronbach’s α coefficients, and criterion validity) supported the loadings of the items on their corresponding factors. Finally, as it was mentioned, the results show no correlation between individual’s ability to regulate influence and team effectiveness. This issue should be resolved in future research.

The present study has also practical implications. The team is a field where people with a variety of experiences, skills and knowledge meet (e.g. Guillaume et al., 2014). Therefore, this area may be convenient for emergence of different concepts or ideas. The prerequisite, however, is the organization of the team in a way that allows each person’s influence to exist and to be used (Koźusznik, 2005). Without knowledge of who has (or may have) the influence in a team and how this influence can be regulated, the team, despite its great potential, may never be effective. The TIReS allows for detection of overuse, underuse and the full use of influence by three sources available in a team, which is the basis for its effectiveness. The TIReS can be used to raise awareness, and, subsequently for learning and training teams and their leaders how they should work to make full use of their capital. First, leaders should make it evident to their subordinates that a team is a place of fight for influence (see Lewin, 1952), and that we should civilize this fight and not allow for an overuse of influence exerted by a single source. Second, leaders should be conscious of the situation and ensure that the influence is adequate for its needs. Finally, leaders should respect the value of each source of influence and not overestimate their own influence, as it is often the case. Finally, organizations should offer training courses in the topics commented above, engaging in the search of good practices.

Conclusions
There are multiple factors responsible for organizational success and effectiveness. For example, some researchers and practitioners suggest that the effectiveness of modern organizations depends on the level of their financial resources. Others claim that success is determined by properties of individual workers: their education, creativity, and independence.
However, it is known that individual triumphs are rare, and that effectiveness depends primarily on a good organization of work in teams. Therefore, only a combination of individual resources of employees, their skills, knowledge and talents, along with good team management, can give developmental, innovative, and synergistic solutions. In this way, the TIReS allows for detection of overuse, underuse and the full use of spontaneous and balanced influence by three influence sources available in a team, which might enable positive processes resulting in team and organizational effectiveness.

Notes

1. Since factor loadings are essentially correlations, they cannot be directly averaged (Fisher, 1915). In order to average them, we first converted their values to standard (z) scores, averaged them, and then converted back to correlations. We thank the anonymous reviewer for this suggestion.

2. Since Cronbach’s α reliabilities are essentially correlations, they cannot be directly averaged (Fisher, 1915). In order to average them, we first converted the Cronbach’s α values to standard (z) scores, averaged them, and then converted to correlations. We thank an anonymous reviewer for this suggestion.

3. We appreciate the suggestion of the anonymous reviewer to carry out this analysis.

References


**Corresponding author**

Małgorzata Wanda Kozusznik can be contacted at: malgorzata.kozusznik@uv.es

For instructions on how to order reprints of this article, please visit our website: [www.emeraldgrouppublishing.com/licensing/reprints.htm](http://www.emeraldgrouppublishing.com/licensing/reprints.htm)

Or contact us for further details: permissions@emeraldinsight.com
The mediating effects of ego-resilience in the relationship between organizational support and resistance to change

Aristides Isidoro Ferreira
ISCTE – Instituto Universitário de Lisboa, Lisboa, Portugal
Carla Cardoso
Instituto do Emprego e Formação Profissional, IP, Cascais, Portugal, and
Timo Braun
School of Business & Economics, Freie Universität Berlin, Berlin, Germany

Abstract
Purpose – This study drew upon conservation of resources and organizational support theory to develop a deeper understanding of the antecedents of affective and behavioral reactions to change processes. The purpose of this paper is to construct a theoretical framework based on previous findings of change management research to suggest that the relationship between organizational support and resistance to change is mediated by ego-resilience. This framework was then validated empirically.

Design/methodology/approach – To test this model, the mediation relationship was examined using regression analysis with bootstrapping. The sample consisted of 323 employees from private and public organizations.

Findings – The results confirmed that the relationship between organizational support and affective and behavioral reactions to imposed change is mediated by ego-resilience. The theoretical model was thus validated for use in future research.

Research limitations/implications – This study’s findings have implications for organizations regarding how managers guide their employees through change processes. The research’s limitations arise from the use of convenience non-probability sampling and cross-sectional, self-reported data, which only allow for a tentative generalizability of the results.

Originality/value – The findings show that organizational change processes are affected by factors on both the individual (i.e. ego-resilience) and organizational level (i.e. organizational support). This study’s results thus provide empirical support for the conclusion that ego-resilience mediates the indirect relationship between organizational support and employees’ resistance to change.

Keywords Personality, Resistance to change, Supervisory support, Change processes, Developmental rewards, Ego-resilience

Paper type Research paper

Introduction
Research on organizational change has focused on employees’ varied reactions to change processes, such as their attitudes and behavioral responses (Akhtar et al., 2016; Battistelli et al., 2014; Shin et al., 2012; Straatmann et al., 2016). The literature confirms that organizational changes (e.g. restructuring, downsizing, outsourcing, and introducing new technologies in the workplace) have implications for organizations’ relationships with employees and vice versa (Akhtar et al., 2016). More importantly, individuals’ resistance to change is considered a determining factor regarding employees’ reactions to situational variables (Oreg, 2003).

Organizational changes can be defined as modifications of work routines and/or strategies (Herold and Fedor, 2008), which are frequently introduced to improve performance (Van den Heuvel et al., 2010) and which can differ in type and magnitude (Tichy, 1983).

This work was supported by the Fundação para a Ciência e a Tecnologia (Grant UID/GES/00315/2013).
Individual resistance to change is regularly observed (Gilley et al., 2009), even though any consequences of the failure to adapt to change tend to fall back on the respective employee (e.g. Bovey and Hede, 2001). That this behavior is relatively common among employees can be explained by their desire for consistency and negative attitude toward any form of change, which reflect individuals' feelings of insecurity (Oreg et al., 2008).

Piderit (2000) claimed that resistance to change is a complex issue that requires a multidimensional approach to this construct. Multidimensional and interdependent factors lead to individuals' natural inclination to resist change, so Oreg (2003) argued that this notion needs to be analyzed in terms of three components. These are as follows: an affective dimension reflecting what individuals feel about change, a cognitive dimension revealing what individuals think about change, and a behavioral dimension involving actions or anticipated actions in response to change.

These dimensions are somewhat interconnected so that, for instance, an employee who has a positive attitude toward an announced change process will most likely implement the required changes at the behavioral level. The behavioral dimension is particularly critical for organizations since it is directly related to the quality of employees' performance of organizational tasks and – in terms of the relevant business models – the value attributed to these tasks (Todnem, 2005). Organizations, therefore, need to implement change processes in a way that encourages employees to act in line with the intended change.

Previous research has shown that employees' perceived organizational support (POS) can be an important factor in this context (e.g. Settoon et al., 1996). However, the literature lacks studies that integrate both contextual and personality variables explaining reactions to change. According to Hobfoll et al. (2015, p. 176), “psychologists most typically study individuals, [so] their lens focuses on individuals and ignores this critical aspect of context.” In contrast, the literature on management usually emphasizes contextual and environmental variables (Pardo del Val and Martinez Fuentes, 2003). The present research thus sought to fill significant gaps in the literature by forging an interdisciplinary link between the literature on organizational behavior (i.e. individual variables of ego-resilience) and contextual variables of organizational support.

This study understood organizational support as involving the supervisory support of and rewards for employees' development, encouraging them to act as expected. However, due to certain aspects of employees' resilience, this support can also trigger adversarial emotional reactions. Thus, the central research questions of the study were as follows:

RQ1. How does organizational support relate to resistance to change, and how is this relationship indirectly influenced by employees' ego-resilience?

Individuals can react to change processes in distinct ways, depending on how organizational support is provided. Concurrently, individual characteristics can boost or weaken the effects of organizational change (Judge et al., 1999). Scholars have previously sought to explain which factors hinder successful change processes (e.g. Battistelli et al., 2014; Shin et al., 2012). However, the interdependent influence of organizational support and individual ego-resilience on employees' capacity to overcome their resistance to change has not yet been exhaustively studied.

The main goals of the present research were, therefore, to test how different modes of organizational support (e.g. supervisory support and developmental rewards) relate to ego-resilience and how these factors influence both collective and individual affective and behavioral resistance to change. The theoretical model developed integrated a broad range of theoretical perspectives, with an emphasis on conservation of resources theory (COR) (Hobfoll, 1988, 2001) and organizational support theory (OST) (Eisenberger et al., 1986). The present study thus included the central hypothesis that organizational support reduces resistance to change.

According to COR, when employees perceive that their resources are threatened (e.g. due to changing environmental circumstances), they may fear the loss of status, position,
We thus posited that the indirect effect of organizational support on reactions to change is an important issue. Individual variables, such as ego-resilience, might explain why some managers are more or less successful when they use organizational support to lower individuals’ resistance to organizational change (Battistelli et al., 2014). Employees with ego-resilient personalities can adapt—and respond with greater flexibility—to different scenarios.

Based on the existing research on resistance to change processes, we sought to extend prior knowledge regarding COR in organizational change research (e.g. Shin et al., 2012). We thus proposed a theoretical framework that shows how organizational support (i.e. developmental rewards and supervisory support) indirectly reduces resistance to change through increased ego-resilience in employees (see Figure 1). We then tested this framework to validate it for use in subsequent studies in the field of change management.

This study contributes to fill knowledge gaps in the literature on management in at least three distinct ways. First, the findings make an important contribution to research on resistance to change and to the literature on COR by providing details on specific forms of organizational support (i.e. developmental rewards and supervisory support). The results demonstrate that managerial tools develop ego-resilience in employees, which can lead to less resistance to change.

Second, another important contribution with implications for managers is the connection between contextual variables (i.e. organizational support) and individual variables (i.e. ego-resilience) in the literature on change management. These areas have been treated as stand-alone variables in several publications on change management. Connecting contextual variables and personality traits is thus new research territory explored in this study.

Finally, the present research’s findings contribute to the literature on personality by showing how ego-resilience can mediate the relationship between organizational support (i.e. developmental rewards and supervisory support) and resistance to change. To the best of our knowledge, no previous study has investigated the issue of how organizational support relates to ego-resilience. This study, therefore, is the first attempt to understand how a personality trait can mediate the relationship between organizational support and resistance to change.

![Figure 1. Proposed theoretical framework](image-url)
In the next section, we introduce the major lines of research in this field and develop our hypotheses. The third section then presents the methodology adopted in this study. To test the proposed model, the mediation relationships in question were analyzed using bootstrapping. After presenting the results, we discuss their implications for change management research and for organizations that seek to implement change.

**Theoretical background and hypotheses**

*Resistance to change*

Resistance to change has been studied extensively in the fields of general and strategic management. The literature shows a consensus that this resistance causes delays and incurs extra costs within organizational change processes (Ansoff, 1990). Change resistance is difficult to anticipate, but it needs to be considered in managerial decisions and actions (Pardo del Val and Martínez Fuentes, 2003). Researchers have also examined resistance to change as a source of useful information that helps managers to learn how to develop more effective change processes (Piderit, 2000). Ultimately, organizations need to consider this resistance seriously to gain the intended advantages of transformation processes.

Resistance to change has been studied mostly in separate individuals, groups, and organizations (Todnem, 2005). These studies have not accounted for the interrelatedness of organizational practices, such as organizational support, and variables on the individual level, such as ego-resilience. The present research also examined resistance to change among individuals but included organizational antecedents and focused, in particular, on the possible implications of resistance for organizations.

In this context, Oreg’s (2003) three-dimensional conceptualization of change resistance was selected as an adequate approach to this phenomenon. The cited model captures not only behavioral aspects, which are particularly relevant to organizations, but also emotional features, which reflect the personality of individuals. According to Oreg (2003), the affective dimension describes emotional reactions to imposed changes — especially transformations that can cause discomfort and stress for individuals. The cited author’s model also encompasses a short-term focus, which reflects individuals’ tendency to think about how much change can threaten the status quo, as well as their inability to see beneficial long-term implications. This cognitive rigidity manifests itself as mental inflexibility, which makes it difficult for individuals to change their way of thinking readily (Oreg, 2003).

