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Transformation through tension: The moderating impact of negative affect on transformational leadership in teams

Rebecca Mitchell, Brendan Boyle, Vicki Parker, Michelle Giles, Pauline Joyce and Vico Chiang

Abstract

Transformational leadership has consistently been argued to enhance diverse team outcomes, yet related research has generated ambiguous findings. We suggest that effectiveness is enhanced in interprofessional teams when transformational leaders engender dynamics that are characterised by interprofessional motivation and openness to diversity. Drawing on the mood-as-information perspective, we argue that negative affective tone moderates the impact of these mediators on team effectiveness. Further, we suggest that this moderating role is such that conditions of high negative affect enhance the mediating role of interprofessional motivation, while low negative affect strengthens the mediating role of openness to diversity. In order to investigate these divergent effects, the current study develops a model of leadership and interprofessional team effectiveness through two pathways reflecting the parallel mediating effects of interprofessional motivation and openness to diversity, and a moderating role for negative affect. Findings from a survey-based study of 75 healthcare teams support the utility of this model.

Keywords

Healthcare organisations, Emotion in organisations, Group communication, Identity, Leadership

Teams have been demonstrated to collaboratively direct a broader range of skills towards the completion of multifaceted and complicated tasks, which has led to their increased utilization across industries and countries (Mathieu, Maynard, Rapp, & Gilson, 2008). Interprofessional teams, which comprise different healthcare professions collaborating on service delivery and decision-making, have been the focus of significant organizational investment, and can be beneficial for patients, staff and organizations (CHSRF, 2008). However, a number of studies suggest that interprofessional teams do not necessarily perform effectively (Hudson, 2002), and this has prompted research into factors capable of enhancing their dynamics towards the achievement of valued outcomes (Mitchell, Parker, & Giles, 2011).

Transformational leadership, defined as a style of leadership that transforms followers to rise above their self-interest and challenges them to move beyond their current assumptions (Bass & Riggio, 2006; Pieterse, Van Knippenberg, Schippers, & Stam, 2010), has been identified as providing significant potential returns for teams, particularly diverse teams (Mathieu et al., 2008). However, recent ambiguous findings suggest that this effect is not straightforward and have motivated research into the investigation of complex moderated and mediated pathways (van Knippenberg, De Dreu, & Homan, 2004). Investigating more complex models of transformational leadership potentially allows greater understanding of the mechanisms through which, and circumstances under which, transformational leadership generates it effect. We contribute to this important research stream by exploring the role of transformational leadership based on a conceptualization of team effectiveness as largely determined by emergent states and interaction processes, which describe mechanisms accounting for the impact of inputs, such as team composition and leadership, on valued outcomes (Kozlowski & Ilgen, 2006; Mathieu et al., 2008). Emergent states refer to cognitive, motivational, and affective characteristics that enable effective teamwork (DeChurch & Mesmer-Magnus, 2010; Marks, Mathieu, & Zaccaro, 2001). Of relevance to the current study, team cognition depicts the organization and utilization of knowledge that is distributed within

the team including team norms that guide intra-team interactions. Motivational states reflect a shared belief among members regarding the direction, intensity and persistence of their efforts (Chen & Kanfer, 2006), while affective emergent states reflect the affective dynamics, such as mood, that characterize o g o d g t u ø " r c t v k e k r c v k q p " c p f " g z e j c p i g

Within the emergent state framework, we propose that team interprofessional motivation, defined as a drive to collaborate across professional boundaries (Mitchell et al., 2011), and openness to diversity, defined as perceptions of how team members view and support diversity (Hobman, Bordia, & Cynthia, 2004), represent dynamic motivational and cognitive constructs that reflect the beliefs of team members regarding their approach to collaboration and knowledge usage. Interprofessional motivation depicts member willingness to cooperate with, and blur boundaries between, different professions (Mitchell et al., 2011). Openness to diversity depicts member desire to make use of the divergent perspectives presented by others and to consider alternative viewpoints with an open mind (Tjosvold & Poon, 1998). While interprofessional motivation reflects members drive to unite across professional boundaries, openness to diversity reflects members drive to value and exploit differences (Hobman et al., 2004; Mitchell et al., 2011). These characteristics, which we argue as consequent to transformational leadership, serve to influence team processes and effectiveness (Marks et al, 2001). We further propose that these team dynamics interact with an affective emergent state to determine the achievement of team goals. In particular, negative group affective tone, defined as consistent or homogeneous negative affective reactions with a team (George, 1990), has been recently explored as an important boundary condition, or factor determining when positive dynamics enhance team outcomes (Tsai, Chi, Grandey, & Fung, 2012). We use the mood-as-information perspective as a theoretical foundation for understanding negative affect as a moderator of the mediated relationship between transformational leadership and team effectiveness through interprofessional motivation and openness to diversity (Schwarz & Clore, 2003).

The following section provides a discussion of diversity, transformational leadership and negative affective tone as background to our model, outlined in Figure 1, and hypotheses development. We utilize a survey-based investigation of healthcare teams to investigate these hypotheses, which is detailed in our method section. Our results and a discussion of the theoretical and practical implications of our findings follow.

Insert Figure 1 about Here

Theoretical background

The impact of diversity in teams has been depicted in terms of two different analytical perspectives (Horwitz & Horwitz, 2007). The information/decision-making perspective predicts that the availability of a broader range of knowledge and skills afforded by diverse membership provides teams with the capacity to undertake more comprehensive problem-related analyses and make more well-informed decisions (Williams & O'Reilly, 1998). The social identity perspective argues that perceived similarities and differences between diverse members provides a basis for social categorization, the process of segregating people into subgroups (van Knippenberg et al., 2004). Individuals within one subgroup are likely to share positive and trusting relationships, while conflict and antagonism characterize interactions across subgroup boundaries (Williams & O'Reilly, 1998). Both perspectives have been integrated into the categorization elaboration model of diversity (van Knippenberg et al., 2004), which posits that both knowledge and identity related effects of diversity interact to impact team dynamics and outcomes. These theoretical perspectives have both been applied to

interprofessional teams and imply that professional diversity is likely to generate positive

dividends through its knowledge-related benefits (Mitchell et al., 2011).

One mechanism that has been argued to enhance the positive impact of diversity is

leadership, particularly transformational leadership (Mathieu et al., 2008). Leaders

characterising the transformational style challenge follower values, beliefs and perspectives,

and motivate them to extend beyond expectations (Bass & Riggio, 2006). Theories of

transformational leadership emphasize intellectual rigour by questioning individual

assumptions and depict such leaders as influencing the fundamental attitudes and assumptions

of team members, inspiring a commitment to a challenging, collective goal (Bass and Avolio,

2000). In contrast, traditional or transactional leadership focuses on attaining the satisfaction of

contractual obligations by establishing objectives and controlling work outputs (Bass and

Avolio, 2000).

