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## **Case study of a Senior Executive Group (Team) in a NSW state secondary school.**

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### **Abstract**

It is widely acknowledged that effectively leading a small group (fewer than twenty members) differs from leading many followers. Most views on small group leadership have emphasized the role of a leader in the development of group processes relevant to social interaction as well as those relevant to task interaction.

A case study of a Senior Executive group comprising the principal and two deputy principals was conducted in a NSW state secondary school which was going through a process of renewal. The purpose of the case study was to investigate the role of leadership within this small group. Data were collected using semi-structured interviews. The results suggest leadership processes influenced group cognitive, motivational, affective and, coordination processes and the latter, in turn, influenced leadership processes in this Senior Executive group.

### **Introduction**

In NSW state secondary schools a principal is seen to occupy a strategic position within the school and is accountable for leadership and management consistent with the policies and priorities of the NSW Department of Education and Training. The task of leading a school is very demanding, complex and requires the principal to be a leader of learning and a role model for all members of the school community (NSW DET, 2001)

However, it is increasingly difficult for one person to have all the knowledge, skills and abilities required for all aspects of the principalship (Pearce, 2004). It is conceivable that some principals have recognised this and removed the traditional boundaries of leadership, sharing leadership responsibilities with deputy principals in the context of a senior executive team, empowered to lead and make decisions that may have been previously made by the principal acting alone.

Traditionally leadership has been conceptualised as one leader influencing a group of followers or what has been called vertical leadership (Pearce, 2004). However, in the context of a senior executive team it is likely that another form of leadership may emerge as all members of the team share responsibility for decision making and are empowered to lead. For example, shared leadership may occur when leadership is rotated to a team member with key knowledge, skills and abilities for issues facing the team at a particular time (Pearce, 2004). Shared leadership occurs when “team members are not hesitant to influence and guide fellow team members in an effort to maximise the potential of the team as a whole” (Pearce, 2004, p.48).

Research evidence on teams (Hackman, 1990; Katzenbach, 1997; Kozlowski, Gully, Salas and Cannon-Bowers, 1996; Zaccaro, Rittman and Marks, 2001), has suggested that leadership may critically positively or negatively influence team motivation, team efficacy and team effectiveness. It would seem possible that both forms of leadership in a senior executive team may influence these team outcomes. However, the precise nature of these relationships is not clear.

Zaccaro and Klimoski (2002) have proposed that, although leadership directly influences team motivation, team efficacy and team effectiveness; it may play a more important role in supporting effective team interaction through team cognitive, motivational, affective and coordination processes. First, leaders may facilitate the emergence of effective shared mental models by interpreting the team’s environment and communicating this picture to team members (Zaccaro and Klimoski, 2002). Second, leaders may motivate and encourage team members to work hard for the team, by facilitating team cohesion and collective efficacy (Zaccaro and Klimoski, 2002). Third, leadership processes may influence the affective climate of the team. For example, “leaders can reduce collective stress by defining threats as opportunities and increasing support among team members” (Zaccaro and Klimoski (2002, p. 8). Last, leaders can influence coordination by influencing interactions within the team

(Zaccaro and Klimoski, 2002). However, in a team context, as in the case of a senior executive team, it is also likely that this influence may be reciprocal, that is, team processes may influence leadership processes. For example, “high levels of appropriate expertise in a team can assist in boundary spanning and sense making activities” (Zaccaro and Klimoski, 2002, p. 8). In addition, these authors have contended that the influence of leadership on these team processes will be moderated by environmental, organisational and team characteristics.

Although, a team has “potential to provide greater adaptability, productivity and creativity than one individual can offer and provide more complex, innovative and comprehensive solutions to organisational problems their failure can have far reaching effects on an organisation” (Salas, Sims and Burke, 2005, p. 556). Empirical evidence (Hackman, 1998) has suggested that teams are not easily developed and that the creation of a team of skilled team members does not ensure success. Moreover, many teams don’t reach their potential and many more fail (Salas et al., 2005). Team failure may be due to a number of factors. Research evidence provides support for the contention that leadership (Hoyt and Blascovich, 2003; Jung and Sosik, 2002) and team processes (Gladstein, 1984; Hackman, 1987) may be fundamental to team success.

### **Leadership processes**

Most studies of leadership in teams have used a functional approach in which the main contention is that, “[the leader’s] main job is to do, or get done, whatever is not being adequately handled for team needs” (McGrath, 1962, p. 5). There is widespread consensus in the literature (Kowalski et al. 1996; McGrath, 1962; Zaccaro and Klimoski, 2002), that there are two critical functions of leadership in a team, helping the team accomplish its task and keeping the team maintained and functioning (Northouse, 2004).

It is important to note that these critical functions need not be exclusively accomplished by a single leader (as in vertical leadership) but, may also be accomplished by team members (as in shared leadership). The point here is that “as long as the team’s critical needs have been met then leadership is effective” (Northouse, 2004, p. 206).

The functional perspective places responsibility for team functioning on leadership and defines it as a type of social problem solving, in which a leader is responsible for identifying problems that may hinder team and organizational goal attainment and for selecting and implementing appropriate solutions to ensure team effectiveness (Fleishman, Mumford, Zaccaro, Levin, Korotkin and Hein, 1991; Northouse, 2004; Zaccaro et al. 2001).

According to the functional perspective (Fleishman et al. 1991) certain core leadership activities enable team effectiveness. These include information search and structuring, information use and problem solving, managing personnel resources and managing material resources. Information search and structuring refers to the leader’s search for information, analysis, organisation and interpretation of information inside and outside the team with regard to team goals and functioning so that the leader can decide how to act (Fleishman et al. 1991; Northouse, 2004). Information use and problem solving refers to the leader’s use of this information for problem identification, development of an appropriate plan which coordinates team member expertise and the communication of this plan to team members (Fleishman et al. 1991) so that they understand the plan, how it is coordinated and “what situation constitutes task accomplishment” (Zaccaro et al. 2001, p. 456).

Managing personnel and material resources involves the implementation of appropriate plans and solutions (Zaccaro et al. 2001). Managing personnel resources includes actions taken to obtain, develop, motivate, coordinate and monitor individuals who have the knowledge, skills and abilities to contribute to team goal attainment (Fleishman et al. 1991). Implementation of plans and solutions also requires a leader to obtain, allocate, maintain, utilise and monitor material resources which may enable the team to act and accomplish team goals (Fleishman et al. 1991).