Finally, behavioral resistance to change comprises the difficulties individuals experience in abandoning established habits and routines, by which they seek to avoid whatever might disrupt their lives. Employees thus experience strain due to inevitable organizational changes (Kotter and Cohen, 2002), so managers must understand the tools they can use at these times to reduce their employees’ stress levels and increase their commitment to change (Shin et al., 2012).

According to COR (Hobfoll, 1988, 2001), individuals accumulate the necessary resources (see also Hobfoll et al., 2015) to accommodate, overcome, or withstand threats. These personal resources can include self-esteem and optimism, as well as material resources, such as money or resources related to social status or social support. Stressful or traumatic events consume these resources, thereby augmenting individuals’ sensitivity to subsequent stressors.

COR explains that when individuals perceive their resources as under threat or difficult to replenish, they tend to develop several strategies to retain, protect, or obtain valued resources. Individuals’ stress levels rise when this perception because large amounts of energy are needed to mobilize coping behavior that protect them against the possibility of losing resources. People who have access to more resources are less susceptible to vulnerable situations, allowing them to cope with stressful events, such as change processes (Shin et al., 2012).

Managers can use various strategies, such as communication, sanctions, persuasion, or active participation, to reduce their employees’ fear of losing resources and consequent
resistance to imposed change processes (e.g. Nutt, 1986). However, the literature reveals no
consensus yet regarding the efficacy of these strategies (Huy et al., 2014). For example, the
application of sanctions and organizational support of employees has produced
controversial results in previous research (Nutt, 1986; Poole et al., 1989).

In addition, Oreg (2003) found that changes, such as new offices, provoke behavioral and
affective resistance, which the cited author argues is related to the nature of the change.
In another study, Oreg et al. (2008) confirmed that the cognitive dimension of resistance to
change is tied to other employee characteristics, such as tenacity and dogmatism. Further
antecedents and implications have been discovered by a range of authors. For example,
Bovey and Hede (2001) revealed that 44 percent of the variance in resistance to
organizational change is explained by ideas and emotions unfounded in reality. Other
authors (e.g. Morris et al., 2002) have similarly emphasized the affective nature of change-
related behavior.

These findings indicate that cognitive resistance is less likely to be weakened by
organizational stimuli or actions. The present study, therefore, focused primarily on the
affective and behavioral dimensions of resistance to change, as operationalized by

Role of organizational support in minimizing resistance to change
According to OST (Eisenberger et al., 1986), employees develop a general perception that
their organization values their contributions and cares about them through a complex social
exchange process. This theory thus explains that variables such as human resource (HR)
practices (e.g. developmental rewards) and supervisory support are important antecedents of
POS (Rhoades and Eisenberger, 2002). By definition, perceived supervisory support refers
to employees’ observations of their managers’ contributions and demonstrations of caring
about individual workers (Eisenberger et al., 2002). The present study opted to include the
perceived supervisory support construct because OST and a recent meta-analysis of this
field (Kurtessis et al., 2017) suggest that the support of higher status organizational
members is more consistently interpreted as POS than perceived coworker or team support.

Out of the several HR and workplace practices included in OST (i.e. job security, flexible
work practices, family supportive work practices, and developmental opportunities), the
present research chose to incorporate the variable of developmental rewards in its theoretical
framework. This decision was based on previous studies (Eisenberger et al., 1997), including
the above-cited meta-analysis (Kurtessis et al., 2017), that consistently found that
developmental rewards are the HR or workplace practice variables most strongly related to
POS. Developmental rewards are defined here as developmental and intangible resources
received by employees. These resources can include participation in decision making, open
communication, training and career opportunities, feedback from performance, task variety,
and employee autonomy (Shin et al., 2012).

The literature reports broad empirical support for the conclusion that organizational
support and developmental rewards have a positive effect on employee perceptions and/or
behaviors (Straatmann et al., 2016). According to Van Emmerik et al. (2009), workers with
greater supervisory support have a more positive perception of change. Other studies’
results have indicated that organizational investments in employee development influence
workers’ performance (Tsui et al., 1997). Supervisory strategies, such as leader-member
exchanges, appear to be particularly relevant to organizational activities and citizenship
(Settoon et al., 1996).

Other organizational support, such as developmental rewards, has been related to
behaviors that have an impact on employee commitment and performance (Ng and
Sorensen, 2008). Employees’ involvement in their workplace needs to be encouraged
along with their decision-making capacity, including participation in change processes
(Kuvaas and Dysvik, 2010). This HR practice seems to motivate employees to comply with essential obligations and consider the future needs of their organization (Eisenberger et al., 2004).

Kuvaas and Dysvik (2010) suggested that supervisory support mediates how investment in employee development is perceived, thereby increasing the impact of training opportunities on the relationship between individuals and their organization. However, according to the cited authors, employees do not necessarily have a more positive perception of their control over their work when support at the supervisory level exists only as positive relationships. Hence, the present study posited that individuals are less resistant to change when they receive more developmental rewards since these employees may have more perceived control (Xanthopoulou et al., 2007) and thus be less fearful of the negative consequences of change.

**Mediating effect of ego-resilience**

OST explains that POS fulfills employees’ socioemotional needs, resulting in an increased desire to help their organization succeed (Kurtessis et al., 2017). In addition, resilient employees are more prone to deal proactively with uncertainty, be prepared for difficulties, and minimize the impact of stressful events (Shin et al., 2012). Individual variables (e.g., self-efficacy) thus partially mediate the relationship between POS and in-role performance (Kurtessis et al., 2017), and resilient personality traits are important in change processes (Shin et al., 2012). The present study, therefore, included ego-resilience as a mediator to explain the indirect relationship between POS and resistance to organizational change.

Personality traits can shape the behaviors and attitudes of individuals in organizations (Oreg, 2003). Some researchers have found that these individual dispositions are generally stable, but studies focusing on these traits have only produced indications of the differences personality generates in employees’ performance (Xanthopoulou et al., 2007). Other authors have argued that personality traits can be modified to some degree (see Vaidya et al., 2002), even in organizational contexts (Judge et al., 1999).

Resilience can be described as individuals’ ability to adapt adequately to adversity and stress (Klohnen, 1996). Both stress and adversity can stem from workplace conditions or stressors that accompany change processes (Cooper et al., 2014). People show resilience when they face difficult experiences and overcome them with ease (Klohnen, 1996). Resilience can thus be defined as the ability individuals possess to adapt in positive and strategic ways to different contexts (Youssef and Luthans, 2007), particularly in times of organizational change (Shin et al., 2012; Zellars et al., 2011).

As mentioned previously, the present study focused specifically on the concept of ego-resilience, defined by Block and Block (1980) as the ability to adapt to stress and accomplish tasks and achieve goals successfully. Ego-resilient individuals feel more confident when adapting to different environments and opening themselves up to new experiences (Block and Kremen, 1996). Those who fail to acquire this resourcefulness are ego-brittle and, therefore, experience more negative emotions (Block and Kremen, 1996). Ego-brittle individuals have much more difficulty implementing adaptive strategies. They tend to control matters too little or too much and have a less differentiated behavioral repertoire (Block and Kremen, 1996).

The present study sought to understand the role of ego-resilience, in general. However, this research aimed to add to the existing literature by examining ego-resilience more specifically as a mediator in the relationship between organizational support (i.e., supervisory support and developmental rewards) and affective and behavioral resistance to change. Rhoades and Eisenberger (2002) observed that most studies have been based on the idea that POS is solely due to organizational influence, but individual variables, such as employees’ personality, clearly play an important role. Dispositional tendencies can influence the perceived degree of organizational support, which may indeed lead employees...
to behave differently in ways that can shape organizational support. Previous studies have revealed that the support provided by leaders influences their subordinates’ attitudes by adding psychological resources, including ego-resilience, that influence the implementation of readiness for change (Alavi and Gill, 2017).

The present research expected that individuals with more perceived support such as resources are less likely to suffer negative consequences from change (Shin et al., 2012). Despite dealing with the same job demands as less able colleagues, employees with more resources also feel better able to meet challenges because they can easily manage their environment in order to attain goals (Xanthopoulou et al., 2007). In addition, some evidence has been found that suggests personality traits can change due to new environmental circumstances (Boyce et al., 2015; Lewin, 1951). Contextual scenarios with a greater or lesser degree of organizational support may induce personality development by allowing individuals to maximize their environmental fit (Magnusson and Endler, 1977).

Some authors have reported that resilience generally endows individuals with executive cognitive functions that facilitate the emergence of positive emotions. These help people to manage situations involving intense demands on emotional stability, thereby consolidating their ego-resilience (Genet and Siemer, 2011). Based on COR, the present study assumed that organizational support provides the required preconditions for fostering resilient personality traits. These, in turn, enable employees to resist change less often because they are either more creative or use coping strategies to counteract stress (Block and Kremen, 1996; Hobfoll, 1998, 2001; Oreg, 2003). The current research thus focused on the mediation effect of ego-resilience in the relationship between organizational support (i.e. developmental rewards and supervisory support) and resistance to change, hypothesizing that:

\[ H1a. \text{ Ego-resilience mediates the relationship between organizational support in the form of developmental rewards and behavioral resistance to change.} \]

\[ H1b. \text{ Ego-resilience mediates the relationship between organizational support in the form of developmental rewards and affective resistance to change.} \]

\[ H2a. \text{ Ego-resilience mediates the relationship between organizational support in the form of supervisory support and behavioral resistance to change.} \]

\[ H2b. \text{ Ego-resilience mediates the relationship between organizational support in the form of supervisory support and affective resistance to change.} \]

Research context and methods

Setting

The current global economic crisis has affected the labor markets of European Union countries, including a negative impact on unemployment rates in Greece, Spain, and Portugal (Kwiatkowski, 2016). Portuguese companies have thus been strongly affected by this second “Great Recession” (Lima, 2013). The Organization for Economic Co-operation and Development (OECD) (2017) reported that Portugal is in the sixth worst position in terms of its unemployment rate (i.e. 10.3 percent or the fourth quartile), which is significantly higher than that of most other OECD members.

The Troika memorandum for Portugal implemented policies requiring tough austerity measures and pushing organizations to introduce radical changes in order to adapt to this new, difficult reality. These managerial decisions may have weakened employees’ job security and kindled opposition to change processes (Kujala et al., 2017). The prospect of unemployment in a context of higher unemployment rates has naturally made individuals more resistant to imposed transformations (Boyce et al., 2015).
To help employees commit to the required investments in change, managers have been keen to provide incentives to their employees. In this context, the question arises of whether increasing organizational support is a good way to reduce resistance to change. Given the recent evidence (Boyce et al., 2015) that personality can be changed by environmental variables, such as unemployment, another key question is whether personality traits can mediate the relationship between resistance to change and organizational support.

Although the research setting (i.e. the economic crisis in Portugal) was somewhat singular and dates back several years, the present study assumed that the patterns found on the individual and organizational level would be applicable across countries and time. For example, extremely stressful circumstances can also be created by turmoil in individuals’ personal life or by family, friends, or colleagues in their meso environment.

**Procedure**

This study was conducted in Portugal, so the relevant instruments had to be translated from English to Portuguese. This was done by following four steps: first, translation by three individuals of whom one was bilingual; second, comparison of the translations and consolidation into a single draft; third reverse translation by a bilingual researcher; and fourth, a pre-test with 15 subjects. This procedure was used to mitigate against any cultural differences affecting the interpretation of items’ content and structure (Schaffer and Riordan, 2003), although cultural differences (e.g. the connotations of how questions are articulated) cannot be fully controlled.