Transformational leadership has been argued to enhance individual and team

effectiveness, with recent research highlighting its potential for diverse teams in particular

(Kearney & Gebert, 2009). However, while some studies have argued and demonstrated a link

between transformational leader behaviour and diverse team effectiveness (eg. Keller, 2006)

other research has found evidence of no relationship (Wilson-Evered, Härtel, & Neale, 2001)

and of complicated, multifaceted effects (Jaussi & Dionne, 2003). This indicates the utility of

complex pathways in explaining transformational leadership effects in interprofessional teams.

We propose that the realization of the potential benefits associated with transformational leader

effects is contingent on team dynamics that encourage rigorous and extensive information

processing. There is significant body of evidence supporting the role of negative affect in

prompting extensive analysis and well-evidence decision-making (Forgas, 1995; Forgas,

2001b), which suggests that it has potential as a boundary condition of transformational

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Negative group affective tone has been operationalized as a dispositional affective concept and a state-based mood (Barsäde & Gibson, 1998). We focus on mood, consequent to evidence of its crucial role in work settings (George & Jones, 1996), and conceptualise team negative affective tone as a negative mood state that team members experience or feel while in a team (Chi, Chung, & Tsai, 2011). When there is significant homogeneity across members in terms of negative affect, negative group affective tone is considered to be a meaningful construct at the team level of analysis (George, 1996).

Explanations for the influence of group affective tone are underpinned by the understanding of affect as capable of effecting information-related perceptions and processing (Forgas & Koch, 2013). In addition to increasing selective information value (Bower, 1981), different mood states are argued to preference opposing adaptation modes, assimilation versus accommodation (Bless & Fiedler, 2006). The mood-as-information perspective holds that affect may inform an individual about the nature of a situation (Schwarz & Clore, 1983). In part, the motivational interpretation perspective posits that negative mood signals a problematic situation that requires the effortful application of cognitive resources and a depth of information processing to avoid flawed decisions. Positive mood signals an absence of problematic or threatening concerns and encourages the utilisation of heuristic information-processing (Sinclair, Mark, & Clore, 1994).

In support of this mood-as-information hypothesis, there is substantial support that affective states are likely to be used to inform individuals about the characteristics of different situations (Schwarz & Clore, 2003). Negative mood has been found to indicate a challenging situation, which triggers more externally-focused and accommodative information-processing (Bless & Fiedler, 2006), involving the alteration of existing ideas or perspectives as a result of new information (Fiedler, 2001). Negative mood therefore reduces reliance on assumed knowledge and increases the use of evidence to justify well-informed decisions (Forgas & Koch, 2013). Consequently, negative affect increases more cautious and considered

interpretation of information, more motivated information-processing and the elimination of information-processing biases (Forgas & Koch, 2013; Goldenberg & Forgas, 2012).

Recent integrative theories posit that these effects of negative affect on cognition, and information-processing in particular, are dependent upon situational variables. Following the affect infusion model (AIM) (Forgas, 2001a), when teams are making unfamiliar and complex decisions, or decisions requiring the activation and use of previous knowledge structures, there is likely to be increased affective influence in information processing (Forgas, 2001a; Forgas, 2001b). There is evidence that interprofessional teams are typically utilised in order to address complex problems (Zwarenstein, Goldman, & Reeves, 2009) and inclusion in interprofessional teams is often based on professionally-based expertise, which enhances the prospect that g z k u v k p i " r t q h g u u k q p c n " m p q y n g (MacDonald et al., 2010)g " w u g f This suggests that substantive processing is likely to occur in interprofessional teams, which increases the salience of mood as a boundary condition.

In summary, our theoretical review suggests that diverse composition provides teams with an informational asset, but that inherent barriers to collaboration limit the realisation of potential benefits. Against this background, we now argue that transformational leadership of diverse teams has the potential to enhance positive team dynamics, interprofessional motivation and openness to diversity, and that negative affective tone operates as a moderator of these leadership effects.

Model and hypotheses development

Transformational leadership, interprofessional motivation and team effectiveness

The connection between transformational leadership and interprofessional motivation focuses on the generation of a salient and inspiring team vision which leads followers to feel pride in being part of the team, and which facilitates rapport and bonding across pre-existing divides (Dionne, Yammarino, Atwater, & Spangler, 2004). Followers start thinking of

collective interests, and perceive their individual effort and work roles in the context of the

i t q w r ø u " e q q (Wang, Law, Hackett, Wang, & Chen, 2005). Transformational

leaders therefore enhance interprofessional motivation by generating confidence in the

achievement of v j g " valued objeutives, which provides a source of commonality and

induces team members to transcend their own professional interests for the betterment of the

team (Bass, Avolio, Jung, & Berson, 2003).

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similarity, which has been found to lessen the effects of cross-professional biases and

stereotypes (Sethi, Smith, & Park, 2001). Reducing bias removes barriers to cooperation across

professional dk x k f g u " c p f " k u " n k m g n { " v q " k p e t g c u g " o g o d g t

other members and blur knowledge boundaries between professions. Evidence also suggests

that heightened priority placed on co-operation and interdependence through commitment to a

shared vision leads k p f k x k f w con the team as an important social group, which

increases cohesion and decreases the likelihood of intra-group conflict (Henry, Arrow, &

Carini, 1999). Based on this discussion, we suggest the following hypothesis:

Hypothesis 1: Transformational leadership will be positively related to interprofessional

motivation.

K p v g t r t q h g u u k q p c n " o q v k x c v k q p " k u " n k m g n { " v q

manner supportive of the team and its members. " c p f " y j k e j " g p j c p e g u " v j g "

motivation to achieve joint goals (Riketta & Dick, 2005)0 " V j k u " ÷ r t q pu ø q "e j k c c u n " " d g t g k p g

h q w p f " v q " h q u v g t " e q q r g t c v k x g " o g v j q f u " q h " f g c n k

o q v k x c v g u " v j g " v g c o ø u (Desivilya & Eizen, 2005)pFurther evidence t g f " v c

concerning positive links between interprofessional motivation and team effectiveness is found

in research into social dilemmas, which indicates that stronger motivation to work across

occupational boundaries leads to more constructive interactions and more accommodating

approaches to the emergence of conflicting alternatives (Rusbult & Agnew, 2010). Members

who are motivated to work across professional boundaries are less likely to engage in

dysfunctional behaviours, such as information withholding, that have been found to undermine

teamwork in diverse groups (Yovetich & Rusbult, 1994). They are expected to cooperate

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between professional perspectives (Wieselquist, Rusbult, Foster, & Agnew, 1999). Therefore,

we posit the following hypothesis:

> *Hypothesis 2:* Interprofessional motivation will be positively related to
>
> interprofessional team effectiveness.

We have argued a path from transformational leadership to interprofessional

motivation, and from interprofessional motivation to team effectiveness. In combination, this

suggests a mediated path from transformational leadership to effectiveness as follows:

> *Hypothesis 3*: Interprofessional motivation will mediate the relationship between
>
> transformational leadership and effectiveness.