### **Teams and team effectiveness**

Salas et al. (2005, p.562) defined a team as “two or more individuals with specified roles interacting, adaptively, interdependently and dynamically toward a common valued goal”. This definition emphasizes key characteristics of teams which have implications for team effectiveness such as different and unique roles of team members critical to collective action and therefore, a high degree of interdependence among team members (Zaccaro et al. 2001). It is apparent that integration, coordination and synchronisation of individual team member contributions for the accomplishment of

team goals are essential for interdependence (Zaccaro et al. 2001). As well, team interaction is expected to be adaptive and simultaneously maintain high levels of collective action in the context of dynamic team and environmental conditions (Zaccaro et al. 2001). According to this definition, team effectiveness may be conceptualised as more than the achievement of team goals (team performance), it also includes how the team interacts (i.e. team processes) to achieve team goals (Salas et al. 2005).

An extensive review of team effectiveness research (Salas et al. 2005) has revealed that the variables most commonly reported to influence team effectiveness include leadership (for example, Katzenbach, 1997; Kozlowski, Gully, Salas and Cannon-Bowers, 1996; Zaccaro et al. 2001) and team cognitive, motivational, affective and coordination processes (for example, Brannick, Salas, and Prince, 1997; Gibson, 2001; Wong and Sitkin, 1999). Nevertheless, little is known about how leadership may facilitate the development of these team processes and vice versa.

### **Team processes**

A number of researchers (Cannon Bowers, Salas and Converse, 1993; Kozlowski et al. 1996) have argued that team effectiveness is dependent on team cognitive processes, in particular, the emergence of shared mental models. Mental models have been defined as “mechanisms whereby humans generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states” (Rouse and Morris, 1986, p.360). Mental models allow individuals to describe, explain and predict events in their environments (Mathieu, Goodwin, Heffner, Cannon-Bowers and Salas, 2000).

In a team context, the consistency between individual team members’ mental models is important because they “enable a team to form accurate explanations and expectations for the task, coordinate their actions and adapt behaviour to demands of the task and other team members” (Cannon-Bowers et al. 1993, p.228). Several writers (Cannon-Bowers, Salas & Converse, 1990; Klimoski and Mohammad, 1994; Kraiger and Wenzel, 1997) have suggested the extent to which team members share a common mental model may influence team effectiveness. These writers have also contended that there are probably multiple mental models that must be shared among team members however, these may be determined by task demands.

Mathieu et al. (2000) operationalised shared mental models in two major content domains, task related and team related, and argued that in order to perform successfully as a team, team members are required to perform task and team functions well. Cannon-Bowers and Salas (2001) suggested that shared mental models for task and team could be further divided into four broad knowledge categories; task-specific knowledge, task-related knowledge, knowledge of team members and attitudes / beliefs. The first category; task-specific knowledge is argued to enable team members to act in a coordinated way without the need to communicate. Basically, team members rely on their own knowledge without the need to discuss it and this leads to compatible expectations for performance. In this instance, “the nature of knowledge being shared is highly task specific and involves the procedures, sequences, actions and strategies necessary to perform a task” (Cannon-Bowers and Salas, 2001, p. 197). The second category; task-related knowledge describes knowledge, team members need to share about task related processes and is not necessarily task specific (Cannon-Bowers and Salas, 2001). For example, shared knowledge about teamwork, what it is and how it operates enables the team to accomplish its task but, is not necessarily task specific as it is relevant across a number of team tasks (Cannon-Bowers and Salas, 2001). The third category, team members knowledge of each other is based on the argument that team members’ need to know preferences, strengths and weaknesses in order to be effective (Mathieu et al. 2000). Gibson (2001) has argued that over time team members learn the distribution of expertise within a team and this type of knowledge enables a team to compensate for each other, predict individual team member actions, provide information and allocate resources according to team member expertise (Cannon-Bowers and Salas, 2001). The last category, shared attitudes/beliefs is more generic and refers to the similarity of attitudes and beliefs among team members which leads to compatible interpretations of the environment and enable better decisions (Cannon-Bowers and Salas, 2001).

An understanding of what mental models need to be shared among team members must acknowledge the ambiguity associated with the term ‘shared’. Specifically, sharing may mean ‘overlapping’, such as when two or more team members need to have common knowledge or, ‘similar/identical’, such as when team members must have similar beliefs and attitudes to draw common interpretations or, ‘complementary/compatible’, such as when it is not necessary to have common

knowledge but, that the knowledge leads to team members' having similar expectations and, 'distributed', such as when knowledge is dispersed across team members (Cannon-Bowers and Salas, 2001). The literature is not consistent in its use of this term and it is likely that in any team, knowledge will need to be shared, similar, complementary and distributed (Cannon-Bowers and Salas, 2001).

Team member motivation is essential for team effectiveness. Zaccaro et al. (2001) have suggested that team motivation comes from team cohesion and collective efficacy. Team cohesion has been defined in two ways; first, the degree to which team members are attracted to and motivated to stay with the team (Zaccaro, Blair, Peterson and Zazanis, 1995) and second, how resistant the team is to disrupting influences (Carron, 1982). Some writers (Hackman, 1976; Zaccaro, 1991) have argued that team cohesion may have a social or task focus. Social cohesion refers to the strength and number of friendships within a team (Zaccaro et al. 2001). Task cohesion occurs when goal achievement satisfies personal and collective attainment of important goals. It occurs because of the necessity for collective effort to achieve goals unattainable through individual team member effort (Zaccaro et al. 2001).

Collective efficacy is an analogue of self efficacy at the team level and is defined as "a group's shared belief in its conjoint capabilities to organise and execute the courses of action required to produce given levels of attainment" (Bandura, 1997, p. 477). Bandura (1997) proposed that collective efficacy is influenced by events and experiences similar to self-efficacy and suggested that mastery experiences of the team exert the most powerful influence. Collective efficacy influences what people choose to do as a group, how much effort they put into group goals and their persistence when group efforts fail to achieve group goals (Bandura, 1997).