Since the present study focused on a micro-level and/or individual perspective, data were collected from employees from different sectors and heterogeneous backgrounds. In line with previous studies (Rafferty and Jimmieson, 2017), participants were recruited through professional networks (e.g. LinkedIn™), so their responses were submitted via e-mail. This method of data collection, which excluded the involvement of organizations, was chosen as a way to avoid response bias and increase participation, as well as to widen the range of professional activity sectors included in the sample.

The collection period of approximately the first quarter of 2013 was an extremely critical social, political, and economic period in Portugal. This was marked by various organizational changes, such as downsizing and increasing pressure on employees (Lima, 2013). Out of the 360 participants who agreed to fill out the survey, 323 (89.7 percent) completed questionnaires correctly. The final sample included only employees with a supervisor. We followed all ethical procedures by providing participants with information on the scope of the study and a way to contact the research team. The individuals gave their informed consent to participate voluntarily and understood that their responses were confidential.

**Participants**

The final sample consisted of 323 Portuguese employees from public (50.6 percent) and private (49.1 percent) sector companies. The majority of these employees belonged to the consultancy (25.9 percent) and health activity sectors (25 percent). The mean age of the sample was 37.06 years (SD = 9.12), and 65 percent were females. The respondents had an average job tenure of 9.63 years (standard deviation = 8.84), 63.5 percent had a bachelor’s degree, and 72.1 percent were specialized professionals (e.g. information technology, HR, and marketing) working as consultants or in organizations.

**Measures**

Behavioral and affective resistance to change. The scale developed by Oreg (2003) measured individuals’ disposition to resist and devalue change and their aversion to any kind of circumstances in which a change takes place. The responses were given on a Likert-type
scale ranging from 1 (Strongly disagree) to 6 (Strongly agree). As indicated in the theoretical background section, we focused on the behavioral and affective dimensions of change resistance since these dimensions appeared to produce the most instructive results in previous research (Oreg, 2003).

Items measuring behavioral reactions to change included the routine subscale (e.g. “I’ll take a routine day over a day full of unexpected events any time”). The affective component was assessed by the subscales of affective reactions and short-term orientation to imposed change. Affective reactions were measured by four items (e.g. “When I am informed of a change of plans, I tense up a bit”). The short-term focus subscale measured the consequences of change with four items (e.g. “Changing plans seems like a real hassle to me”). The score for the affective component was the average of the results obtained in each dimension of the affective reaction and short-term orientation subscales.

We computed the results with SPSS 20.0 statistical software. Principal component analysis included orthogonal rotation (i.e. varimax) for uncorrelated factors and oblique rotations (i.e. direct oblimin) for correlated factors (Gorsuch, 1983). We applied both methods and found similar structures. Tabachnick and Fidell (2007, p. 646) suggested that “the best way to decide between orthogonal and oblique rotation is to request oblique rotation,” so we opted for the oblique structure.

In addition, we adopted the following criteria for item removal (Stevens, 2002): items presenting loadings lower than 0.4, items with high correlations in two or more factors (i.e. cross loadings), and factors with only one or two items. Given the construct in question, this criteria led us to eliminate the item, “I’d rather be bored than surprised.” The subscales measuring affective reactions (i.e. affective reaction and short-term orientation) and behavioral reactions (i.e. routine) had an internal consistency of 0.70, 0.82, and 0.81, respectively.

Resilience. The translated instrument assessing ego-resilience (i.e. ER89) consisted of 14 items (e.g. “I enjoy dealing with new and unusual situations”). The respondents stated whether they agreed or disagreed with the statements on a four-point Likert scale (Block and Kremen, 1996). The score was obtained by averaging the sum of each item’s results. We conducted principal component analysis with Kaiser criteria that demonstrated that only eight items of the scale should be considered (i.e. with eigenvalues above 1.0). These were as follows:

1. I am generous with my friends.
2. I enjoy dealing with new and unusual situations.
3. I usually succeed in making a favorable impression on people.
4. I am regarded as a very energetic person.
5. I am more curious than most people.
6. I like to do new and different things.
7. My daily life is full of things that keep me interested.
8. I would be willing to describe myself as a pretty “strong” personality.

We verified that the final scale included in the current study had a Cronbach’s $\alpha$ of 0.74.

Developmental rewards. We used the subscale assessing organizational inducements with ten items developed by Wang et al. (2003/2009), with the adaptation made by Shin et al. (2012) to measure developmental rewards. According to the latter cited authors, this instrument focused on employees’ perspective rather than that of middle managers, as originally intended. The developmental reward items included (e.g. “The organization emphasizes my...
career development”) were evaluated on a Likert scale ranging from 1 (Rarely provided or implemented) to 7 (Abundantly provided or implemented). The final score was also obtained by averaging the sum of each item’s results. Principal component analysis with Kaiser criteria confirmed the existence of a single factor and an internal consistency of 0.94.

**Supervisory support.** The subscale measuring supervisory support (Oldham and Cummings, 1996) included items (e.g. “My supervisor encourages me to develop new skills”) to be answered on a Likert scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). Principal component analysis confirmed the existence of a single factor and a Cronbach’s α (i.e. internal consistency) of 0.92.

**Controls.** We measured age, gender, education, seniority, and sector as control variables. Individual demographic variables, such as age, education, and professional experience, were controlled because they could have a relationship with ego-resilience. The literature shows that age, gender, and seniority contribute to the development of resilience, with females and more experienced individuals demonstrating more resilience (Ayala and Manzano, 2014). Other studies have shown that resilience is correlated with age and education, so older and more qualified individuals tend to be more resilient (Martínez-Martí and Ruch, 2017). Evidence has also been found that different perceptions of change exist in different sectors (Nandan and Verma, 2013).

**Measurement model and common-method variance**
Self-report measures are usually associated with common-method variance (i.e. conclusions are derived from the method of measurement rather than the constructs’ attributes). As suggested by Fuller et al. (2016), we adopted Harman’s single factor test to detect possible common-method variance bias. If common-method variance was present, a single-factor confirmatory factor analysis model would provide better fit indices, accounting for the majority of the covariance among the studied variables.

The data showed that a single-factor model did not provide good fit indices ($\chi^2$/degrees of freedom (df) = 5.804; comparative fit index (CFI) = 0.54; Tucker-Lewis index (TLI) = 0.51; root-mean-square error of approximation (RMSEA) = 0.122; lower bound (LO) = 0.118; upper bound (HI) = 0.126). The hypothesized model including four factors revealed a much better fit to the data ($\chi^2$/df = 1.0483.28; $p < 0.01$; CFI = 0.89; incremental fit index (IFI) = 0.88; RMSEA = 0.062; LO = 0.058; HI = 0.067). Post hoc modification indices suggested two covariations between errors belonging to the same construct (i.e. developmental rewards), which resulted in an improved model ($\chi^2$/df = 2.261; CFI = 0.89; increment fit index (IFI) = 0.88; RMSEA = 0.062; LO = 0.058; HI = 0.067). To summarize, the evidence from the confirmatory factor analysis confirmed the distinctiveness of the constructs under study.

The construct reliability and convergent and discriminant validity of all the variables were also analyzed. In line with Hair et al.’s (2010) recommendations, we confirmed appropriate composite reliability scores ranging from 0.74 to 0.94. Measures of average variance extracted (AVE) and average shared variance (ASV) were also included to confirm convergent and discriminant validity. The AVE scores (i.e. percentage of variances in a latent construct that can be explained by its observed variables) were higher than the ASV scores, suggesting discriminant validity. The AVE ranged from 0.60 to 0.67 for most constructs, except for ego-resilience (0.30). However, the square root of the AVE was larger than the correlations of this construct with the other constructs, suggesting convergent validity (Hair et al., 2010).

**Data analysis**
Regardless of Baron and Kenny’s (1986) well-known findings on mediation procedures, clear evidence has been found that bootstrap tests of indirect effects are more accurate and
Results
Table I shows the means and standard deviations of and correlations among variables. These results revealed a correlation between ego-resilience and behavioral reactions ($r = -0.45; p < 0.01$), as well as between developmental rewards and supervisory support ($r = 0.72; p < 0.01$).

We used linear regression analysis to test our hypotheses, including the mediating effect of ego-resilience in the relationship between organizational support (i.e. developmental rewards and supervisory support) and resistance to change. The results showed that the independent variables of developmental rewards and supervisory support were all positively and significantly correlated with the mediator variable of psychological ego-resilience ($\beta = 0.22$ and $\beta = 0.13$, respectively; $p < 0.05$).

The findings of our regression analyses indicated non-significant correlations between organizational support (i.e. developmental rewards and supervisory support) and affective resistance to change. However, the correlation between organizational support and behavioral resistance to change was statistically significant ($p < 0.10$). As shown in Table II, bootstrapping (95 percent confidence interval (CI) around the indirect effect) with bias-corrected confidence estimates confirmed the mediation hypothesis specifically for the supervisory support variable. In line with Preacher and Hayes’s (2004) assumptions, the indirect effect did not contain 0 ($-0.050, -0.000$), thus supporting $H2a$, namely, that ego-resilience mediates the relationship between supervisory support and behavioral resistance to change.

We then tested the relationship between organizational support (i.e. developmental rewards) and behavioral resistance to change through ego-resilience. Bootstrapping (95 percent CI around the indirect effect) revealed that the direct ($-0.220, 0.001$) and the indirect ($-0.061, 0.000$) effects contained 0. Thus, statistically, the empirical evidence did not support $H1a$, that is, that ego-resilience does not mediate the relationship between developmental rewards and behavioral resistance to change.

In addition, bootstrapping with bias-corrected confidence estimates (95 percent, 1,000 samples) around the indirect effect did not contain 0 for both developmental rewards ($-0.097, -0.029$) and supervisory support ($-0.071, -0.006$). This evidence suggested a full mediation effect, thereby supporting $H1b$, namely, that ego-resilience mediates the relationship between developmental rewards and affective resistance to change. The results displayed in Table III further confirmed $H2b$, showing that ego-resilience mediates the relationship between supervisory support and affective resistance to change.

Discussion
The main findings of the current study indicate that ego-resilience has an important mediating effect on the indirect relationship between supervisory support or developmental rewards and affective resistance to change. Moreover, empirical evidence was found for the mediating effect of ego-resilience on the relationship between supervisory support and behavioral resistance to change. These results make an important contribution to the literature on change management by confirming the validity of the comprehensive model based on COR (Hobfoll, 1988, 2001) and OST (Eisenberger et al., 1986). The model explains the role of POS and individual characteristics in how individuals resist change processes.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>37.03</td>
<td>9.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gender</td>
<td>1.35</td>
<td>0.48</td>
<td>0.062</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Education</td>
<td>3.98</td>
<td>0.92</td>
<td>-0.250**</td>
<td>-0.035</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Experience</td>
<td>9.63</td>
<td>8.84</td>
<td>0.795**</td>
<td>0.002</td>
<td>-0.258**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sector</td>
<td>3.23</td>
<td>1.57</td>
<td>-0.194**</td>
<td>0.124*</td>
<td>-0.113*</td>
<td>-0.182**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Ego-resilience</td>
<td>3.14</td>
<td>0.419</td>
<td>-0.011</td>
<td>-0.068</td>
<td>0.029</td>
<td>-0.057</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.078</td>
</tr>
<tr>
<td>7. Affective reaction</td>
<td>2.90</td>
<td>0.956</td>
<td>-0.124*</td>
<td>-0.083</td>
<td>-0.014</td>
<td>-0.087</td>
<td>-0.023</td>
<td>-0.231**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Behavioral reaction</td>
<td>2.44</td>
<td>0.759</td>
<td>-0.018</td>
<td>-0.013</td>
<td>-0.004</td>
<td>0.027</td>
<td>-0.099</td>
<td>-0.451**</td>
<td>0.438**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Developmental rewards</td>
<td>4.26</td>
<td>1.327</td>
<td>0.032</td>
<td>0.068</td>
<td>-0.033</td>
<td>0.048</td>
<td>-0.021</td>
<td>0.213**</td>
<td>-0.181**</td>
<td>-0.146**</td>
<td></td>
</tr>
<tr>
<td>10. Supervisory support</td>
<td>4.43</td>
<td>1.386</td>
<td>0.032</td>
<td>-0.032</td>
<td>-0.088</td>
<td>0.033</td>
<td>0.032</td>
<td>0.142*</td>
<td>-0.135*</td>
<td>-0.032</td>
<td>0.722**</td>
</tr>
</tbody>
</table>

**Notes:** Gender = 1 female, 2 male. *p < 0.05; **p < 0.01
This study thus extended previous attempts (e.g. Hobfoll et al., 2015) to develop COR conceptual models that explain the phenomenon of resilience. The present findings also provide a new, more comprehensive approach to the link between organizational support (i.e. developmental rewards and supervisory support) and ego-resilience. This personality trait explains how resources allow people to become less resistant to change.