Negative affective tone as a moderator of interprofessional motivation effects

Despite this prediction, there is also considerable evidence that the pressures towards

cooperation consequent to interprofessional motivation may lead to premature consensus and

conformity (Park, 2011). Research stemming from the mood-as-information hypothesis

indicates that negative affective tone may enhance the positive impact of interprofessional

motivation on effectiveness by prompting members to use an accommodative information-

processing style (Bless & Fiedler, 2006). This lessens the likelihood of member convergence

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on a preferred solution at the expense of rigorous analysis and thorough utilization of their diverse knowledge assets (Schwarz & Clore, 2003).

Particularly when teams are tasked with unfamiliar tasks or problems, negative affect has been linked to substantive, considered information processing, a more intense focus on analysing the knowledge and data that is available for consideration, and a reduction in the tendency to rely on pre-existing schema (Forgas, 2001a; Kaufmann, 2003). This motivates individuals to move away from their existing perspectives and exert effort towards novel viewpoints and solutions (Martin & Stoner, 1996), which balances the pressures towards convergence that may stem from interprofessional motivation.

In addition, negative affect decreases the likelihood that team members will engage in consensus and motivates more comprehensive search for valuable data (Kaufmann, 2003). Members more thoroughly evaluate the knowledge that is available to them, which lessens the likelihood that they will deal with interprofessional differences through compromise or concession (Becker, 2005).

While teams high on interprofessional motivation are likely to engage in collaborative and open discussion, they are also expected to minimize interprofessional differences and incongruities (Mitchell et al., 2011). Their focus on blurring boundaries between professions may increase their reliance on common knowledge and lessen their use of unshared knowledge. However, negative affective tone reduces the tendency to concede to others positions at the expense of individual professional priorities and motivates stronger defense of these priorities in the face of opposition (Schwarz & Clore, 2003). Members who are challenging and confrontational towards other members, but motivated to work across professional boundaries towards the teams task, are likely to more thoroughly and critically evaluate opposing positions and demand full consideration of their own perspectives. As the comprehensive and critical evaluation of a broad range of alternatives has been linked to team effectiveness (DeChurch & Mesmer-Magnus, 2010), the following moderating effect is proposed:

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Hypothesis 4: Negative affective tone moderates the relationship between interprofessional motivation and team effectiveness. That is, interprofessional motivation is more positively related to effectiveness when negative affective tone is high than when it is low.

Transformational leadership, openness to diversity and team effectiveness

Transformational leaders are argued to effect team effectiveness through a second, parallel pathway involving openness to diversity. Openness to diversity reflects members acceptance of differences in perspective and positions (Hobman et al., 2004). As such, it is a dynamic that encourages cognitive divergence. While interprofessional motivation reflects members drive to unite across professional boundaries, openness to diversity reflects members drive to value and exploit differences (Hobman et al., 2004; Mitchell et al., 2011).

Transformational leaders encourage followers to consider alternative perspectives and not settle for conventional approaches (Jung, Chow, & Wu, 2003). They support followers to critically appraise their own and others positions and articulate the benefit of considering different and unusual ideas (Eisenbeiss, van Knippenberg, & Boerner, 2008). This facilitation of exploratory and critical thinking in followers is likely to establish a workplace in which diverse ideas are sought and valued (Jung et al., 2003). Team members are therefore motivated to offer information, openly consider alternative, even conflicting, perspectives, and are less likely to reject or dismiss the positions of other professions without due consideration (Wang, Chen, Tjosvold, & Shi, 2010).

Transformational leaders also enhance openness to diversity by displaying unconventional and creative behavior and thereby serve as role models encouraging dissent and cognitive divergence (Howell & Higgins, 1990). By fostering collective appreciation for diversity and emphasizing the potential advantages of dissimilar opinions, leaders facilitate a climate in which a wide range of disparate perspectives are appreciated and invited (Kearney &

Gebert, 2009). This motivates followers to consider and incorporate opposing views, and move away from a rigid commitment to their own professions priorities (Zhang, Cao, & Tjosvold, 2011). In this context, members feel less need to impose their professions positions on others and are more open to alternative, even conflicting, positions (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). By stimulating intellectual rigor and critical discussion, transformational leaders assist their team to develop norms of openness to diversity, leading us to posit the following hypothesis:

Hypothesis 5: Transformational leadership is positively linked to openness to diversity.

A willingness to embrace diverse positions enables team members to understand each q v j g t ø u " k f g c u " c p f " r q u k v k q p u " v q " c " i t g c v g t " g z v expertise available to the team (Mitchell, Nicholas, & Boyle, 2009). This assists members to reflect on their own perspectives and learn from those of other members, which increases their cognitive complexity and, through this, team effectiveness (Gruenfeld, Thomas-Hunt, & Kim, 1998). In addition, open discussion of diverse and dissenting positions reduces conflict and increases trust (Guoquan, Chunhong, & Tjosvold, 2005). This strengthening of the bonds between members assists in the process of combining members diverse ideas into collaborative team solution (Zhang et al., 2011). Teams are more capable of dealing with emergent problems and wot m " v q i g v j g t " v q " g p u w t g " (Mathieu & Rapp, 2009). In " q h " v j g " particular, openness to diversity has been found to enhance the likelihood that opposing viewpoints will be valued and integrated into final solutions (Somech, Desivilya, & Lidogoster, 2009). Therefore, we suggest the following hypothesis:

Hypothesis 6: Openness to diversity will be positively related to interprofessional team
effectiveness.

We have argued a path from transformational leadership to openness to diversity and from openness to diversity to team effectiveness. In combination, this suggests a mediated path from transformational leadership to effectiveness as follows:

Hypothesis 7: Openness to diversity will mediate the relationship between transformational leadership and effectiveness.

Negative affective tone as a moderator of openness to diversity effects

The effect of openness to diversity in interprofessional teams is to facilitate dissent and debate, as well as constructive interaction towards the integration of divergent perspectives and ideas. There is significant evidence that negative affect in this environment has a deleterious effect on effectiveness (Jordan, Lawrence, & Troth, 2006). Building on this research, we argue for an inverse moderating role of negative affect on the relationship between openness to diversity and effectiveness.

In teams with dynamics encouraging dissent and divergence, rather than convergence, members are more likely to engage in information-processing that accommodates external information (Simons, Pelled, & Smith, 1999). In this context, negative affect may be interpreted as indicating incompatibilities between membersødifferent positions (Gregory, 1982) and may lead to more forceful defense of professional priorities. Negative affect is therefore likely to stimulate relationship conflict and lead members to focus on dealing with perceived threats and increasing power rather than working towards the achievement of team goals (Jehn, 1995). Further, in research into affect and negotiation, negative affective responses have been found to provoke a more competitive approach to final outcomes (Buyl, Boone, & Matthyssens, 2011). In addition, previous research has found that negative affective elements, such as hostility, may lead members to more weakly adhere to group norms that reflect reciprocity and trust (Hekman, Bigley, Steensma, & Hereford, 2009). This suggests that the

role of norms supporting openness to diversity in prompting consideration of alternative

r q u k v k q p u " k u " n g interactions are characterized by negative affective tone.