Team affective processes such as trust; have been cited by a number of researchers (Bandow, 2001; Hackman, 1990) to significantly influence group effectiveness. For example, team member relationships characterised by mutual trust foster collaboration, reduce conflict and increase commitment to the work of the team (Larson and LaFasto, 1989; Morgan and Hunt, 1994). Trust in the context of a team has been defined as, "the extent to which a person is confident in, and willing to act on the basis of, words, actions and decisions of another" (McAllister, 1995, p.25). Mutual trust enables team members to interpret each other's behaviour, for example, disagreement, performance monitoring and back up behaviours as support for the individual and the team (Simons and Peterson, 2000).

Coordination of team member actions is fundamental for team effectiveness (Marks, Mathieu and Zaccaro, 2001). Fleishman and Zaccaro (1992) developed a taxonomy which classified activities required for team coordination and performance. They identified seven activities; orientation, resource distribution, timing, response coordination, motivation, system monitoring and procedure maintenance activities. Orientation refers to how team members acquire and exchange information necessary for task accomplishment. Resource distribution includes assignment of team members to specific tasks, distribution of material resources and task load balancing. Timing refers to activities designed to coordinate the pacing and speed of task accomplishment. Response coordination is the sequencing of team member activities and timing with respect to other team activities. Motivation refers to activities designed to increase team member commitment and effort to task accomplishment. System monitoring includes activities designed to detect errors in nature and timing of team member activities. Procedure maintenance is activities to ensure compliance with performance standards (Zaccaro et al. 2001). Team coordination processes need to become automatic and simultaneously adaptive for teams to be effective in dynamic and complex environments (Zaccaro et al. 2001).

In sum, with schools increasingly turning to team based leadership structures it is apparent from this discussion that it is essential to understand how leadership and team processes interact to facilitate team effectiveness. Therefore, the purpose of this study was to explore the relationships between leadership and team processes within the context of the senior executive team in NSW state secondary schools.

### **Theoretical framework**

A theoretical framework based on the literature review and developed to guide the study is depicted schematically in Figure 1. The theoretical framework depicts the relationships between school context, team member characteristics, leadership and team processes and team effectiveness. Essentially the model proposes that school context and team member characteristics moderate the effects of vertical and shared leadership processes which interact with team cognitive, motivational, affective and coordination processes to influence team effectiveness.

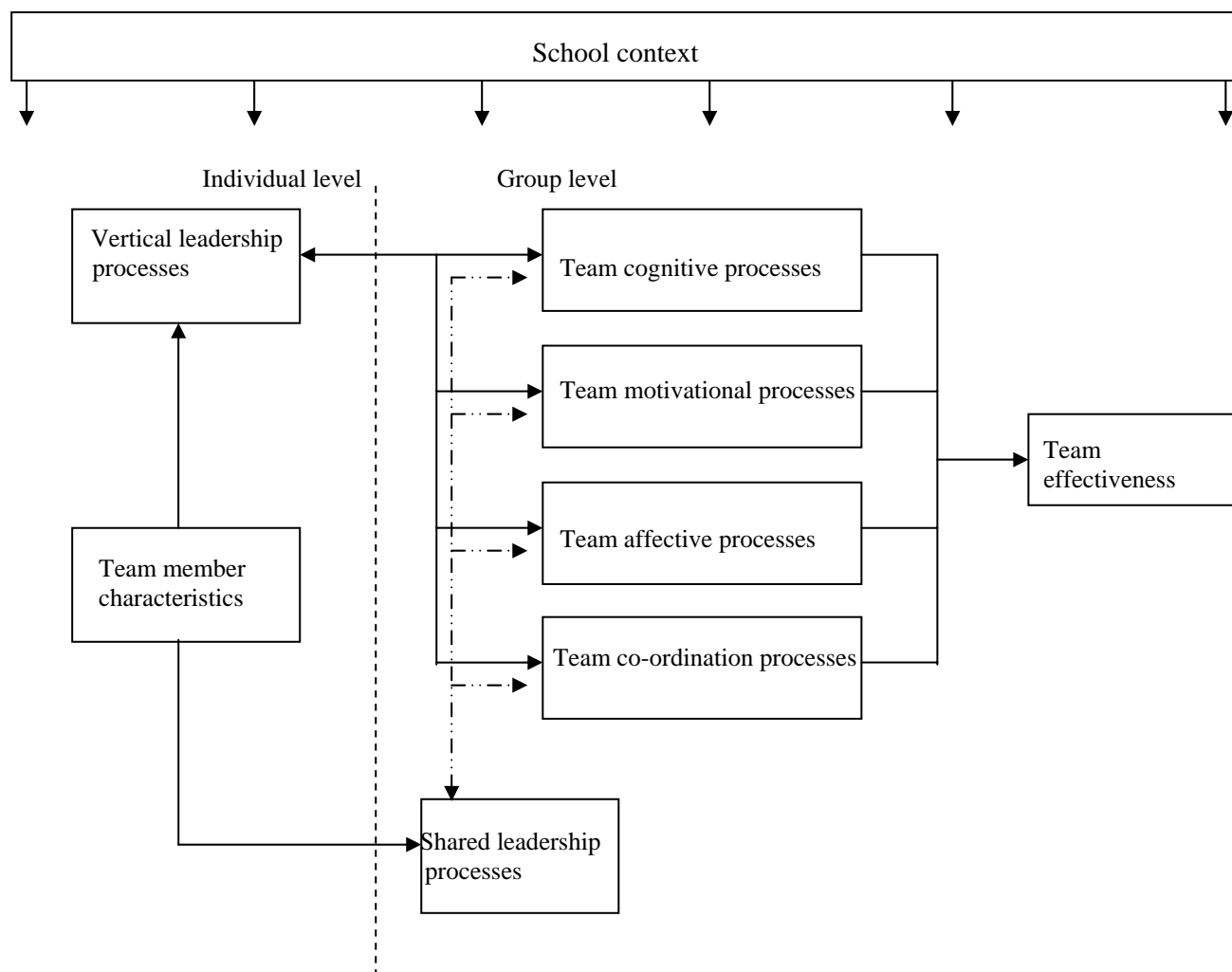


Figure 1: Theoretical framework

Figure 1 conceptualises the variables at two different levels. For example, vertical leadership and team member characteristics are conceptualised at the individual level and shared leadership and team processes and team effectiveness are conceptualised at the group level.

A number of research questions were formulated to investigate the proposed relationships. Research questions focus on the team as the unit of analysis, specifically they include:

1. Do team based leadership structures operate in NSW state secondary schools?
2. What is the nature of the relationship between school context, team member characteristics and leadership processes?
3. What is the source and nature of leadership processes?
4. What is the nature of team processes?
5. What are the relationships between leadership and team processes?
6. What are the relationships between leadership, team processes and team effectiveness?