These results are supported by prior research (Shin et al., 2012) explaining that ego-resilience causes individuals to have certain perspectives regarding the challenges they face. In addition, resilience encourages behaviors that help employees achieve their goals in organizational settings. As expected, ego-resilience appears to empower individuals, independently of their context (Block and Kremen, 1996; Klohnen, 1996). Similarly to Judge et al. (1999), the present study found that resilient personality traits play an important role in helping individuals deal with daily negative events, such as change processes.

As mentioned previously, ego-resilience has a more prominent mediating effect when the outcomes are affective resistance to change rather than behavioral resistance to change. The literature shows that ego-resilience provides employees with the determination to face negative and unexpected circumstances and to regulate their behavior when difficulties are expected (Shin et al., 2012). Under these circumstances, affective resistance to change – when this is due to a short-term focus and associated stressful experiences – is more dependent on ego-resilience than is the resistance to change associated with routines and long-term

**Table II. Model coefficients for ego-resilience as a mediator and developmental rewards as an antecedent**

<table>
<thead>
<tr>
<th>Antecedents</th>
<th>M (ego-resilience)</th>
<th>Y (behavioral reaction)</th>
<th>Y (affective reaction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.014</td>
<td>0.010</td>
<td>0.010</td>
</tr>
<tr>
<td>Gender</td>
<td>−0.196***</td>
<td>0.116</td>
<td>0.117</td>
</tr>
<tr>
<td>Education</td>
<td>0.037</td>
<td>0.062</td>
<td>0.063</td>
</tr>
<tr>
<td>Experience</td>
<td>−0.017</td>
<td>0.010</td>
<td>0.004</td>
</tr>
<tr>
<td>Sector</td>
<td>0.063***</td>
<td>0.036</td>
<td>0.036</td>
</tr>
</tbody>
</table>

**X (developmental rewards)**

| Coeff. | SE
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0.216***</td>
<td>0.055</td>
</tr>
<tr>
<td>−0.106****</td>
<td>0.056</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M (ego-resilience)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coeff.</td>
</tr>
<tr>
<td>−0.459</td>
</tr>
<tr>
<td>0.934*</td>
</tr>
</tbody>
</table>

**Constant**

<table>
<thead>
<tr>
<th>Coeff.</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.361</td>
<td>0.315</td>
</tr>
</tbody>
</table>

**R²**

- 0.066
- 0.058
- 0.164

**F (6, 316)**

- 3.705; p < 0.01
- 2.773; p < 0.001
- 8.813; p < 0.001

**Direct and Indirect Effect of X on Y**

<table>
<thead>
<tr>
<th>Direct effect of X on Y</th>
<th>Boot effect</th>
<th>Boot SE</th>
<th>Bias corrected and accelerated CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−0.109</td>
<td>0.056</td>
<td>[−0.220, 0.001]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indirect effect of X on Y</th>
<th>Boot effect</th>
<th>Boot SE</th>
<th>Bias corrected and accelerated CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−0.024</td>
<td>0.015</td>
<td>[−0.061, 0.000]</td>
</tr>
</tbody>
</table>

**Notes:** n = 323. Coeff. = regression coefficients; X = antecedent variable; M = mediator; Y = dependent variable; gender = 1 female, 2 male; results are based on 10,000 bootstrap samples. *p < 0.05; **p < 0.01; ***p < 0.001; ****p < 0.1
activities (Cole et al., 2006). In line with COR (Hobfoll, 1988, 2001), employees cope better with the adversities produced by change – and the potential loss of resources – when supervisors make change processes more meaningful.

The present study also produced some contradictory results. Specifically, this research revealed an absence of any direct effects of the selected organizational support variables on the chosen dimensions of employees’ affective resistance to change. This finding suggests that most of the variance associated with affective resistance to change is connected to ideas and emotions unfounded in reality (Bovey and Hede, 2001). Given the complexity of affective reactions and their short-term and/or immediate focus (Oreg, 2003), other intermediate variables, such as ego-resilience, appeared more clearly in the current research as a mediator that explains this indirect path.

Contrary to what was expected, developmental rewards’ effects mediated by ego-resilience do not explain the behavioral dimension of resistance to change. This finding supports previous studies’ conclusion that developmental rewards alone cannot alleviate the high demands of changing workplaces (Kuvaas and Dysvik, 2010). The present results may also explain why organizational support (i.e. developmental rewards and supervisory support) was not confirmed as an effective strategy to reduce the impact of procedural aspects of change (Oreg, 2003). According to OST (Eisenberger et al., 1986), perceived supervisory support has a stronger relationship with POS than HR practices, such as developmental rewards (Kurtessis et al., 2017). This finding also reinforces the usefulness of COR (Hobfoll, 1988, 2001) in explaining why supervisors play a significant role in attenuating employees’ loss of resources during change processes.

<table>
<thead>
<tr>
<th></th>
<th>M (Ego-Resilience)</th>
<th>Y (Behavioral Reaction)</th>
<th>Y (Affective Reaction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coeff.</td>
<td>SE</td>
<td>Coeff.</td>
<td>SE</td>
</tr>
<tr>
<td>Age</td>
<td>0.014</td>
<td>0.010</td>
<td>-0.012</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.196***</td>
<td>0.116</td>
<td>-0.225****</td>
</tr>
<tr>
<td>Education</td>
<td>0.037</td>
<td>0.062</td>
<td>-0.039</td>
</tr>
<tr>
<td>Experience</td>
<td>-0.017</td>
<td>0.010</td>
<td>-0.004</td>
</tr>
<tr>
<td>Sector</td>
<td>0.063***</td>
<td>0.036</td>
<td>-0.008</td>
</tr>
<tr>
<td>X (supervisory support)</td>
<td>0.216***</td>
<td>0.055</td>
<td>-0.096****</td>
</tr>
<tr>
<td>M (ego-resilience)</td>
<td>-0.459</td>
<td>0.469</td>
<td>0.962**</td>
</tr>
<tr>
<td>Constant</td>
<td>R² = 0.066</td>
<td>-0.008</td>
<td>0.056</td>
</tr>
<tr>
<td>F (6, 316) = 3.705; F (7, 315) = 2.651;</td>
<td>F (7, 315) = 8.765;</td>
<td>p &lt; 0.01</td>
<td>p = 0.011</td>
</tr>
</tbody>
</table>

**Notes:** n = 323. Coeff. = regression coefficients; X = antecedent variable; M = mediator; Y = dependent variable; gender = 1 female, 2 male; results are based on 10,000 bootstrap samples. *p < 0.05; **p < 0.01; ***p < 0.001; ****p < 0.1
Theoretical contributions

One of the main contributions of the present research’s findings is that they reinforce the evidence for the role of ego-resilience as an antecedent of willingness to change (see Shin et al., 2012). Ego-resilience also functions as a mediator for the indirect path between organizational support (i.e. developmental rewards and supervisory support) and employees’ resistance to change.

In addition, the current study’s results enrich and extend previous models based on COR (Hobfoll, 1988, 2001) and OST (Eisenberger et al., 1986) in the literature on organizational change. The present research integrated both OST and COR into the same model. This approach explains that POS can be considered a resource – just like supervisory support or developmental rewards – and highlights POS’s indirect relationship with resistance to change through ego-resilience. Based on COR, our findings suggest that ego-resilient employees who receive support from higher status organizational members develop a stronger perception of control and trust. These employees consequently believe that they can retain and protect their resources (Hobfoll, 2001) even in changing situations (Shin et al., 2012).

The current study sought to contribute to a deeper understanding of the dynamics between individual variables (i.e. ego-resilience) and organizational variables (i.e. organizational support) that can influence the levels of behavioral and affective resistance to change. By knowing how these variables interact, managers can anticipate unintended consequences at times of organizational change. This finding is thus an important contribution to the management literature since our hypotheses combine both contextual and individual variables previously dealt with separately in the literature on change management.

These results therefore advance the existing knowledge with regard to ego-resilience in organizations. In response to Zellars et al.’s (2011) work, the present study was structured to include two levels. First, we applied an individual personality approach in which ego-resilience offers employees a more likely guarantee of success in particularly challenging periods of organizational change. Second, we focused on an alternative perspective to gain a better understanding of the role played by ego-resilience in individuals’ behavior in organizational contexts (Luthans and Youssef, 2007). This interconnection between contextual and individual personality variables to explain resistance to change could constitute a new avenue for future research in this field.

Practical implications

Regarding practical implications for HR management, the results presented apply to the areas of recruitment and selection, including building teams, training staff, and managing change processes. When recruiting and selecting new employees and team members, HR departments need to consider ego-resilience a fundamental requirement of employees so that their organization can have an increased assurance of success when facing change (Shin et al., 2012; Zellars et al., 2011). With regard to training, middle managers should be the main targets as they are responsible for employee supervision (i.e. direct reports). These managers need to have a better understanding of the implications of change processes for employees and of ways managers can support their staff to encourage them more effectively to adopt positive attitudes toward change.

As previous studies have suggested, ego-resilience should be developed and encouraged (Brewer and Hewstone, 2004). Change management needs to include encouraging employees’ active role and take steps to prepare individuals for change by providing favorable personal and organizational conditions. Managers should be aware of the need to
recruit and develop employees with high levels of ego-resilience as this personality trait appears to be an important variable that reduces behavioral and affective resistance to change. Managers also need to encourage employees through developmental rewards (e.g. career management, training opportunities, coaching programs, and affective support). These help to reduce affective and behavioral resistance to change by promoting higher levels of individual ego-resilience.

The literature shows that personal factors, such as age, gender, and seniority, contribute to the development of ego-resilience, with females and more experienced individuals demonstrating more resilience (Ayala and Manzano, 2014). The present research produced results that agree with previous studies, confirming a tendency for females to be more resilient. Thus, managers conducting organizational change processes should consider these individual characteristics when implementing different strategies to enforce HR policies (e.g. training).

Limitations and future research
This research also presents some limitations that could affect interpretations and generalizations of its results. The sample size and representativeness was a major concern in the study, so further research along these lines must include more data collection. Due to the sample’s dimensions, our results should be considered preliminary, although they offer significant contributions to future studies.

The hypotheses also need to be extended to test other mediator variables that could reveal further facets of the concept of resistance to change, such as team environments and leader-member exchanges. The data analyses’ results require further interpretative caution because, as is common in social science research, the observed mediation-based relationships presented relatively low coefficients (i.e. type I error).

This research was extended to include POS, but future research should consider even more variables and sources of information (e.g. quantitative measures of rewards and methods). To avoid common-method variance effects (Podsakoff et al., 2003), other methods such as interviews (e.g. Rosenberg and Keller, 2016), supervisor reports, or objective measures need to be considered. In addition, other studies should consider multi-level analyses at both the individual and organizational levels, as well as control variables that account for the organizational contexts experienced at the time the data is collected.