This leads to the following hypothesis:

Hypothesis 8: Negative affective tone moderates the relationship between openness to

diversity and effectiveness. That is, openness to diversity is more positively related to

team effectiveness when negative affective tone is low than when it is high.

Method

Procedure and sample

All participants in this research worked as members of interprofessional teams in an acute

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survey collected data on the dependent variable, (i.e., team effectiveness), and the member

survey collected data on the predictor variables (i.e., transformational leadership,

interprofessional motivation, openness to diversity and negative affective tone). Utilizing two

separate questionnaires to collect data lessened the risks associated with bias due to common

method (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). A central practice-development

database in an Australian healthcare institution provided the sampling frame. We distributed

questionnaires to 210 teams, and members and leaders of 75 teams completed the

questionnaires, providing a 36% response rate. An independent samples t-test generated no

indication of significant mean differences between early and late responding teams on the basis

of team effectiveness, team composition, and predictor variables. The majority of teams

working on projects to develop advanced models of care, solve clinical problems or otherwise

improve clinical service. These teams were deemed particularly suitable for investigating the

study model as they were involved in making complex decisions requiring the use of

professional knowledge structures, which, following the AIM, were like to be subject to increased affective influence (Forgas, 1995).

We sought to investigate whether our sample was representative by comparing our participants with known population values nationally (AIHW, 2006). For our study sample, the average age of 41.8 years was close to the average age for healthcare professionals at a nationally (42 years) and the professional distribution of our sample mirrored national values.

The majority of our teams were comprised of between 3 and 5 professions with an average of 4 professions represented including: Nurse, Dietician, Physiotherapist, Social Worker, Medical Practitioner, Pharmacist, Occupational Therapist and Psychologist. Team members had been together for an average of two years and were still working as a team when the survey was administered. Team leaders were from different professions with 48% of leaders from the nursing profession.

An average of 4.6 team responses were received, which represents a mean of 52% of team members. Fcyuqpøu" *4225+" ugngevkqp" tc whgth"qt ownc our incomplete group data as accurate in predicting true scores. This formula is *[N – n]/Nn) where *n* is the number of responses per group and *N* is group size (Dawson, 2003). Scores from teams with a value of less than or equal to .32 are correlated with true scores at .95 or higher (Dawson, 2003). All of our teams were within the acceptable parameter.

Measures

For hypotheses testing, the level of analysis was team-level. In order to assess whether our data evidenced team-level effects, we utilized ANOVA to compare team means, with a significant ANOVA interpreted as indicating that measured constructs varied significantly between teams (Klein & Kozlowski, 2000). Following similar recent research (Schaubroeck, Lam, & Cha, 2007), we used two intraclass correlation coefficients to justify aggregation of measures to group level. ICC(1) indicates the ratio of between-group variance to total variance and ICC(2)

indicates the reliability of average team perceptions. ICC(1) scores different from zero are expected with values close to .20 interpreted as high scores (Bliese, 2000). Glick (1985) suggested that ICC(2) values above .60 indicate high and desirable scores.

Transformational leadership was assessed in the member question using the 5-item Transformational Leadership Scale (TLS) (García-Morales, Lloréns-Montes, & Verdú-Jover, 2008) based on an original measure by Podsakoff, Mackenzie and Bommer (1996). We utilised this measure because it has been validated and utilised in similar studies and, in particular, has been validated in a health sector context (García-Morales et al., 2008). The alpha coefficient for this measure was 0.88, ICC(1) was .30, $F(74,270) = 3.04$, $p = .00$ and ICC(2) .66. Transformational leadership was measured on a 7-point Likert scale anchored by 1 = Strongly Disagree and 7 = Strongly Agree. All scale items are provided in the appendix.

Interprofesssional motivation: Three scale items in the member questionnaire were used to measure interprofessional motivation taken from previous research (Hobman et al., 2004). The alpha coefficient for this measure was 0.78, ICC(1) was .17, $F(74,270) = 1.84$, $p = .00$ and ICC(2) .48. This ICC(2) figure was relatively low, however it was similar to previous research in this area (Srivastava, Bartol, & Locke, 2006). Our conceptualization and operationalization of interprofessional motivation was at group level and we therefore chose to aggregate based on our significant ANOVA and acceptable ICC(1). We also note that past research (eg. Chen & Bliese, 2002) has argued that low ICC(2) should not preclude aggregation if group-level measurement is justified by theory and supported by other metrics such as significant between-groups variance, as is the case in the current study. Interprofessional motivation was measured on a 7-point Likert scale anchored by 1 = Strongly Disagree and 7 = Strongly Agree.

Openness to diversity: Three items in the member questionnaire measured openness to diversity based on previously validated measures (Tjosvold & Poon, 1998; Wang et al., 2010). The alpha coefficient for this scale was .95, ICC(1) was .21, F(74,270) = 2.23, p = .00 and the ICC(2) was .56. Openness to diversity was measured on a 7-point Likert scale anchored by 1 = Strongly Disagree and 7 = Strongly Agree.

Given that our two mediating variables both reflected member perception regarding collaboration, we decided to undertake a confirmatory factor analysis to assess the extent to which these two constructs were distinct. We compared the fit of the unidimensional model to the two- factor structure (i.e. openness to diversity and interprofessional motivation). In this model, the factors were allowed to correlate. For the two-h c e v q t ^{a}(8, N = 75) = 8.80 (p= .36), AGFI = .91, and RMSEA = .04; and for the one-h c e v q t " ^{2}(9, N= 75) = 61.25 g " (p< .00), AGFI = .48, and RMSEA = .28. These results show that the chi-squares and fit indices differ between these two models. The improvement in fit of the two- factor solution over the unidimensional model was sii p k h k^{2}e^{diff}= 52.45, d.f. = 1, p< .00).

Negative affective tone: The PANAS scale was used to measure negative affective tone in the member questionnaire (Watson, Clark, & Tellegen, 1988). Team members were asked to rate the extent to which the nominated feelings were evident in the team setting. Ratings of six negative affective dimensions, including distress, irritation, boredom, tension, upset and hostility, were measured on a seven-point scale. While the original PANAS scale includes 10 negative affective dimensions, we reduced this scale due to restrictions imposed on the length of our survey by the participant organizations. Shorter versions of the PANAS scale, including 5 scale items, have been reported as a valid assessment tool (Thompson, 2007) and our measurement model supports the validity of our six-item measure. Following similar studies, while we did not specify a timeframe, we did restrict the measure to feelings evident in the team setting, rather than generally experienced, and therefore aimed to tap team mood (Cole,

Bruch, & Walter, 2008). The alpha coefficient for this measure was 0.88, ICC(1) was .49, $F(74,270) = 5.21$, $p = .00$ and ICC(2) .81, providing sufficient justification for aggregation. Negative affective tone was measured on a 7-point Likert scale anchored by 1 = Not At All and 7 = A Great Deal.