## Methods

### *Design, data collection, participants and analytical procedures*

A multiple case study design was used (Yin, 2003), for the larger study, however, *this paper reports the findings from a single case*. Given the largely exploratory nature of the study a multiple case study design was justified as it provides evidence which is often compelling and regarded as robust (Yin, 2003). When there is more than one case, there is the possibility of direct replication, if a researcher is seeking replication. Similar conclusions arising from two or more cases which are likely to have different contexts are more powerful than those coming from a single case and increase generalisability (Yin, 2003).

The senior executive team for the case study was randomly selected from NSW state secondary schools in the Sydney metropolitan area. Data were obtained from individual, face to face semi-structured interviews with the senior executive team (consisting of the principal and two deputy principals).

Interview data were transcribed and an inductive content analysis approach recommended by Creswell (2005) was used to identify themes. Initially, the analysis involved several readings of interview transcripts independently by the two authors to make sense of the data. Working independently, the two authors divided data into meaningful segments and codes were inductively generated. The two authors met on several occasions for the purpose of discussing and comparing codes and coming to agreement about the final codes and themes emerging from the data.

## Results

### *Case study one: Jones High School*

#### **School context**

Jones high school had been under threat of closure from the state government. A political campaign had recently been fought and won by a coalition of teachers, parents and students to keep the school open. The school's context was described as 'unique' by participants because it was involved in a three year process of renewal, revitalisation and redevelopment after a period of dismantling. This unique context dictated school goals. For example, Jane the principal stated:

*"We're trying to rebuild and revitalise the school after a period of dismantling it through a period of threatened closure, it's unique in that way...even the sort of resourcing...as simple as painting it...getting the technology to a certain standard where people are actually connected to the internet...that's the sort of level of rebuilding and revitalising."*

In turn, school goals affected the types of leadership activities engaged in by Jane and her two deputy principals, John and Julie:

*"One of the deputies ...is very much about resourcing the school. So has been involved in the planning stage and the construction stage of the school hall...finance committee, resourcing people as far as their physical needs, decent classrooms, technology up to a certain standard,...the other deputy runs the professional learning team, and the learning support team...supporting teachers, but in a different way"* (Jane, principal).

*"She's (referring to Jane) been through the whole closure thing and the politics of dealing with the families and just government and the department of education and things. And that's still going on. So a lot of her time is taken up with that, PR stuff"* (Julie, deputy principal).

In addition, school context influenced staff selection and team member characteristics. For example, John and Julie had been merit selected through interview processes by Julie as illustrated by the following comment:

*"I selected the deputies...each of the deputies has quite distinct skill sets...their skill sets would be fitting into and supporting those goals and directions in different ways"* (Jane, principal).

*"Jane interviewed the deputies...they were appointed at the same time...she had two very different people that she wanted for the roles"* (Julie, deputy principal).

#### **Team member characteristics**

Team member demographic characteristics summarised in Table 1 suggested similarities in age, time in current position and tertiary qualifications among team members. For example, Jane and Julie have English teaching backgrounds while John has a science background. In addition, Julie has had more experience in the deputy principal position than John.

Table 1: Team member demographic characteristics

Name	Position	Age	Sex	Experience in current position	Length of time in current position	Teaching background	Qualifications
Jane	Principal	50-59	F	6.5	2.5	English	BA Dip Ed
John	Deputy	50-59	M	2.5	2.5	Science	BSc Dip Ed
Julie	Deputy	50-59	F	5	2.5	English	BA Dip Ed

These team member characteristics were noted by Julie:

*"Jane and I are very similar people, we're very different but we're also very similar...we're both English teachers around the same age. Her skills and my skills probably are in some ways too alike. Particularly our"*

*writing skills and our way of thinking, is maybe a little bit too alike... but it also means that because we are alike, we know what's expected... of each other" (Julie, deputy principal).*

Other team member characteristics noted by participants included shared values and commitment to goals of school and team member knowledge, skills and abilities as illustrated by the following comments:

*"I really believe that neither Julie nor John is about Julie or John. They're about doing a really good job for this school and um, they're not seeing their commitment to this school as opportunistic for career ...those shared values...and their commitment" (Jane, principal).*

*"Some things we have in common, but there are other distinctly different areas when I come from a science background, logical steps you know, an order to things um...probably not always into the mushy crap that Julie's happy to deal with... I've had properties experience... Julie had more you know, casual teachers and that sort of experience" (John, deputy principal).*

A number of researchers (Cannon-Bowers et al. 1993; Klimoski & Mohammad, 1994) have suggested that team member characteristics including age, sex, experience and organisational level is likely to be related to team processes and team effectiveness. Similarities in team member characteristics at Jones High School suggested similar life experiences in terms of age, experience and qualifications. According to Hackman (1990), Rentsch and Klimoski (2001) similarities in life experience of team members are associated with increased communication, increased ability to achieve consensus readily, increased cohesion, decreased team conflict and the development of shared mental models.

### **Team based leadership structure**

A team based leadership structure was instigated by Jane. Her rationale for this type of leadership structure is illustrated by her comment:

*"The brief to lead a school is so enormous – so enormous, and I would say- and this is with absolute respect to all my colleagues – it's just slightly more enormous here, because we're not just building, we've actually gone through a period of being dismantled, so we have had to take enormous strides" (Jane, principal).*

This team based structure was acknowledged by the deputy principals for example:

*"That would be people's understanding and that's how we refer to each other" (Julie, deputy principal).*

John suggested that the team based structure was effective because team members adopted a team orientation, Jane (principal) adopts this orientation and team members have different expertise which can be utilised:

*"I think we're a pretty effective team together. Probably better than most, better than a lot, in that we have a good working relationship and, probably see the role as a team role rather than there's the principal and the deputy...Jane probably, uses an inclusive approach. And also probably the deputies have particular areas of expertise which she doesn't have, and calls upon us to provide input particularly in those areas" (John, deputy principal).*

John and Julie's comments emphasised their psychological ownership of this team based leadership structure as suggested by the following comments:

*"What our team has, that's particularly good. You know, we probably do sink or swim as a team. And if one is taken down, we go down together" (John, deputy principal).*

*"We respond as a team... but it's all about the three of us. We basically discuss everything" (Julie, deputy principal).*

Psychological sense of ownership involves "the collective belief that all members are part owners and that team actions and outcomes are under the team's authority and responsibility" (Druskat & Pescosolido, 2002, p. 291). Psychological ownership strengthens feelings of responsibility and influence over how tasks are done (Pierce, Kostova & Dirks, 2001), generates conscientiousness and extra-role activity (Pierce, Rubenfield & Morgan, 1991) and the desire to engage in learning and acquiring knowledge to effectively take responsibility for team self-management, which may enhance team effectiveness (Druskat et al. 2002).