Finally, given that different perceptions of change may arise depending on the organizational context (Nandan and Verma, 2013), future studies may want to consider more macro-level organizational factors. These could include conservative (e.g. financial and retail sectors) versus dynamic sectors (e.g. the information and communication technology sector) to examine more closely the relationships identified in the present research with regard to ego-resilience. More specifically, researchers could examine whether ego-resilience plays a more or less important role, varying according to the sector-specific characteristics of organizations.

Conclusion
Despite the limitations mentioned above, the measures taken to control for biases and errors contributed to the empirical validity of this study’s findings. These included introducing a model that explains the ways that employees resist change and considers organizational support and ego-resilience. In addition, the findings highlight the need to increase supervisory support to reduce affective and behavioral resistance to change and strengthen ego-resilience. The results also indicate that ego-resilience plays a pivotal role in the relationship between developmental rewards and affective resistance to change.
References


Effects of ego-resiliency


122


**Further reading**


**Corresponding author**
Aristides Isidoro Ferreira can be contacted at: aristides.ferreira@iscte.pt

For instructions on how to order reprints of this article, please visit our website: [www.emeraldgrouppublishing.com/licensing/reprints.htm](http://www.emeraldgrouppublishing.com/licensing/reprints.htm)

Or contact us for further details: permissions@emeraldinsight.com
Promoting employees’ learning from errors by inclusive leadership
Do positive mood and gender matter?

Qingyan Ye
School of Management, Zhejiang University, Hangzhou, China, and
Duanxu Wang and Xi Li
Zhejiang University, Hangzhou, China

Abstract

Purpose – In today’s complex and challenging work environment, employees’ learning from errors has become critical to organizations’ survival and success. While the literature has highlighted the importance of inclusive leadership for learning behavior in organizations, research on how inclusive leadership promotes employees’ learning from errors has been limited. Therefore, the purpose of this paper is to fill this gap by developing and testing a moderated mediation model that emphasizes the key roles of positive mood and gender in the relationship between inclusive leadership and employees’ learning from errors.

Design/methodology/approach – A multi-time survey method was used in this study to collect data from 202 full-time employees working in China.

Findings – The hypothesized moderated mediation model in this study was supported. Inclusive leadership facilitated employees’ learning from errors through employees’ positive mood, and employees’ gender moderated both the direct relationship between inclusive leadership and employees’ positive mood and the indirect relationship between inclusive leadership and employees’ learning from errors through employees’ positive mood: the relationships were stronger for female employees than for male employees.

Originality/value – By incorporating the social role theory into the affective events theory framework, this study may help to open the “black box” of the relationship between inclusive leadership and employees’ learning from errors by explicating the importance of positive mood and gender, thereby shedding light on the timely issues of inclusive leadership, mood, and learning from errors in the workplace.

Keywords Affective events theory, Inclusive leadership, Learning from errors, Positive mood, Social role theory

Paper type Research paper

1. Introduction

In today’s complex and rapidly changing business environment, human errors, defined as “individuals’ decisions and behaviours that (a) result in an undesirable gap between an expected and real state; and (b) may lead to actual or potential negative consequences for organizational functioning that could have been avoided” (Zhao and Olivera, 2006, p. 1013), are prevalent and often costly for organizations (Bauer and Mulder, 2007; Zhao, 2011; Putz et al., 2013). However, human errors made in the organizational context, such as inappropriate task assignment, improper sales strategies, and incorrect software coding, can be valuable sources of learning because they force employees to re-evaluate previously held assumptions and beliefs and trigger the development of new knowledge (Ellis and Davidi, 2005; Ellis et al., 2006; Putz et al., 2013). Although learning from errors in organizations can occur at the individual, team, and organizational levels (Edmondson, 2004; Madsen and Desai, 2010; Zhao, 2011; Putz et al., 2013), individual-level learning constitutes the key building block of team- and organizational-level learning (Schilling and Kluge, 2009; Popper and Lipshtiz, 2000; Putz et al., 2013). Therefore, the

This research was supported by the National Natural Science Foundation of China (Grant No. 71672175).
The scope of this research is limited to individual-level learning from errors, that is, employees’ learning from errors.

According to many prior studies, employees’ learning from errors has far-reaching importance for organizations’ survival and prosperity, especially in today’s competitive world (Bauer et al., 2012; Naveh et al., 2015). However, these studies also indicate that the way to facilitate employees’ learning from errors is one of the most fundamental challenges that many organizations face (Baumard and Starbuck, 2005; Bauer and Mulder, 2013). It is therefore not surprising that scholars and practitioners alike have become increasingly interested in exploring the factors that can promote employees’ learning from errors in organizations (Bauer and Mulder, 2008; Zhao, 2011; Naveh et al., 2015). Among these documented influencing factors, leadership has been recognized as an important factor that is assumed to influence employees’ learning from errors (Edmondson, 2004; Edmondson and Edmondson, 2006; Zhao, 2011; Putz et al., 2013). Unfortunately, most studies on the effect of leadership have tended to focus on leaders’ overall support behaviors without specifying the specific style of leadership that can facilitate employees’ learning from errors (e.g. Edmondson, 2004; Zhao, 2011; Carmeli et al., 2012; Putz et al., 2013).

The few studies that have noted the importance of inclusive leadership in employees’ learning behaviors have relied primarily on the psychological safety mechanism to account for the influence of inclusive leadership on employees’ learning from errors (Nembhard and Edmondson, 2006; Hirak et al., 2012). However, since learning from errors is not an automatic or instantaneous behavior (Bauer and Mulder, 2008) but an effortful and proactive behavior that requires a high level of motivation and initiative (Rybowiak et al., 1999; Zhao, 2011), shaping an atmosphere of psychological safety is necessary but not sufficient to promote employees’ learning from errors (Cannon and Edmondson, 2005). Therefore, the original psychological safety perspective is limited and far from sufficient to explain the effectiveness of inclusive leadership.

Fortunately, recent theoretical developments have suggested that employees’ learning from errors is effect-sensitive and associated with a high degree of affective content (Zhao, 2011; Shepherd et al., 2011). In this respect, the affective events theory (AET) (Weiss and Cropanzano, 1996) may offer a novel perspective on the underlying mechanisms through which the effects of inclusive leadership on employees’ learning from errors can be elaborated by positing that important workplace factors will elicit different affective responses in employees, which, in turn, cause employees to adopt certain attitudes and display certain behaviors. Specifically, as an important workplace factor, inclusive leadership, which refers to leaders who exhibit openness, accessibility, and availability in their interactions with followers (Nembhard and Edmondson, 2006), is likely to elicit employees’ positive mood in the workplace as a result of inclusiveness (Holland, 2009). Additionally, positive mood, as a pleasant, subtle, and enduring affective state (Forgas, 2000), is a highly malleable motivation factor (Tamir and Robinson, 2007) that will, in turn, promote employees’ learning from errors (Nadler et al., 2010). Therefore, based on the AET, this study argues that positive mood is a potential mechanism linking inclusive leadership and employees’ learning from errors.

In addition, another basic assumption of the AET is that the interpretation and evaluation of affective events are always contextual, and that individual traits must be considered to more fully understand an individual’s affect responses to affective events (Weiss and Cropanzano, 1996). As a key demographic characteristic and core aspect of human identity, gender is undoubtedly one such individual trait that should be included in this study because as a result of recent structural changes in labor markets, gender diversity has become one of the most salient issues in almost all types of modern organizations (Garib, 2013; Cui et al., 2015). At the same time, according to the social role theory (SRT) (Eagly, 1987; Eagly et al., 2000), male and female employees are expected to value and respond differently to various aspects of managerial practices – such as leadership – because of the gender-differentiated needs and preferences that
stem from their socially defined gender roles (Konrad et al., 2000; Barbuto et al., 2007; Eagly and Crowley, 1986). Therefore, a better understanding of the potential impact of employees’ gender on the effectiveness of inclusive leadership is necessary and clearly required.

Unfortunately, most prior studies on leadership have taken employees’ gender as a control variable and neglected its importance in leadership behaviors. Given the ubiquitous and fundamental influences of employees’ gender in the modern workplace and its implications for altering the associations between leadership and employee outcomes, there have been several calls for more robust and comprehensive studies to identify and understand the impact of employees’ gender on leadership behaviors (e.g. Eagly et al., 2000; Ayman and Korabik, 2010; Chaturvedi et al., 2012). Therefore, the present study echoes these calls and addresses this gap in the literature by clarifying the moderating role that employees’ gender plays in shaping the influence of inclusive leadership on employees’ positive mood and thus on employees’ learning from errors.

In summary, by incorporating the SRT into the AET framework, this study proposes and tests an integrative moderated mediation model of the mediating role of employees’ positive mood and the moderating role of employees’ gender in the relationship between inclusive leadership and employees’ learning from errors (see Figure 1).

2. Theoretical background and hypothesis development

2.1 Employees’ learning from errors and the factors influencing it

In line with prior research, this study defines employees’ learning from errors as the process through which employees reflect on and analyze the causes of errors, develop new or revised knowledge and strategies that aim to prevent or reduce similar errors in the future, and experiment with and finally implement new or revised knowledge and action strategies (Bauer and Mulder, 2008). As this definition indicates, learning from errors is an experience-based learning activity through which better outcomes can be achieved (Rybowiak et al., 1999; Edmondson, 2004; Ellis and Davidi, 2005; Zhao, 2011; Naveh et al., 2015); therefore, it is essential for organizations’ development (Cannon and Edmondson, 2005; Zhao, 2011; Putz et al., 2013).

In recent decades, a number of studies have been conducted to reveal the multiple factors that influence employees’ learning from errors (Zhao, 2011; Bauer and Mulder, 2013; Naveh et al., 2015). Generally, these factors can be grouped into four main categories. The first category is concerned with individual characteristics, such as personal initiative and self-efficacy (Gist and Mitchell, 1992; Rybowiak et al., 1999), which have been found to be significantly related to employees’ learning from errors by affecting their interpretations of errors (Ellis et al., 2006; Zhao and Olivera, 2006; Schilling and Kluge, 2009). The second category of factors focuses on the characteristics of errors. For example, several studies have found that the magnitude and criticality of errors (Sitkin, 1992; Ellis et al., 1999; Dillon and Tinsley, 2008) have significant impacts on learning from errors, while other studies have suggested that the sources of errors (Ramanujam and Goodman, 2003; Madsen and Desai, 2010) are important for learning from errors. Over and above, the influences of the characteristics of individuals and errors, task structures, and work standards have been recognized as the third category factor that affects error handling and employees’ learning from errors in everyday work life (Popper and Lipshitz, 2000; Schilling and Kluge, 2009).

![Figure 1. The research model](#)
The fourth category refers to organizational factors, such as reward systems (Argyris, 1993; Naot et al., 2004) and organizational culture and norms (Cannon and Edmondson, 2001, 2005; Edmondson, 2004; Putz et al., 2013). In particular, an error-management culture characterized by interpersonal trust, mutual respect, and open communication has been found to be necessary in order to facilitate learning from errors (Ellis et al., 1999; Cannon and Edmondson, 2001; Edmondson, 2004; Schilling and Kluge, 2009). Leader behaviors, as important organizational factors, have been shown to influence the manner in which errors are managed in organizations and thus affect employees’ learning orientations (Edmondson, 2004; Zhao and Olivera, 2006; Putz et al., 2013). For instance, the relational aspects of leadership were found to be essential to enabling learning processes (Carmeli et al., 2012), while managers’ intolerance of errors inhibited employees’ learning from errors (Edmondson, 2004; Zhao, 2011). Nembhard and Edmondson’s (2006) study of medication errors committed by nursing teams provided preliminary evidence of the effects of leader inclusiveness on learning from errors, and suggested that leader inclusiveness creates psychological safety, which is necessary for learning from errors in medical teams.