Team effectiveness: Four items measured team effectiveness in the leader questionnaire. Leader perception of effectiveness follows past research (Mathieu et al., 2008). The alpha coefficient for this measure was 0.94.

Control variables: Professional diversity was also included as a control based on its links to effectiveness (Randel, 2002). To assess team diversity, respondent leaders were asked to indicate the number of different professions represented on the team. Diversity was measured using Blau's (1977) index of heterogeneity: $(1- \sum P_i^2)$, where Pi is the proportion of top managers in ith category. Blau's spread usage as a measure of group has diversity (Kilduff, Angelmar, & Mehra, 2000). Average age, assessed as the average age of members in each team, and size of team were included as a control variable as previous research has found that both factors are correlated with team effectiveness (Bantel & Jackson, 1989). To assess team size, leaders were asked to indicate the number of team members.

Analysis and Results

We utilised ordinary least squares regression analysis to investigate our hypotheses. We also utilised partial least squares (PLS) structural equation modelling (SEM) to investigate our measurement and full structural model. PLS SEM is a robust causal modelling technique that is increasingly utilised in health and organisational studies research (Henseler, Ringle, & Sinkovics, 2009). In addition, studies that have rigorously evaluated PLS SEM performance when sample sizes are small have showed that PLS SEM is able to achieve high levels of

power when compared to covariance-based SEM (Hair, Sarstedt, Ringle, & Mena, 2011). We utilised SmartPLS software (Ringle, Wende, & Will, 2005). We employed both approaches as ordinary least squares (OLS) multiple regression allowed the generation of confidence intervals to assist in the interpretation of hypothesised effects and investigation of regions of significance for the moderators and PLS SEM allowed the investigation our full measurement and structural model.

Table 1 shows the means, standard deviations and correlations among the variables.

Insert Table 1 and Table 2 about here

With regard to the measurement model, PLS SEM generates factor loadings, reported in Table 2, that can be interpreted similarly to data generated through principal components factor analysis (Roberson, 2013). We found that all coefficients were above .7, except the first item measuring interprofessional motivation, as reported in Table 2 (Thompson, 1997). All items were found to have the highest coefficients with their parent scale, which indicates conceptual homogeneity within scales and heterogeneity between scales, and therefore supports claims of discriminant validity (Thompson, 1997). Our claims of discriminant validity are also supported in Table 1, which report the square root of the average variance extracted (AVE) for each construct as greater than the correlations between it and each other construct (Fornell & Larcker, 1981).

The OLS regression analysis revealed a significant positive path coefficient for the impact of transformational leadership on intg t r t q h g u u k q p c n " o q p<.00) c v k q p " * supporting hypothesis 1, but a negative and not significant path coefficient for interprofessional motivation regressed on team effectiveness * -.06, t=-.38, p=.70), providing no support for hypothesis 2. A bootstrapped confidence interval for the indirect effect of transformational

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leadership on effectiveness through interprofessional motivation that included zero (95% CI -

.10 - .19), provided confirmation that our data did not support a simple mediation path leading

us to reject hypotheses 3 (Preacher & Hayes, 2004). A significant path between

v t c p u h q t o c v k q p c n " n g c f g t u j k r 4', tc=4p0f, p̌=g0Ch .h g e v k x g p g u

To test hypotheses 4, a standardised cross-product interaction construct was computed

and included in the equation (Aiken & West, 1991). The regression analysis revealed a

significant path coefficient for the interaction variable regressed on g h h g e v k x g p g u u " *   ?

t=3.26, p=.00) with a 95% confidence interval that did not include zero (95% CI .20 ó .81),

supporting hypothesis 4.

In order to explore the nature of the moderating effect further, we used simple slopes

computations and graphed the interactions using high (1SD above the mean) and low (1SD

below the mean) levels of the moderator. These analyses revealed that perceived

interprofessional motivation was significantly and positively associated with effectiveness

when negative affective tone was high (simple slope=.47, t=2.03, p=.05) and was negatively,

but not significantly, related effectiveness when negative affect was at a low level (simple

slope=-.65, t=-1.88, p=.06), as depicted in Figure 2. We also used the Johnson-Neyman

technique to investigate the significance regions for the moderator (Preacher, Rucker, & Hayes,

2007). These analyses revealed that interprofessional motivation was positively and

significantly associated with effectiveness when negative affect was greater than 3.5 with an

effect size of .42 (t = 2.0, p = .05). These results provide additional support for hypothesis 4 by

indicating that interprofessional motivation only has a positive impact on effectiveness when

negative affect is high.

Insert Figure 2 about Here

Moving to the pathway mediated by openness to diversity, analysis revealed a significant positive path coefficient for the impact of transformational leadership on openness vq "fkxgtukv{ (p<.00) supporting hypothesis 2, but the path coefficient for openness to diversity regressed on team effectiveness ycu "pqv "ukipkhkecpv "* (p=.53) providing no support for hypothesis 6. A bootstrapped confidence interval for the indirect effect of transformational leadership on team effectiveness through openness to diversity that included zero (95% CI -.33 ó .22), provided confirmation that our data did not support a simple mediation path, leading us to reject hypotheses 7 (Preacher & Hayes, 2004).

To test hypotheses 8, a standardised cross-product interaction construct was computed and included in the equation. Analysis revealed a significant path coefficient for the interaction variable regressed on effectiveness * -.37, t=-2.28, p=.03), with a 95% confidence interval that did not include zero (95% CI -.86 ó -.06), supporting hypothesis 8.

In order to explore the nature of the moderating effect further, we again used simple slopes computations and graphed the interactions using high and low levels of the moderator (Figure 2) (Preacher et al., 2007). These analyses revealed that perceived openness to diversity was significantly and positively associated with effectiveness when negative affective tone was low (simple slope=1.23, t=3.05, p=.00) and was not significantly related effectiveness when negative affect was at a high level (simple slope=.23, t=.92, p=.36), as depicted in Figure 2. We also used the Johnson-Neyman technique to investigate the significance regions for the moderator (Preacher et al., 2007). These analyses revealed that openness to diversity was positively and significantly associated with effectiveness when negative affect was less than than 2.9 with an effect size of .41 (t = 2.0, p = .05). These results provide support for hypothesis 8 by indicating that openness to diversity only has a positive impact on effectiveness when negative affect is low, and has no significant impact on effectiveness when negative affect is high.