### **Leadership processes**

Leadership processes were vertical and shared in the senior executive team at Jones High School. The vertical leader, Jane retained important responsibilities for example, team design, managing boundaries, providing as needed leadership support and maintaining shared leadership within the team. This is consistent with Cox, Pierce and Perry (2003).

Jane's comments suggested that she had carefully considered the forming of a senior executive team.

*"I selected the deputies ... I was really mindful of trying to not clone myself... I wanted you know like a mix within the senior executive, so we would have a composite of really good skills" (Jane, principal).*

This was also apparent to Julie who made the comment:

*“She (Jane) had two very different people that she wanted for the roles... John’s skills are just the opposite of mine. Even as people we’re opposite type people. And she got what she wanted” (Julie, deputy principal).*

According to Yeats & Hyten (1998) the role of the vertical leader in forming a team is critical to success. Team design decisions involve clarifying tasks, securing resources, identifying team member roles and launching the team (Pearce, 2004). These design decisions and later expectations of a vertical leader for team interaction and performance may contribute to the emergence of shared leadership (Cox et al. 2003).

Jane had also articulated her vision to team members as indicated in the following comments:

*“The goals were identified and the vision was identified before either John or I were appointed to the school... we’ve had to take up the goals or the vision that we’ve established for the renewal of the school... Jane’s very good at articulating what she believes is the vision for the school” (Julie, deputy principal).*

This is consistent with Pearce (2004) who has argued that the communication of the vision of the team’s purpose, how the team will function to accomplish its task and expression of confidence in the team is the single most important task of the leader in the team design process.

Jane acknowledged her responsibility for boundary management and the need to facilitate positive relations with outside groups in the following comment:

*“I guess I would have more of a role with the public you know, with the local community, with the parents” (Jane, principal).*

However, boundary management largely focused on buffering her team from external pressures as noted by Julie:

*“She’s (Jane) been through the whole closure thing and the politics of dealing with the families and just government and the department of education... that’s still going on... she’s shielding all the rubbish” (Julie, deputy principal).*

Boundary management is important for team success as it facilitates shared leadership through resource provision and at the same time provides protection for the team from outside influences (Cox et al. 2003). Research evidence (Guinan, Coopriider & Farraj, 1998) reported positive relationships between boundary management and external perceptions of team performance which are linked to the team’s ability to attract resources and gain support for team ideas (Pearce, 2004).

Jane was also mindful of her responsibility to provide leadership support when necessary and this extended beyond the senior school executive team to members of the school executive. For example, Jane noted:

*“I’m having a meeting with a teacher and a head teacher today, where there are difficulties and so I guess coming in and supporting head teachers” (Jane, principal).*

In reference to providing support to her deputies, Jane made the following comment:

*“I never criticise one to the other. I am absolutely respectful of each of their roles... I try to appreciate both of them. So I don’t mean that I contrive things, but there are things I know I should never do and things I should do” (Jane, principal).*

Jane actively encouraged shared leadership among team members through setting clear expectations, ensuring appropriate training and modelling empowering leadership by encouraging team initiative, goal setting and problem solving. For example, setting clear expectations:

*“Knowing right from the start as well, knowing what’s expected of a leader... Jane’s very, very vocal about that and she will say it to the whole staff. I expect a level from you, and she gets it, and certainly she’s articulated that to me.... You understand where you fit into the three way scheme of things, and where the others fit into it too, the head teachers as well. We just naturally tend to assume our roles and responsibilities and know what the consequences and the responsibilities are” (Julie, deputy principal).*

Jane also suggested that she recognised the importance of training for John and Julie’s professional development but also, she recognised the opportunity it provided for them to develop rapport and network with colleagues from other schools, for example:

*“We avail ourselves at virtually everything the department offers, as far as professional learning... John goes to it, Julie goes to it ...so we avail ourselves, I mean we are very attuned to our professional learning. ... I encourage them a real lot...though I may not practice those things myself, but go to deputy conferences and things like that, so they’re developing networks and a collegial sort of rapport and that’s for the training and the networking” (Jane, principal).*

John’s comment suggested that Jane modelled empowering leadership:

*“There have been regular meetings of the senior executive to plan aspects of the school’s development” (John, deputy principal), and, Julie’s comment about how the team responded to demands from the*

environment; *“On the big things, we don’t tend to respond as individuals. We respond as a team...”* (Julie, deputy principal). Many of these vertical leadership practices are consistent with encouragement of lateral peer influence which was identified by Cox et al. (2003) as important for maintaining shared leadership.

Shared leadership processes were facilitated by clear role responsibilities for the deputy principals which were related to their areas of expertise, for example:

*“They’re very clear areas of responsibility”* (Julie, deputy principal).

Shared leadership in the senior executive at Jones High School occurred in two distinct ways. First, when internal or external demands required that leadership transfer to a team member with the relevant expertise. For example:

*“One deputy is very committed to and familiar with ...professional learning and development of staff, and so I guess it was a natural progression that she would lead that particular professional learning team... the other deputy, he can work tenaciously to secure property improvement – he’s much more about the physicality of the school”* (Jane, principal).

The transfer of leadership is an adaptive response to environmental demands or the developmental stage of the team (Burke, Fiore and Salas, 2003). Leadership is transferred among team members taking advantage of relevant expertise as determined by the demands of the situation or the team’s development. Leadership transfer may occur many times and smooth transfer is essential for team effectiveness (Burke et al. 2003).

Shared leadership involving leadership transfer also influenced vertical leadership processes at Jones High School. For example, as team members with relevant expertise fulfilled critical leadership functions it allowed the vertical leader to perform other leadership functions necessary for team effectiveness as suggested by Jane’s comments:

*“I would have more of a role with the public... I’m the public face of the school... in an operational sense that’s far more the deputies...they would make sure that there are the daily organisational things of the school”* (Jane, principal).