However, although these researchers have highlighted the importance of inclusive leadership for learning from errors, the mechanisms through which inclusive leadership exerts influence has been limited to psychological safety perspectives; additionally, no studies to date have considered the boundary conditions of this relationship. The research on how and when inclusive leadership facilitates employees’ learning from errors is still in an early stage and requires further investigation. Therefore, based on the AET and the SRT, this study aims to address this gap by investigating the roles of employees’ positive mood and gender in the relationship between inclusive leadership and employees’ learning from errors. In the sections below, the specific hypotheses of this study are developed.

### 2.2 The mediating role of positive mood

An important theoretical contribution of the AET is that it incorporates affective elements to provide insight into the relationships between workplace factors and employee behaviors (Weiss and Beal, 2005). As a long-lasting affective experience, mood is likely to be elicited by relatively stable factors in the workplace (Bierhoff and Muller, 2005). Weiss and Cropanzano (1996) argued that an employee’s affective responses to workplace factors mediate the relationships between these factors and the employee’s attitudes and behaviors. Among these workplace factors, leadership is one of the most consequential influencers of employees’ affective state because high-status individuals in organizations have been shown to be more likely to have a greater impact on others’ affect states than low-status individuals (Fredrickson, 2003). Accordingly, this study proposes that inclusive leadership will trigger employees’ positive mood, which, in turn, will be conducive to employees’ learning from errors. Specifically, inclusive leadership is beneficial to employees’ positive mood in several ways.

First, by making significant efforts to support and meet employees’ needs and interests, treating employees with respect and being more optimistic rather than critical when problems are encountered (Hollander, 2009), inclusive leadership cultivates high-quality relationships with employees (Carmeli et al., 2010) and enhances the congruence between employees’ needs and rewards for their work, thus ultimately increasing employees’ positive mood (Choi et al., 2016; Hollander, 2009).

Second, by remaining open to and valuing employees’ opinions and contributions, inclusive leaders show their confidence in employees’ abilities and make employees feel that they are important for the organization (Carmeli et al., 2010; Hollander, 2009); in turn, employees are more likely to experience positive mood (George and Zhou, 2007).

Third, in contrast with behaviors aimed at actively structuring employees’ work by giving detailed instructions, setting clear expectations, and limiting employees’ input in decision making, inclusive leadership grants employees a higher degree of freedom and
discretion, encourages employees to offer input into the process of completing a job and provides employees with the opportunity to be involved in and to exert influence on decision-making processes (Carmeli et al., 2010; Hollander, 2009; Nembhard and Edmondson, 2006), all of which can contribute to employees’ positive mood (Bierhoff and Müller, 2005; Choi et al., 2016). Based on the above arguments, inclusive leadership is likely to be associated with employees’ positive mood in the workplace.

As the above definition indicates, learning from errors is a self-instructive and self-organized effort that includes not only the conscious analysis and reflection of root causes of errors but also the active implementation of the changes required to prevent or reduce the probability of future errors (Zhao, 2011; Bauer et al., 2012; Bauer and Mulder, 2013). Therefore, in order to learn from errors, an employee must have the motivation and required resources. Given this fact, several theoretical rationales in the literature can be offered to explain the facilitative effects of positive mood on employees’ learning from errors.

First, from the motivation perspective, positive mood can boost motivation intensity and confidence, which are necessary for learning from errors (Isen and Baron, 1991; Fredrickson, 2001). The mood-congruent processing theory asserts that employees process information in congruence with their mood states; as such, positive mood will elicit positive-valenced information from memory (Blaney, 1986), cause employees to perceive their environments in a more positive light (Schwarz, 1990), and encourage approach-oriented rather than avoidance-oriented behavior (Schwarz, 1990; Fredrickson, 2001). This argument indicates that when an employee has a positive mood, he or she is more optimistic and attuned to opportunities to try new things, ideas, and processes to improve the status quo (Tamir and Robinson, 2007; Nadler et al., 2010; Bindl et al., 2012), all of which are crucial elements of learning from errors. Empirically, Bindl et al. (2012) found that positive mood encourages employees to transcend limits and to engage in self-initiated and change-oriented behaviors. Therefore, as a change-oriented behavior, learning from errors is likely to be elicited when an employee has a positive mood.

Second, from the resource perspective, positive mood can facilitate employees’ learning from errors by increasing cognitive (Ashby et al., 1999) and psychological resources (Fredrickson, 2003), which are necessary for employees to cope effectively with errors resulting from errors. Specifically, Fredrickson’s (2003) broaden-and-build theory suggests that when employees experience positive mood, their divergent thinking and cognitive flexibility are enhanced and they are more likely to engage in learning from errors (Fredrickson, 2003). In addition, the psychological resilience fueled by a positive mood (Fredrickson, 2003) can minimize the anxiety, stress, worry, or exhaustion resulting from errors (Bindl et al., 2012) and can make the employee feel free and secure to try new ideas without a fear of consequences (Nadler et al., 2010; Bindl et al., 2012), thus encouraging the employee to engage in learning from errors. Therefore, as a change-oriented behavior, learning from errors is likely to be elicited when an employee has a positive mood.

Given that inclusive leadership is helpful for developing employees’ positive mood and that employees’ positive mood will encourage employees’ learning from errors, this study expects that employees’ learning from errors by increasing cognitive (Ashby et al., 1999) and psychological resources (Fredrickson, 2003), which are necessary for employees to cope effectively with errors resulting from errors. Specifically, Fredrickson’s (2003) broaden-and-build theory suggests that when employees experience positive mood, their divergent thinking and cognitive flexibility are enhanced and they are more likely to engage in learning from errors (Fredrickson, 2003). In addition, the psychological resilience fueled by a positive mood (Fredrickson, 2003) can minimize the anxiety, stress, worry, or exhaustion resulting from errors (Bindl et al., 2012) and can make the employee feel free and secure to try new ideas without a fear of consequences (Nadler et al., 2010; Bindl et al., 2012), thus encouraging the employee to engage in learning from errors. Therefore, as a change-oriented behavior, learning from errors is likely to be elicited when an employee has a positive mood. The moderating role of gender

The SRT is among the most influential theoretical lenses that can be applied to explain and undergird the moderating effects of gender in workplace (e.g. Kacmar and Bachrach, 2011; 2019; Kacmar et al., 2019). Based on the above arguments, inclusive leadership is likely to be associated with employees’ positive mood in the workplace. As the above definition indicates, learning from errors is a self-instructive and self-organized effort that includes not only the conscious analysis and reflection of root causes of errors but also the active implementation of the changes required to prevent or reduce the probability of future errors (Zhao, 2011; Bauer et al., 2012; Bauer and Mulder, 2013). Therefore, in order to learn from errors, an employee must have the motivation and required resources. Given this fact, several theoretical rationales in the literature can be offered to explain the facilitative effects of positive mood on employees’ learning from errors.

First, from the motivation perspective, positive mood can boost motivation intensity and confidence, which are necessary for learning from errors (Isen and Baron, 1991; Fredrickson, 2001). The mood-congruent processing theory asserts that employees process information in congruence with their mood states; as such, positive mood will elicit positive-valenced information from memory (Blaney, 1986), cause employees to perceive their environments in a more positive light (Schwarz, 1990), and encourage approach-oriented rather than avoidance-oriented behavior (Schwarz, 1990; Fredrickson, 2001). This argument indicates that when an employee has a positive mood, he or she is more optimistic and attuned to opportunities to try new things, ideas, and processes to improve the status quo (Tamir and Robinson, 2007; Nadler et al., 2010; Bindl et al., 2012), all of which are crucial elements of learning from errors. Empirically, Bindl et al. (2012) found that positive mood encourages employees to transcend limits and to engage in self-initiated and change-oriented behaviors. Therefore, as a change-oriented behavior, learning from errors is likely to be elicited when an employee has a positive mood. Second, from the resource perspective, positive mood can facilitate employees’ learning from errors by increasing cognitive (Ashby et al., 1999) and psychological resources (Fredrickson, 2003), which are necessary for employees to cope effectively with errors resulting from errors. Specifically, Fredrickson’s (2003) broaden-and-build theory suggests that when employees experience positive mood, their divergent thinking and cognitive flexibility are enhanced and they are more likely to engage in learning from errors (Fredrickson, 2003). In addition, the psychological resilience fueled by a positive mood (Fredrickson, 2003) can minimize the anxiety, stress, worry, or exhaustion resulting from errors (Bindl et al., 2012) and can make the employee feel free and secure to try new ideas without a fear of consequences (Nadler et al., 2010; Bindl et al., 2012), thus encouraging the employee to engage in learning from errors. Therefore, as a change-oriented behavior, learning from errors is likely to be elicited when an employee has a positive mood.

Given that inclusive leadership is helpful for developing employees’ positive mood and that employees’ positive mood will encourage employees’ learning from errors, this study expects that employees’ learning from errors by increasing cognitive (Ashby et al., 1999) and psychological resources (Fredrickson, 2003), which are necessary for employees to cope effectively with errors resulting from errors. Specifically, Fredrickson’s (2003) broaden-and-build theory suggests that when employees experience positive mood, their divergent thinking and cognitive flexibility are enhanced and they are more likely to engage in learning from errors (Fredrickson, 2003). In addition, the psychological resilience fueled by a positive mood (Fredrickson, 2003) can minimize the anxiety, stress, worry, or exhaustion resulting from errors (Bindl et al., 2012) and can make the employee feel free and secure to try new ideas without a fear of consequences (Nadler et al., 2010; Bindl et al., 2012), thus encouraging the employee to engage in learning from errors. Therefore, as a change-oriented behavior, learning from errors is likely to be elicited when an employee has a positive mood. Therefore, as a change-oriented behavior, learning from errors is likely to be elicited when an employee has a positive mood.
According to the SRT, given the traditional gendered division of labor, men and women tend to fulfill different social roles in society based on their physical sex differences, and accordingly, they are socialized in different manners and encounter different requirements (Eagly, 1987). Over time, these different social roles and socialization processes inhabited by men and women lead to the formation of agentic vs communal behavior patterns and focuses (Eagly et al., 2000; Eagly, 1987). This agentic and communal distinction between men and women will exert a powerful influence on the different cognitions and psychological and emotional needs of male and female employees (Kling et al., 1999; Ganesh and Ganesh, 2014) and cause differences in the manners in which male and female employees perceive, evaluate, and react to leadership behaviors (Heilman, 2001; Barbuto et al., 2007; Kacmar and Bachrach, 2011). In addition, another well-established gender difference in the SRT is that women are more emotional than men (Williams and Best, 1990; Manstead, 1998). According to many gender theorists, women are believed to be more affect expressive than men (Iacobucci and Ostrom, 1993; Simon and Nath, 2004). Overall, the gender of employees may constitute an important boundary condition that will influence the extent to which inclusive leadership can improve employees’ positive mood.

Specifically, the SRT posits that because women are traditionally expected to pursue feminine roles, they are likely to be more people oriented and to focus more on interpersonal relationships with others (Iacobucci and Ostrom, 1993; Eagly, 1987; Schminke et al., 2003) and to attach more importance to interaction quality with others (Iacobucci and Ostrom, 1993; Konrad et al., 2000; Collins et al., 2014). Consequently, female employees are expected to prefer communal leadership behaviors in the work environment and to value a good and close relationship with leaders more than male employees do (Cross and Madson, 1997; Eagly et al., 2000; Collins et al., 2014). Therefore, since inclusive leadership encompasses more communal behaviors and emphasizes the development of high-quality relationships with employees, it is likely that female employees will be more sensitive to and be motivated by such leadership than will male employees. In addition, women possess a strong and unique desire to receive support from one’s acquaintances (Williams and Best, 1990). This desire might tend to make inclusive leadership more preferred because inclusive leadership focuses on supportive behaviors in their interactions with employees. As a result, female employees are more likely to favor an inclusive leadership style and to evaluate it as being more effective and desirable; thus, they will respond more positively to inclusive leadership. Therefore, the positive effect of inclusive leadership on employees’ positive mood is likely to be amplified for female employees.