We tested the utility of our full model using PLS SEM, which revealed that the overall model explained 41% of the variance in effectiveness and can be interpreted as an indicator of good fit (Kor & Mesko, 2013). In order to assess predictive relevance of our model, we used PLS SEM to generate the Stone-Geisser criterion (Q2) with an omission distance of 7. Analysis resulted in a Stone-Geisser criterion Q2 value of 0.20 for interprofessional motivation and .57 for openness to diversity and 0.36 for effectiveness, which is substantially above the threshold value of zero, and which indicates (Henseler et al, 2009) the model

Discussion

The purpose of this research was to investigate the relationship of transformational leadership to effectiveness in interprofessional teams. Specifically, we explored mediating roles for interprofessional motivation and openness to diversity in this relationship, and an opposing moderating role for negative affect in these two pathways. Our data provide support for the impact of transformational leadership on our two mediators and also supported the impact of these mediators on effectiveness, contingent on negative affective tone. Analyses indicate that leadership increases the effectiveness of interprofessional teams through interprofessional motivation, which enhances effectiveness conditional on high negative affect. Leadership also increases effectiveness through openness to diversity, but this pathway is conditional on low levels of negative affect.

This study makes several important theoretical contributions. This study is one of the first to investigate the dynamics of transformational leadership in diverse teams and the first to do so interprofessional teams. The need to investigate transformational leader effects in diverse teams has been argued in the team diversity literature (Jackson, Joshi, & Erhardt, 2003) and the transformational leadership literature (Dionne et al., 2004), yet, our understanding of leader influence in diverse teams has remained underexplored (Hüttermann & Boerner, 2011). Our findings indicate that transformational leadership facilitates the development of a strong

motivation to work across professional boundaries. The value of this finding should be assessed against evidence that social categorization processes in professionally-diverse teams are likely to lead to stereotyping and discord (Mitchell et al., 2011; van Knippenberg & Schippers, 2007). The results support the proposition that leadership is capable of lessening or neutralizing the negative impact of diversity variables in teams (Muchiri & Ayoko, 2013) and confirm that transformational leadership is likely to be critical to facilitating the engagement of diverse professions in interprofessional teamwork and is therefore an important additional leadership strategy for improving the dynamics of diverse healthcare teams.

A key contribution of this study relates to the finding that negative affect moderates the mediating effect of interprofessional motivation. Our results suggest that, while transformational leadership provides a context that motivates members to engage in information-sharing and cooperation, this contributes to team effectiveness only when team dynamics are also characterized by negative affect as a source of differentiation and dissatisfaction. These findings can be interpreted as supporting our argument that dynamics engendering cooperation, such as those characterized by interprofessional motivation, may be more likely to lead to uncritical discussion and consensus. Under such circumstances, the impact of negative affective tone is to signal a problematic situation, encouraging accommodative information-processing which engenders a greater reliance on external stimuli to support the challenge of assumed positions (Bless & Fiedler, 2006; Fiedler, 2001). Our research further suggests that in the absence of negative affective tone, interprofessional motivation is not linked to effectiveness, likely due to the teams focus on shared rather than unique information and tendency towards cooperation and consensus. While not hypothesized, our results provide limited support for an inverse effect of interprofessional motivation when negative affective tone is low. This is in alignment with previous research, which suggests that without a focus on difference and critical approaches to alternative views, collective attitudes may increase the risk of conformity and premature consensus (Stasser & Titus, 2003).

Transformational leadership was also found to enhance openness to diversity. Our findings indicate that transformational leadership, in addition to encouraging members to work across professional boundaries, facilitates the development of openness to diversity, which also determines its impact on effectiveness. As predicted, and contrary to its role in moderating the convergent effects of interprofessional motivation, this study indicates a dysfunctional role for negative affect when team dynamics encourage openness to diversity.

Through these contributions, our study adds to work on mood-as-information theory by confirming its applicability to team information-processing. Consistent with arguments of mood as information, our findings support the proposition that negative affect, which signals a problematic or challenging situation, induces greater effort and investment in rigorous analysis. However, we also extend the mood as information perspective by showing that group o g o d g t u ø " k p v g t r g t c v k q p " q h " p g i c v k x g " o q q f " o c { information usage. In doing so, we challenge existing theorising on the link between affective tone, an important emotion-related concept, and team effectiveness at work and provide an alternative insight into the influence of negative affective tone. When teams are characterized d { " c p " c e e g r v c p e g " q h " f k h h g t g p e g " c p f " q r r q u k v k q is not linked to information-processing benefits and has a deleterious effect. As an explanation for this finding, we posit that, under such circumstances, negative affective tone is interpreted c u " k p f k e c v k p i " k p e q o r c v k d k n k v k g u " d motivate g p " o g o d more obdurate defense of professional priorities or encourage elaboration beyond the information-processing capacity of teams. However, this is a hypothesis to be investigated in future research and, although a potential explanation, is not one that can be concluded from current findings.

Our findings also have clear implications regarding the impact of diversity in team effectiveness by indicating that negative mood enhances group capacity to utilise the information resources previously argued to exist consequent to diverse team composition (van

Knippenberg et al., 2004), but only when teams are characterised by high levels of interprofessional motivation. Under these circumstances, negative affectivity appears not to engender dysfunctional conflict or information-withholding, and is instrumental in harnessing the knowledge-related benefits of diversity. While past research has promoted the utility of a climate of openness to diversity (Hobman et al., 2004), our findings suggest that such a climate is not likely to yield the benefits advocated when negative affective tone is high.

Our findings have important practical applications. Our results point to the utility of transformational leadership styles for diverse teams, however our research indicates that the effectiveness of transformational leadership is likely to depend upon the affective environment in which they are leading. For example, in teams where member interaction is characterized by low levels of negative affective tone, transformational leaders are advised to facilitate the development of a team climate conducive to the open expression of difference. Conversely, in highly negative affective situations, leaders are advised to focus on the development of a dynamic that motivates collaboration and cooperative interaction. Finally, this study has practical implications relating to the importance of member affect in teams. Our findings may be interpreted as providing advice contrary to leadership past studies, which have typically advocated increasing follower positive affect and reducing negative affect (Johnson, 2008). We suggest that negative affect can potentially have a significant benefit, dependent on the existing team dynamic, and further, that in teams characterized by a strong motivation to work cooperatively, the absence of negative affect is likely to limit team effectiveness. Above all, our findings show the importance for managers of balancing divergence and convergence in diverse teams.

There are a number of limitations of this study. First, we have a reasonably small sample size, which was compounded by our exploration of moderating effects (Aguinis, 1995). However, the majority of the hypotheses received support, giving confidence in the identified relationships. In addition, we used PLS SEM, which has been found to be relatively robust to

small sample sizes (Haenlein & Kaplan, 2004). The nature of our sample may also be perceived to be a shortcoming as our use of professional diversity may limit the applicability of our findings to teams that are demographically or occupationally diverse in other aspects. This suggests the value of further research in teams which are diverse on a wider range of variables. While not a limitation, our study focused on state negative affect referring participants to their feelings in the team setting. Previous work has identified the role of dispositional affective elements in teams and recent research has supported the interaction of state and trait affect in determining team outcomes (van Knippenberg et al, 2010). Future research could build on our findings by investigating the extent to which state and trait affect interact with convergent team dynamics.