At Jones High School, shared leadership was seen to be necessary because of the complexity in leading a school involved in renewal and rebuilding and the shortage of time available to accomplish to do so. For example:

*“We haven’t got time to do that for a start... and that’s why we do have to have our separate areas of responsibility...we’re already working 14/15 hour days sometimes. There isn’t time”* (Julie, deputy principal).

Second, shared leadership occurred when individual team members shared, supported and sought the advice of fellow members in a reciprocal influence process.

*“We share a lot of things... I run ideas past John, I run ideas past Jane, a lot of ideas have to be okayed by Jane... we definitely talk about what we’re doing, we ask each other for advice, assistance in what we’re doing”* (Julie, deputy principal).

The willingness of team members to learn from each other and allow reciprocal influence meant that difficult decisions were made by the team acting collectively, for example:

*“We don’t tend to respond as individuals. We respond as a team... we had to sit down and get new strategies about how to deal with them in particular”* (referring to problems with P&C) (Julie, deputy principal).

These team oriented attitudes allow team members to “feel comfortable with fluidity, ambiguity and taking guidance from different people depending on who (was) leading the team” (Burke et al. 2003, p.114), and to adopt shared leadership processes. These team oriented attitudes were encouraged by the vertical leader, according to John who commented, *“Jane probably, uses an inclusive approach”* (John, deputy principal). Research evidence (Driskell & Salas, 1992) has suggested that team orientation which has been defined as a “preference for working with others and tendency to enhance individual performance through coordination, evaluation and use of task inputs from other members while performing group tasks” (Salas et al. 2005, p. 584) facilitates team performance.

## **Team processes**

### *Team cognitive processes*

A number of team processes were evident in the senior executive team at Jones High School. Team cognitive processes were evident in the striking similarities of team members’ mental models for task, team and situations. According to Cannon-Bowers and Salas (1990) teams must share mental models because it allows team members to operate under a common set of assumptions and guides how individuals and the team coordinate their actions.

Team members consistently identified the task as the renewal and rebuilding of the school. For example:

*"We're trying to rebuild, renew and revitalise the school" (Jane, principal).*

*"...That common goal would be to rebuild" (Julie, deputy principal).*

*"...Redevelop the school..." (John, deputy principal).*

A shared team mental model included knowledge related to individual team member role in the task, the role of other team members (e.g. task knowledge, skills, abilities and preferences) and individual and collective requirements for effective team interaction. For example, individual team members acknowledged the different roles of team members in accomplishing the task:

*"We have our own areas ... that we're responsible for" (Julie, deputy principal).*

*"There's my specific areas, there's her specific areas (referring to Julie's role). There are the areas which overlap ...and then there are the complementary things" (John, deputy principal).*

*"One of the deputies ...is very much about resourcing the school. So has been involved in the planning stage and the construction stage of the school hall...finance committee, resourcing people as far as their physical needs, decent classrooms, technology up to a certain standard,...the other deputy runs the professional learning team, and the learning support team...supporting teachers, but in a different way" (Jane, principal).*

Jane also suggested that:

*"I think we've also got a recognition that whilst the directions are the same, the way which we operate to achieve them may be, may be different, and with different emphases" (Jane, principal).*

Team mental models also reflected a shared understanding of fellow team member characteristics in terms of task knowledge, skills, abilities and preferences as illustrated by the previous comments and also by the following comments made by John and Jane:

*"There's certainly a very different approach to the way I approach things to the way the Julie (approaches things) ... Some things we have in common, but there are other distinctly different areas when I come from a science background, logical steps you know, an order to things um...probably not always into the mushy crap that Julie's... happy to deal with... I'm probably not quite so sensitive to others' feelings about some things....I'm probably able to push a bit harder on some things. She has an alternative sort of view of thinking.... needing to not be too, too ignoring of what others are doing, I tend to do that sort of thing" (John, deputy principal).*

*"Julie would be a much more sensitive and intuitive than John" (Jane, principal).*

*"So he's much more of a practical... I'm more ... into relationships with people and visions and words and things like that. John is a very quiet/fine teacher, very practical, get things done sort of man" (Julie, deputy principal).*

Team members' knowledge of each other's preferences, strengths and weaknesses enabled the team to compensate for each other, suggesting shared understanding of individual and collective requirements for effective team interaction. For example:

*"We very easily slot into the other's role if the other is not around to do it, or if the other is like going under, we'll pick up something from the other person to do. I mean Jane would do it ... and sometimes even Jane will say you know help, and we'll drop everything and it works the other way too" (Julie, deputy principal)..*

*"What I feel is the strength of our teamwork relationship, is that there is very much a something needs to be done – a jump in, back the other member up, which has been a strong feature of our team" (John, deputy principal).*

Back up behaviours occur when team members recognise a problem in team workload distributions (Porter, Hollenbeck, Ilgen, Ellis, West & Moon, 2003). The ability of the team to assess and redistribute team member overload allows greater team flexibility and adaptation to changing environments, which is associated with increases in team effectiveness (Campion & McClelland, 1993).

The senior executive team members also demonstrated a shared understanding of the situation, which was context specific as suggested in the following comments:

*"Because of the history of the school and the rebuilding of the school... this is a unique school and it is, a lot of it is way beyond any other school...could ever have imagined having to deal with. And there's so much going on and so much happening to try and rebuild it. And the pressure's coming from all sorts of places" (Julie, deputy principal).*

*"Because of the unique situation – whilst John and Julie have not experienced, the drama of closure. They certainly would be conversant with it, in a sort of knowledge sense, not necessarily an experiential part of their recent professional history. So they're aware of it, they're mindful of it and I guess they're pretty attuned to the way that impacts upon or affects our current operation" (Jane, principal).*

An increasing amount of research evidence (Mathieu et al. 2000; Webber et al. 2000) strongly supports the notion shared mental models for task, team and situations may enhance team processes and performance.