Conversely, the SRT suggests that based on masculine role characteristics, male employees are more task oriented and driven by instrumental goals and tend to emphasize aggressiveness, competition, assertiveness, independence, and dominance (Schminke et al., 2003; Eagly et al., 2000). As a result, they are more likely to favor and value agentic leadership behaviors that focus on achievement, control, assertion, and competitiveness (Eagly et al., 2000; Heilman, 2001; Konrad et al., 2000). As such, due to its more communal-oriented attributes, inclusive leadership is generally incongruent with the agentic behaviors expected from male employees and is thus considered less meaningful to male employees. Consequently, male employees might be less aware of and less sensitive to the potential benefits of inclusive leadership; hence, the positive effects of inclusive leadership on male employees’ positive mood are likely to be mitigated. In addition, male employees are more likely to focus on achieving enhanced status rather than close personal ties (Eagly et al., 2000). This relatively lower desire for connectedness and relationship building suggests that the interpersonal aspect of inclusive leadership will be less important for male employees (Collins et al., 2014), and as a result, inclusive leadership might induce less-positive reactions from male employees. Therefore, the association between inclusive leadership and employees’ positive mood might be weaker for male employees.
To summarize, based on the above discussion, this study predicts that the beneficial effects of inclusive leadership on employees' positive mood will be greater for female employees than for male employees. As a consequence, the following hypothesis is formed:

**H2.** Employees' gender moderates the relationship between inclusive leadership and employees' positive mood, and this relationship is stronger for female employees than for male employees.

Cumulatively, the above hypothesized pattern of moderation suggests a moderated mediation (Edwards and Lambert, 2007), namely, that the indirect effects of inclusive leadership on employees' learning from errors through employees' positive mood might depend on employees' gender. Thus, this study hypothesizes the following:

**H3.** The indirect relationship between inclusive leadership and employees' learning from errors through employees' positive mood is moderated by employees' gender such that the relationship is stronger for female employees than for male employees.

3. Methods
3.1 Sample and procedure
A multi-time survey method was used in this study. In an attempt to increase the generalizability of the study, 300 full-time employees working in 30 companies in Zhejiang province in Eastern China were invited to participate in this survey at two time points with a lag time of one month. These 30 companies operated in a wide range of industries, including manufacturing, banking, health, energy, information technology, and training. Specifically, this study randomly selected ten employees from ten different teams in each company with the help of the company's HR department. To match the questionnaires from time 1 to those from time 2, each questionnaire was coded with a pre-assigned identification number. At time 1, employees completed questionnaires about their individual backgrounds and rated the level of inclusive leadership. At time 2, employees were required to report on their positive mood and their engagement in learning from errors. In total, 202 employees completed the two surveys, representing a response rate of 67.3 percent. Since all 202 employees were selected from different teams, 202 different leaders were evaluated. In our sample of participants, 35.6 percent were male, 4 percent held a high school diploma or equivalent, 46 percent held a college degree, 44 percent held a bachelor's degree, and the remaining 6 percent of the participants held a Master's degree or above. The participants' average age was 32.4 years, and their average organizational tenure was 6.2 years.

3.2 Measures
All measurement items applied in this study were adapted from the existing literature and were employed and demonstrated to have good reliability and validity by many prior studies. Since all the measures were translated from English, a two-step research design was employed (Brislin, 1980). First, to ensure clarity and construct validity, the questionnaires were pre-tested by 15 individuals. Then, after several refinements were made according to the feedback from pre-testing, the structured questionnaires were administered. All the variables were measured by participant responses to questions on a five-point Likert-type scale ranging from “1 = strongly disagree” to “5 = strongly agree.”

3.2.1 Independent variable. Inclusive leadership was measured using a nine-item scale developed by Carmeli et al. (2010). A sample item is: “My supervisor is accessible for discussing emerging problems.” Cronbach’s $\alpha$ for this scale was 0.90.

3.2.2 Mediating variable. Employees' positive mood was measured using a five-item scale developed by Grove and Prapavessis (1992) in their “Profile of Mood States.” Specifically, the respondent was instructed to rate how often he or she felt “happy,” “active,”
energized,” “enthusiastic,” and “enjoyment” over the previous week. Cronbach’s α for this scale was 0.89.

3.2.3 Dependent variable. Employees’ learning from errors was measured with a four-item scale developed by Rybowiak et al. (1999) because it perfectly matches and covers the focus of this study by emphasizing the individual level of learning from errors; additionally, it was previously found to have good reliability and validity in studies conducted in China (e.g., Tjosvold et al., 2004). Although errors can be distinguished into various types, the present study uses the term “error” in a general sense because nearly all error types have the potential for individual learning (Zhao and Olivera, 2006), and this broad concept of errors can also be found in several other studies on learning from errors (Cannon and Edmondson, 2001; Zhao, 2011). To make it clear to readers what errors mean in this study, the definition of errors developed by Zhao and Olivera (2006) and several examples of errors in the workplace were provided in the questionnaire before the items for learning from errors. Two sample items for employees’ learning from errors are: “Errors can help me to improve my job” and “Errors provide useful information for me to perform my job.” Cronbach’s α for this scale was 0.85.

3.2.4 Moderating variable. Gender was measured as a dichotomous variable coded as 1 for male and 0 for female.

3.2.5 Control variables. Drawing on prior research, the age, organizational tenure, educational background, and job function of employees were included as control variables in this model.

4. Results

Prior to testing the hypotheses, confirmatory factor analysis (CFA) was conducted using LISREL version 8.5 to examine the discriminant validity of the variables studied. As shown in Table I, the results of the CFA revealed that the hypothesized model fit the data well (χ²/df = 1.29, RMSEA = 0.04, SRMR = 0.05, NNFI = 0.99, GFI = 0.91, CFI = 0.99, IFI = 0.99) and significantly better than other alternative models.

Table II presents the descriptive statistics, correlations, and scale reliabilities for all the variables. Consistent with our arguments, inclusive leadership was positively associated with employees’ positive mood (r = 0.33, p < 0.01) and employees’ learning from errors (r = 0.22, p < 0.05); employees’ positive mood was positively associated with employees’ learning from errors (r = 0.31, p < 0.01). Thus, all the correlations were in the expected direction and provided the necessary conditions to further test the hypotheses.

Regression analysis was conducted to test H1, which predicted that employees’ positive mood mediated the effect of inclusive leadership on employees’ learning from errors. As shown in Table III, after controlling for all the control variables, inclusive leadership was positively and significantly related to employees’ positive mood (Model 1: β = 0.31, p < 0.01) and employees’ learning from errors (Model 3: β = 0.24, p < 0.01). Employees’ positive mood was positively and significantly related to employees’ learning from errors (Model 4: β = 0.30, p < 0.01). Then, when inclusive leadership and employees’ positive mood were

<table>
<thead>
<tr>
<th>Models</th>
<th>χ²/df</th>
<th>RMSEA</th>
<th>SRMR</th>
<th>NNFI</th>
<th>GFI</th>
<th>CFI</th>
<th>IFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-factor</td>
<td>1.29</td>
<td>0.04</td>
<td>0.05</td>
<td>0.99</td>
<td>0.91</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Two-factor</td>
<td>2.15</td>
<td>0.06</td>
<td>0.39</td>
<td>0.95</td>
<td>0.88</td>
<td>0.96</td>
<td>0.96</td>
</tr>
<tr>
<td>Two-factorb</td>
<td>3.95</td>
<td>0.11</td>
<td>0.28</td>
<td>0.88</td>
<td>0.79</td>
<td>0.89</td>
<td>0.89</td>
</tr>
<tr>
<td>One-factor</td>
<td>2.30</td>
<td>0.06</td>
<td>0.48</td>
<td>0.95</td>
<td>0.88</td>
<td>0.95</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Table I. CFA results

Notes: n = 202. aCombining inclusive leadership and employee’s positive mood in the three-factor model; bCombining employee’s positive mood and employee’s learning from errors in the two-factor model
included in the same regression equation, the positive effect of inclusive leadership on employees’ learning from errors became weaker, albeit still significant (Model 5: $\beta = 0.17$, $p < 0.05$), suggesting a partial mediation effect. Moreover, to further confirm the significance of the indirect effect, the bias-corrected bootstrapping procedure developed by Preacher and Hayes (2008) was performed, and the results indicated that the indirect effect = 0.08; $p < 0.01$, the 95 percent confidence interval for the mediation effect did not include zero [0.03, 0.14]. Therefore, $H1$ was supported.

To test the moderating effect of employees’ gender on the relationship between inclusive leadership and employees’ positive mood, as recommended by Aiken and West (1991), inclusive leadership and employees’ gender were centered prior to running the analyses. As shown in Table IV, the interaction term of inclusive leadership and employees’ gender was significant in predicting employees’ positive mood ($\beta = -0.22$, $p < 0.01$). The additional proportion of variance in employees’ positive mood explained by the interaction term was also significant ($\Delta R^2 = 0.05$, $p < 0.01$). We then employed Aiken and West’s (1991) procedures to plot the pattern of the significant interaction effects. As Figure 2 displays, inclusive leadership had a stronger effect on the positive mood of female employees than on that of male employees. Taken together, $H2$ was supported.

Having supported the moderating effect of employees’ gender on the relationship between inclusive leadership and employees’ positive mood, the procedure recommended by Preacher et al. (2007) was used to examine the conditional indirect effects of inclusive
leadership on employees’ learning from errors through employees’ positive mood for male and female employees. The results revealed that inclusive leadership was indirectly related to employees’ learning from errors through the positive mood of female employees (indirect effect = 0.13; p < 0.05; 95 percent CI = 0.06-0.23). For male employees, the indirect effect was not significant (indirect effect = 0.01; ns; 95% CI = −0.04-0.08). Therefore, H3 was supported.

5. Discussion
The purpose of the present study is to provide a more comprehensive and thorough understanding of how and when inclusive leadership facilitates employees’ learning from errors. Consistent with previous studies that have found that inclusive leadership positively affects employee behaviors such as involvement in creative work (Carmeli et al., 2010), work engagement (Choi et al., 2015), and job performance (Hirak et al., 2012), this study found inclusive leadership to be positively associated with employees’ learning from errors. However, in comparison to prior research that has relied predominantly on the social exchange theory or the social learning theory (e.g. Choi et al., 2015), this study is firmly grounded in the AET framework to explain why inclusive leadership can have powerful influences on employee behaviors.

### Table IV. Results of regression analysis for moderation by employees’ gender

<table>
<thead>
<tr>
<th></th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.13</td>
<td>0.13</td>
<td>0.14</td>
</tr>
<tr>
<td>Tenure</td>
<td>−0.14</td>
<td>−0.19</td>
<td>−0.21</td>
</tr>
<tr>
<td>Function</td>
<td>0.03</td>
<td>0.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Education</td>
<td>−0.00</td>
<td>0.03</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Main variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inclusive leadership</td>
<td>0.32**</td>
<td>0.24**</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>−0.17*</td>
<td>−0.17*</td>
<td></td>
</tr>
<tr>
<td><strong>Interaction term</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inclusive leadership × gender</td>
<td>−0.22**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R²</strong></td>
<td>0.01</td>
<td>0.14</td>
<td>0.18</td>
</tr>
<tr>
<td>F</td>
<td>0.53</td>
<td>4.57**</td>
<td>5.30**</td>
</tr>
<tr>
<td>ΔR²</td>
<td>0.01</td>
<td>0.12**</td>
<td>0.05**</td>
</tr>
</tbody>
</table>

Notes: n = 202. Two-tailed test: *p < 0.05; **p < 0.01
This study also found that employees’ positive mood mediated the relationship between inclusive leadership and employees’ learning from errors. This finding marks a clear departure from Edmondson’s (2004) and Nembhard and Edmondson’s (2006) research, which emphasized the importance of psychological safety in learning from errors, and lends strong support for the recent argument that affect state might be a key mechanism influencing employees’ learning from errors (Shepherd et al., 2011; Zhao, 2011). At the same time, by stressing the motivational value of positive mood in promoting employees’ learning from errors, this study is also clearly different from Zhao’s (2011) study, which highlighted the role of negative affect in inhibiting employees’ learning from errors.