A further limitation of our study stems from the investigation of transformational leadership. The utility of this construct and its component sub-constructs have been debated previously, with suggestion that current conceptualization and measurement do not allow sufficient clarity in what constitutes transformational leadership (van Knippenberg & Sitkin, 2013). In particular, we note that our use of a single measure without separation of each of the four leadership elements limits our capacity to determine which leader behaviors contribute to interprofessional motivation or openness to diversity. Despite this, we utilized a scale that has been well-validated in similar contexts and demonstrated good validity in our study. Future research investigating the role of discrete leader behaviors, such as vision communication, may be a useful method of specifying how leaders can engender constructive team dynamics and, through this, team effectiveness (van Knippenberg & Sitkin, 2013).

A final limitation that we raise relates to the high correlation between openness to diversity and transformational leadership, which may be interpreted as reflecting a strong positive relationship between these two constructs, as was predicted in our fourth hypothesis. However, it may also be indicative of scale item cross-loading on both constructs and inaccuracy in our measurement. We undertook additional checks to assess the threat of

multicollinearity. In particular, we generated variance inflation factor (VIF) when all these predictors were incorporated into regression equations. All VIFs were below 5.0 when all predictors were entered, and tolerance over .2, which indicates that multicollinearity is unlikely to be a significant issue effecting the validity of our results (Menard, 1995). These results, together with evidence that PLS SEM is robust to relatively high levels of multicollinearity, indicate that this is not likely to be a significant problem in our analysis (Westlund, Källström, & Parmler, 2008).

Despite these limitations, the data indicates that transformational leadership has the potential to generate team dynamics that both encourage divergence and convergence. We further highlight the valuable role of negative affect in overcoming pressure towards conformity and consensus, and also specify a team context in which negative affect significantly constrains effectiveness. Together these findings go some way to untangling the multifaceted effects of leadership in diverse teams, and have potential to account for ambiguous findings related to transformational leader effects.

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Table 1 Descriptives, composite reliability and correlation coefficients

		M	SD	CR	1	2	3	4	5	6	7	8
1	Team size	8.34	5.74	1.0	**1.0**							
2	Professional diversity	.51	.15	1.0	-.04	**1.0**						
3	Team age	1.87	1.01	1.0	-.26*	.01	**1.0**					
4	Transformational leadership	4.94	1.10	.98	-.01	-.13	.05	**.95**				
5	Interprofessional motivation	4.98	.72	.82	-.01	-.10	.00	.46**	**.80**			
6	Openness to diversity	5.29	.84	.97	.06	-.06	-.06	.76**	.65**	**.96**		
7	Negative affect	2.72	1.11	.96	-.10	.13	.18	-.66**	-.59**	-.74**	**.90**	
8	Effectiveness	5.20	.99	.97	.12	-.11	.02	.52**	.29*	.37**	-.30**	**.94**

*$p<.05$ **$p<.01$ [a] bold-typed diagonal numerals represent the square-root of the average variance extracted.

Table 2 Factor coefficients

	Leadership	Interprofessional motivation	Openness to diversity	Negative affect	Team effectiveness
Leadership 1	**.92**	.57	.74	-.66	.41
Leadership 2	**.97**	.59	.79	-.73	.48
Leadership 3	**.91**	.45	.61	-.57	.53
Leadership 4	**.98**	.61	.78	-.73	.57
Leadership 5	**.96**	.61	.78	-.74	.55
Interprofessional motivation 1	.37	**.72**	.45	-.41	.23
Interprofessional motivation 2	.52	**.94**	.67	-.60	.29
Interprofessional motivation 3	.62	**.96**	.71	-.68	.43
Openness to diversity 1	.70	.68	**.95**	-.71	.31
Openness to diversity 2	.67	.67	**.97**	-.73	.41
Openness to diversity 3	.72	.69	**.97**	-.77	.40
Negative affect 1	-.68	-.60	-.67	**.94**	-.34
Negative affect 2	-.67	-.62	-.74	**.84**	-.39
Negative affect 3	-.57	-.60	-.72	**.85**	-.20
Negative affect 4	-.64	-.65	-.63	**.93**	-.33
Negative affect 5	-.72	-.62	-.69	**.90**	-.46
Negative affect 6	-.63	-.58	-.70	**.94**	-.34
Effectiveness 1	.47	.35	.25	-.34	**.91**
Effectiveness 2	.54	.36	.42	-.44	**.97**
Effectiveness 3	.53	.36	.41	-.45	**.97**
Effectiveness 4	.46	.37	.37	-.28	**.89**