#### *Team motivational processes*

Team motivational processes such as cohesion and collective efficacy were identified by Jane, John and Julie as characteristics of the senior executive at Jones High School. Cohesion had a social focus (intensity and number of friendships). For example, the following comments illustrate the intensity of friendships, commitment to each other and team purpose:

*“We also meet, you know a couple of times socially... But we’ve developed friendships because of our common interest in leading the school... it helps that we like each other” (Julie, deputy principal).*

*“We have a good working relationship... we spend social time out of school, and I think that that helps to create the bond” (John, deputy principal).*

*“The way we get along personally, you can’t predict – that’s been quite magical and lucky probably” (Jane, principal).*

Cohesion also had a task focus (goal attainment requires a shared team member commitment and task focus). For example:

*“So if something happens, we need to do something as a group and that happens very regularly... we do. We do have that (referring to cohesion of team), very much have confidence in each other... we have to, we have to because we have to rely so much on each other as well” (Julie, deputy principal).*

*“I want the best for this school, and to get the best for this school, I think the strength and the cohesion and the sort of viability of the senior executive team is crucial” (Jane, principal).*

When faced with a threat from a small number of parents described by Julie as “*expect(ing) to be making the decisions that are Jane’s decisions, or our decisions to make, about the running of the school, the direction of the school,*” this highly task cohesive senior executive became more committed to the task and devoted more effort to ensuring it was accomplished, as suggested by Jane:

*“There was one time we were going, the three of us were going to P&C meetings because there had been, I guess a divide within the community” (Jane, principal).*

John’s comment suggested recognition of the interdependence of team members’ actions and the need (due to environmental demands) to spend extra time and effort on behalf of the team to ensure team success:

*“We probably do sink or swim as a team. And if one is taken down, we go down together... we all go down on this. (How do I respond to demands as an individual?)...I’d probably sacrifice my family and spend more time at school. Try and meet what needs to be done. You probably tend to not say no when you should” (John, deputy principal).*

In addition, the team obtained outside advice, planned efficiently and developed more appropriate strategies for overcoming this threat as indicated by Julie’s comments:

*“The three of us were attending P&C meetings, to try and defuse a lot of what was happening. Our director met with us not long ago and said people can see what we’ve done, and he said these are people who have power and you’ve played into their hands. The three of you are going to P&C meetings... So we had to sit down and get new strategies out how to deal with them in particular. And whilst we’re supportive of Jane, she is now the front person, and we’re not going to be in P&C meetings, we’re not doing that (Julie, deputy principal).*

Zaccaro et al. (2001) suggested that cohesiveness is likely to be based on “team member beliefs that together they can effectively accomplish the tasks they need for the team to be successful” (p.466). Known as collective efficacy (Bandura, 1997), it represents team member confidence in their team’s ability to accomplish a task. For example, John expressed confidence in the senior executive team in the following comment:

*“I think we’re a pretty effective team together. Probably better than most, better than a lot” (John, deputy principal)*

Team members also expressed confidence regarding the abilities of each team member as suggested by the following comments:

*“As far as the functioning and operation of the school, you know they’re good. And also their relationships that they’re building with staff - I think that’s been a bit of a test. Because they both are new to the deputy position” (Jane, principal).*

*“We do have that, very much have confidence in each other” (Julie, deputy principal).*

*“Technology, where I know lot more than both of them. But then, in terms of managing difficult parents and creating a positive sort of PR approach to the school, Jane excels at that...Julie’s particularly good with interviewing the kids... there’s a respect for each of those different skills” (John, deputy principal).*

Individual team member confidence regarding the knowledge, skills and abilities of other team members at Jones High School was consistent with collective efficacy which reflects shared beliefs in the team's abilities to perform successfully on a given task (Bandura, 1997). Collective efficacy is important because it "influences what people choose to do as a team, how much effort they put into the team's objectives and their persistence when team efforts fail to produce results" (Katz-Novan & Frez, 2005, p. 439). A higher collective efficacy is more likely to mean that team members will engage, persist and succeed on team tasks, lead to increased communication and team performance (Zaccaro et al. 2001).

#### *Team affective processes*

The affective climate in the senior executive team at Jones high school was described as open by team members for example:

*"There would be fairly frank exchange within those- the meetings with the three of us" (Jane, principal).*

*"There's a certain honesty that I have here that I wouldn't necessarily have had in other location" (John, deputy principal).*

This open climate was facilitated by individual team member recognition of strengths and weaknesses, for example:

*"My individual strengths...ability to form very effective relationships with people... you also have to realise I think what your limitations are, there are some things I can't do" (Julie, deputy principal).*

And, team member willingness to learn from each other as illustrated by Jane's comment:

*"the way in which, they've sat in on each others interviews and in fact on mine...we've probably learnt from each other...the way in which John would conduct an interview or the way Julie would conduct an interview, the way in which I do...there's been that exchange and I think we've all evolved because of that" (Jane, principal).*

In addition, open climate was facilitated by the mutual trust which had developed between team members as a result of close working relationships as suggested in the following comments:

*"We do trust each other...she's (Jane) never given me any reason to believe that she wasn't supportive of me and that I can't trust her with things to do with me. She's never certainly shown that and John hasn't either. I think it's something that develops from working with each other" (Julie, deputy principal).*

*"There's a respect for each of those different skills...that's probably why I gelled, why I feel I've gelled so well with Jane, because of an honest belief that she does trust me. And an honest belief that she values my opinion" (John, deputy principal).*

Researchers (Bandow, 2001; Jones & George, 1998) have reported mutual trust in team contexts influences team member participation and contribution mediates cooperation and teamwork and facilitates team member willingness to share information. For example, if team members do not feel their input is valued or used they may be less willing to share it (Salas et al. 2005). As well mutual trust influences how each team member interprets other team member's actions (Simons & Peterson, 2000), so that if mutual trust is not developed team member actions such as disagreement may be interpreted as deliberate acts to sabotage the team (Salas et al. 2005).

#### *Team coordination processes*

A key factor in poor team performance is the failure to coordinate and adapt team member activities (Stewart and Manz, 1995). Team coordination in the senior executive at Jones High School was facilitated through regular meetings of team members. Meetings were informal and formal and allowed the team to coordinate and adapt team member actions to suit changes in the environment as illustrated by the following comments:

*"We meet weekly, the three of us do and whilst that doesn't necessarily talk about long term goals, it certainly talks about the strategies and methodologies that we're using to achieve those goals... we monitor each other in those weekly meetings. And so that's just the three of us, I mean we have bigger executive meetings once a week as well, and staff meetings too" (Jane, principal).*

*"We have a regular meeting; we have more than one meeting apart from every Monday morning. We'll discuss the week ahead, but we have informal meetings probably, wouldn't be everyday but every second day. And they can last up to you know an hour or two hours. So if something happens, we need to do something as a group and that happens very regularly" (Julie, deputy principal).*

*"Well regular meetings are a feature ... we talk a lot... you catch some time here...we have a regular meeting for the three of us to get together to go through those things. ... quite apart from all the after school debriefings and sharing" (John, deputy principal).*

Meetings provided team members at Jones High School with the opportunity to communicate. Communication is invaluable in an environment characterised by complexity (e.g. Jones High School) because it distributes needed information and also facilitates shared understanding among team members allowing a team to coordinate and adapt to their environment (Salas et al. 2005).