Finally, the results of this study revealed that employees’ gender moderated the relationship between inclusive leadership and employees’ positive mood and the indirect relationship between inclusive leadership and employees’ learning from errors through employees’ positive mood; the relationships were stronger for female employees than for male employees. These results are in line with the AET, which specifies that individual traits can influence the strength of relationships among events, affect, and behaviors. Moreover, given that no previous studies have explored the specific role of employees’ gender in learning from errors but rather considered it as a control variable, the moderating effect of employees’ gender found in this study is noteworthy and adds value to our understanding of the impact of employees’ gender in organizations (Samnani et al., 2014).

5.1 Theoretical implications

Altogether, this study contributes to the literature in at least three ways. A primary contribution of the present study is that it introduces the AET as a framework for interpreting the relationship between inclusive leadership and employees’ learning from errors and tests this framework empirically. Although the AET is increasingly invoked in organizational research and mood experienced at work has become a critical issue in organizational behavior studies over the past few years (Miner and Glomb, 2010; Totterdell and Niven, 2014), this study is the first to extend this theory to the field of learning from errors. This affective theory perspective identifies a previously unrecognized motivational construct – positive mood – as a central mechanism through which inclusive leadership is linked to employees’ learning from errors, thus adding an important missing piece to the research on employees’ learning from errors and proposing an alternative yet complementary approach to explain the influence of inclusive leadership. In this manner, this study exemplifies the usefulness of integrating and testing alternative theories on leadership and learning from errors. In addition, the impact of positive mood on learning from errors found in the present study further advances the theoretical and empirical research on the effect of mood on employees’ work motivation and behaviors (George and Zhou, 2007; Bindl et al., 2012), thus responding to the calls for “further theory building and empirical work on the role of affect” (Morrison, 2011, p. 403) in organizational behavior.

Second, this study’s findings provide additional support for the effectiveness of inclusive leadership in organizations (Carmeli et al., 2010; Hirak et al., 2012; Choi et al., 2015). Specifically, by theorizing and demonstrating the positive effects of inclusive leadership on employees’ learning from errors, this study opens up meaningful synergies between the literatures on inclusive leadership and on employees’ learning behavior. Moreover, since inclusive leadership is an important aspect of inclusion in workplace, this study also contributes to a growing discussion of the importance of organizational inclusion (Roberson, 2006; Azmat et al., 2015).

A third contribution of this study lies in its application of the SRT within the AET framework to develop a more comprehensive understanding of how inclusive leadership impacts employees’ positive mood and subsequent learning behaviors. Specifically, by highlighting the moderating role of employees’ gender, this study extends the extant research, which has focused mainly on testing the main effects of inclusive leadership on
positive employee behaviors (e.g. Carmeli et al., 2010; Choi et al., 2015, 2016), and suggests a need to examine the influence of individual traits that have not been traditionally present in the literature on learning from errors. In addition, the moderating role of employees’ gender also enriches our knowledge on the boundary conditions that shape the effectiveness of inclusive leadership and might provide a novel insight to at least partially resolve the apparent contradiction that exists in the current leadership effectiveness literature.

5.2 Practical implications

Errors are prevalent in the workplace, and previous studies have demonstrated that employees’ learning from errors is highly useful for organizations to improve service quality, adaptability, and productivity (Cannon and Edmondson, 2005; Bauer et al., 2012; Naveh et al., 2015); therefore, it is more reasonable and essential for organizations to strive to promote employees’ learning from errors instead of trying to completely eliminate all errors in organizations (Bauer and Mulder, 2013; Zhao, 2011; Putz et al., 2013). Thus, by exploring the stimulating factors of employees’ learning from errors, this study has particularly important implications for organizations and managers aiming to facilitate employees’ learning from errors.

First, given that this study found an important role of inclusive leadership in employees’ learning from errors, companies wishing to promote employees’ learning from errors should apply inclusive leadership to enhance their employees’ learning behaviors. Different from other types of leadership, inclusive leadership is a special form of relational leadership that adheres to people-centered management principles, and focuses on the relationships and interactions between leaders and followers (Carmeli et al., 2010; Choi et al., 2015). By having employees feel valued for their unique talents and backgrounds and perceive that they belong and matter to the organization (Hollander, 2009), inclusive leadership can better meet employees’ differentiated needs and offer unique advantages in the current complex organizational context, thereby facilitating employees’ learning from errors. Since many aspects of leadership behavior can be learned or modified, organizations should not only focus on inclusive leader selection and recruitment but also help current leaders develop inclusive leadership through well-designed training and mentoring programs.

Second, by underlining and verifying the importance of positive mood on employees’ learning from errors, this study also has important implications for managers. Along with the emergent positive psychology (Seligman and Csikszentmihalyi, 2000), positive mood at work has received growing research attention over the past several decades (Tamir and Robinson, 2007; Nadler et al., 2010; Totterdell and Niven, 2014). Previous research has revealed that employees’ positive mood would be beneficial to organizations in some important ways, such as creativity improvement (George and Zhou, 2007). This study further indicated that as a constructive and approach-oriented behavior, learning from errors is more likely to be elicited when employees have a positive mood. Therefore, to effectively harness employees’ positive mood, managers should adopt a more proactive role and utilize a variety of management practices, such as creating a favorable and supportive work environment, providing positive feedback and caring about the welfare of employees.

Third, with increasing numbers of women moving into the workforce in the past few decades, the composition of the workforce in organizations has undergone massive changes (Garib, 2013; Ganesh and Ganesh, 2014). For example, the economic role of women in China has changed greatly over the past half century, and women now make up approximately 46 percent of the labor force in China – a higher proportion than in many Western countries. However, due to gender-based differences in cognition and behaviors, how to manage gender diversity efficiently has become one of the greatest challenges faced by many managers (Garib, 2013). Therefore, by particularly highlighting and investigating employees’ gender as an important boundary condition for the influence of inclusive
leadership, this study has important practical utility for organizations and their managers to help them understand and cope with the heterogeneous behaviors that male and female employees display in organizations. Specifically, the results of this study clearly suggest that the positive effect of inclusive leadership on employees’ positive mood is stronger for female employees than for male employees. This finding provides evidence that there is a fit between leadership style and employees’ gender and that only the leadership that matches the employee’s preference can generate the greatest value. Therefore, to achieve maximum leadership effectiveness and to capture the benefits of managerial practices more efficiently, managers should be aware of gender differences in the workplace and should tailor their interventions and behaviors based on the distinct needs and expectations of male and female employees.

5.3 Limitations and future research directions
Notwithstanding these interesting results, this study suffers from several limitations that provide avenues for future research.

The first limitation of this study is the use of a self-reported measurement approach to the variables, which might result in common-method variance and self-serving biases (Podsakoff et al., 2003). A longitudinal research design that collects data from different sources is desirable for the future.

A second limitation of this study is its singular focus on positive mood as a mediating mechanism while failing to include negative mood. As Zhao (2011) suggested, an employee’s negative affect also has predictive power for the employee’s learning behavior. Studying both positive and negative mood simultaneously and exploring the conditions under which these mood states are most effective is likely to be an interesting research avenue for future studies.

A third limitation of this study is that it conceptualized mood on a weekly basis, and several scholars have argued that affective states can vary between days or even within one day (e.g., Totterdell and Niven, 2014). Although weekly measurements of mood have been applied in many organizational behavior studies (e.g., George and Zhou, 2007), and several scholars have observed that self-reported, daily ratings of mood did not dramatically differ from those for a whole week (Parkinson et al., 1995; Beal and Ghandour, 2011), if possible, future studies should measure mood on a daily basis.

A fourth limitation of this study is that by assuming that men were masculine and women were feminine, this study did not measure gender directly but used the biological sex of employees as an index. Although this assumption has been accepted by many organizational studies (Kacmar and Bachrach, 2011; Balabanova et al., 2016), we recognize it as a limitation of this study. Because gender is a multi-dimensional and social-psychological concept (Eagly et al., 2000), biological sex alone does not suffice to account for the psychological and social differences and characteristics associated with gender (Schaefer and Lamm, 1995; Bem, 1981). Therefore, future research should analyze gender by combining both physiological and social-psychological aspects.

A final limitation arises from the fact that we tested our hypotheses on a sample drawn solely from Chinese employees; thus, the generalizability of our findings to other contexts may be limited. Although China provides an ideal setting for exploring the effects of gender in an organizational context because gender role expectations in China are particularly strong (Entwisle et al., 1995; Tang and Tang, 2001), China’s specific culture and values could influence the magnitude of some of the effects observed in this study. Therefore, future studies should consider these possibilities and conduct cross-cultural research if possible.

5.4 Conclusions
This study represents an explicit effort to understand the relationship between inclusive leadership and employees’ learning from errors by incorporating the SRT into the AET
framework. By empirically demonstrating that employees’ positive mood mediates the relationship between inclusive leadership and employees’ learning from errors and that employees’ gender moderates these relationships, this study sheds light on the timely issues of inclusive leadership, mood, and learning from errors in the workplace and serves as a starting point for future studies concerning the antecedents, underlying mechanisms, and boundary conditions that influence employees’ learning from errors.

References


Corresponding author
Qingyan Ye can be contacted at: tina3521@hotmail.com

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Emerald is excited to announce a recent partnership with Peerwith, a platform that provides authors with a variety of services.

The Emerald Peerwith site can be found here: https://authorservices.emeraldpublishing.com/

Peerwith connects academics seeking support for their work with a relevant expert to get their research submission-ready. Peerwith experts can help with the following: language editing, copy editing, scientific editing, translation services, statistical support, funding application support, visuals, video, publication support, literature search, peer review and indexing services. Authors post their assignments on the Peerwith site, experts provide a quote, and the fee and conditions are then agreed upon directly between the author and the expert.

While we are not, of course, guaranteeing publication upon use of Peerwith, we hope that being able to direct academics to this resource either before submission or during the peer review process will help authors further improve the quality of their papers and increase their chances of positive reviews and acceptance.

Academics with relevant expertise can sign up as an expert on the Peerwith system here: https://www.peerwith.com/services/offer
Preserving over 100 years of management research online

A lifetime investment for your institution, Emerald Backfiles will significantly enhance your library’s offering by providing access to over 125,000 articles from more than 260 journals dating back to 1898.

Visit emeraldinsight.com

Get Backfiles Collections for your library
Recommend Backfiles to your librarian today.
Find out more: emeraldpublishing.com/backfilescollections
Baltic Journal of Management

Number 1

1 Editorial advisory board

2 Fears, discrimination and perceived workplace promotion
Zachary Shaffer, Shalom Levy and Edo Navot

20 Exports-performance relationship in Russian manufacturing companies: does foreign ownership play an enhancing role?
Anna Bykova and Felix Lopez-Iturriaga

41 Investigating feedback effects in the field of brand extension using brand concept maps
Pascal Kottemann, Anja Plumeyer and Reinhold Decker

65 Exploring open innovation collaboration between SMEs and larger customers: the case of high-technology firms
Anita Ellen Tobiassen and Inger Beate Pettersen

84 Development and validation of the team influence relations scale (TIReS): beyond the measurement of individual influence in teams
Barbara Kozusznik, Mateusz Paliga, Barbara Smorczewska, Damian Grabowski and Małgorzata Wanda Kozusznik

104 The mediating effects of ego-resilience in the relationship between organizational support and resistance to change
Aristides Isidoro Ferreira, Carla Cardoso and Timo Braun

125 Promoting employees' learning from errors by inclusive leadership: do positive mood and gender matter?
Qingyan Ye, Duanxu Wang and Xi Li