Tabled values are standardized parameter estimates.
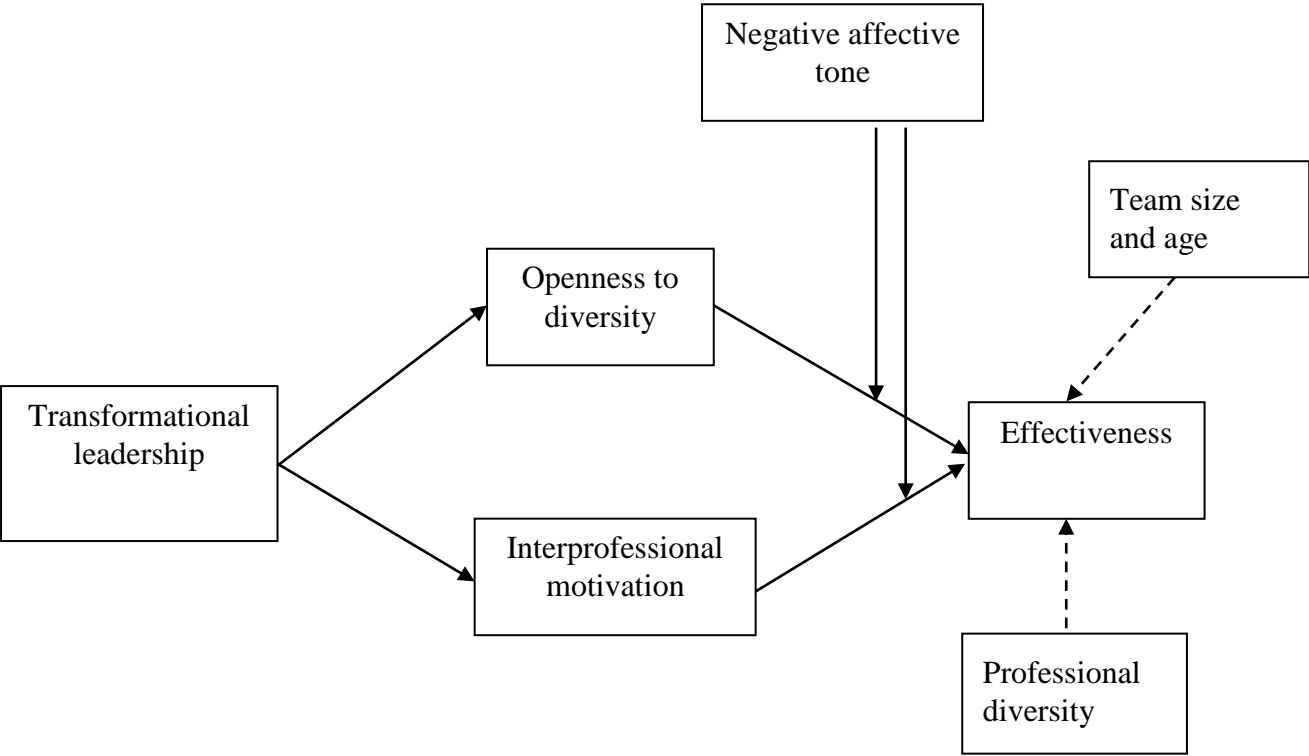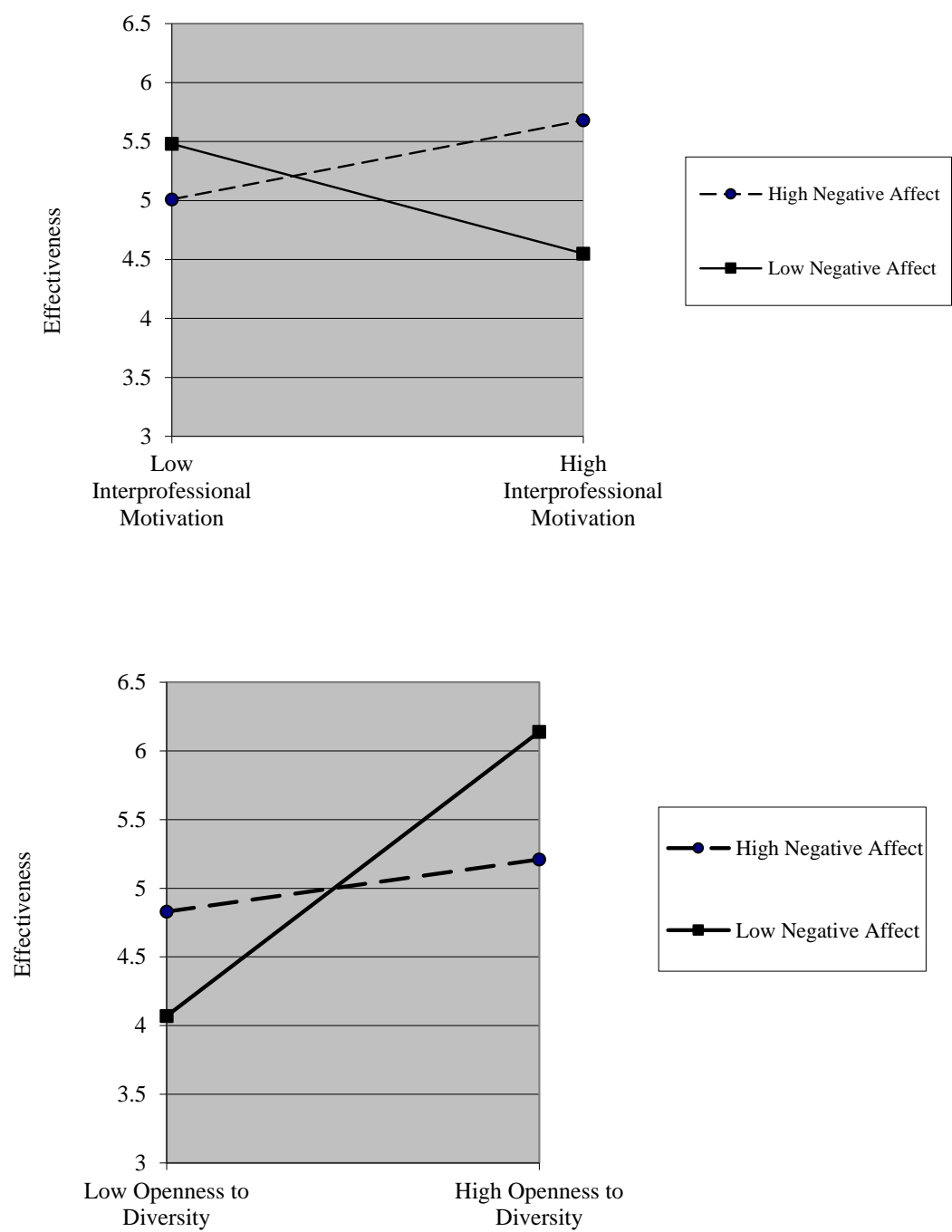
Figure 1. Model of transformation leadership effects

Figure 2. Moderating effect of pgicvkxg"chhgev"qp"kpvgtrtqhguukqp"cpf"qrgppguu"vq"fkxgtukv{"qp"vgco"ghhgevkxgpguu

Appendix 1

Team effectiveness (Mathieu et al., 2008)

How well do you think this team performs at its tasks?

How effective is this team?

To what extent does this team deserve a positive evaluation?

V q " y j c v " g z v g p v " f q g u " v j k u " v g c o ø u " y q t m " g z e g g f "

Transformational leadership (García-Morales et al., 2008; Podsakoff et al., 1996)

Q w t " v g c o ø u " n g c f g t " k u " c n y c { u " q p " v j g " n q q m q w v " h

Q w t " v g c o " n g oc qfv jkx tx"c uv wvkep ei g" gvfjug""k vrg "c o ø u " o g o d g t u 0

Q w t " v g c o ø u " n g c f g t " c n y c { u " c e v u " c u " v j g " v g c o ø u "

Our team has a leader that motivates and guides team members effectively.

Q w t " v g c o ø u " n g c f g t " j c u ".c " e n g c t " x k g y " q h " v j g " v g

Interprofessional motivation (Hobman et al., 2004)

Members are happy to blur professional boundaries.

Individuals are motivated to work with members of other professions within the team in order

v q " e q o r n g v g " v j g " v g c o ø u " v c u m " g h h g e v k x g n { 0

Individuals are keen to use the knowledge and skills of team members from other professions

v q " e q o r n g v g " v j g " v g c o ø u " v c u m 0

Openness to diversity (Tjosvold & Poon, 1998; Wang et al., 2010)

The team believe that members should feel free to express their views.

The team believe that members should try to understand the suggestions proposed by other

members.

The team believe tj c v " g x g t { " o g o d g t ø u " k f gmroindue"dllyj q w n f " d g " e q

Negative affective tone (Watson et al., 1988)

To what extent were the following emotions or feelings evident in the team?: Irritation,

Distress, Hostility, Boredom, Tension, Upset.

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