## **Discussion**

The purpose of this exploratory case study was to investigate relationships between leadership and team processes in team based leadership structures in a NSW state secondary school. A discussion of the results which have suggested important relationships between school context, leadership and team processes follows.

First, faced with the threat of closure the principal at Jones High School had instigated a team based leadership structure suggesting that school context was an important catalyst for the development of this type of leadership structure at this school. Composed of the principal and two deputy principals the team based structure provided expertise beyond the capabilities of the individual (principal) leader (Hiller, Day and Vance, 2006). School context also, largely determined school goals, leadership activities and team member characteristics. For example, school goals concerned renewal and rebuilding; many of the leadership activities of the senior executive team were concerned with these goals, such as obtaining physical resources and developing teaching resources. In addition, the two deputy principals had been merit selected through interview processes for their expertise in these areas.

Second, vertical and shared leadership processes were evident in the senior executive team at Jones High School. Vertical leadership processes of the principal acted as important catalysts for shared leadership processes. The principal formed and designed the team based on school goals. Team members possessed knowledge, skills and abilities required to accomplish school goals and their expertise matched leadership responsibilities within the senior executive team. This facilitated shared leadership as team members transferred leadership responsibility to the team member with the relevant expertise and responded appropriately to leadership from other team members (Cox et al. 2003). The principal also managed boundaries for the team. Boundary management largely involved protecting the team from external interference providing a context for shared leadership to develop (Cox et al. 2003). As well, the principal was mindful of her need to provide leadership support for team members when needed but at the same time mindful of her need to be respectful of team member roles and not take control. These processes are seen to encourage shared leadership because empirical evidence (Yeatts and Hyten, 1998) has suggested that team member withdrawal, dissatisfaction and abdication of decision making occurs when vertical leaders regularly seize control of decisions. In addition, the principal maintained shared leadership by setting clear expectations, ensuring appropriate training and modelling empowering leadership by encouraging team initiative and problem solving consistent with research evidence (Manz & Sims, 1991).

Although shared leadership processes were evident they did not replace vertical leadership suggesting that both forms of leadership may be necessary in a senior executive team. Shared leadership processes involved the transferring of leadership to a team member with the relevant expertise based on internal or external demands and collective team actions in leadership.

The shared leadership process, involving the transfer of leadership is a lateral influence process and requires an acceptance on the part of team members to be led by their peers (Cox et al. 2003). It was apparent that at Jones High School, the emergence of this type of shared leadership was partly based on roles of team members and the demands of the environment. This meant the team was able to take advantage of individual team members' strengths to complement the principal and optimise leadership (Conger & Pearce, 2003).

The shared leadership process of collective team actions involved a reciprocal influence process which was associated with a team oriented attitude. Team members were encouraged to adopt a team oriented attitude by the vertical leader. A team oriented attitude increases team member capacity to place team goals above individual team goals, consider and respect other team members' inputs and, coordinate and integrate these inputs (Burke et al. 2003).

Third, vertical and shared leadership processes interacted with shared mental models (team cognitive processes), team cohesion and collective efficacy (team motivation processes), mutual trust (team affective processes) and meetings (team coordination processes) to influence team effectiveness and performance.

The vertical leader's role in team formation and design, boundary spanning and management facilitated for team members, shared mental models related to the task, team and situations and served as a guide for team actions enabling effective team processes and performance. Establishing and maintaining an accurate understanding of team purposes, steps necessary to achieve these purposes, role requirements, team constraints and resources available during initial team formation and team lifespan is an important responsibility of the vertical leader (Salas et al. 2005; Zaccaro et al. 2001). In essence, the vertical leader, conveys his or her own understanding and mental model of the task, team and situations derived from her or his role in team formation and design and boundary spanning and management activities (Zaccaro et al. 2001). Research evidence (Marks et al. 2000) has suggested when leaders provide this information it leads to more shared and accurate team member mental models.

Shared team and situational mental models among team members assisted in the development and enhancement of shared leadership processes and team processes. For example, these shared mental models contained knowledge related to team member attributes, preferences strengths and weaknesses and understanding of the situations facing the team allowing team members to determine to whom and when leadership needed to be transferred as suggested by Burke et al. (2003). Shared team mental models were also important in the development of shared leadership processes because knowledge of team member characteristics permitted team members to determine the value of other team members' contributions (Burke et al. 2003).

As well, shared team mental models were facilitative of effective team processes. For example, shared understanding of team member characteristics and each other's roles allowed the team to develop confidence in each other (team motivational processes) and mutual trust (team affective processes).

Team motivational processes including cohesion and collective efficacy in the senior executive at Jones High School interacted with leadership processes to positively influence team effectiveness and performance. This finding is consistent with other research (Bandura, 1997; Carron 1982; Zaccaro et al. 1995). Collective efficacy developed as team members interacted closely with each other coordinating their actions to achieve team purposes suggesting that task interdependence may be necessary for this team process to emerge. Collective efficacy facilitated shared leadership processes involving lateral influence. For example, when environmental conditions required a transfer of leadership to a team member with the relevant expertise optimising leadership, they were willing to do so and take direction from a team member occupying the leadership role because they were confident in each other's abilities. This is supportive of Burke et al. (2003) contention that team members must have confidence in the ability of each member assuming the leadership role. Further, collective efficacy facilitated shared leadership processes involving a reciprocal influence process. For example, when the team was confronted by adverse environmental conditions the team met for discussion arrived at consensus and responded as a team because team members were confident in the team's ability to deal with the adversity.

Affective team processes such as mutual trust at Jones High School developed from close working relationships and facilitated team processes. Mutual trust encouraged team member participation, cooperation, willingness to share information and influenced how individual team members interpreted each other's behaviours as suggested in the literature (Bandow, 2001; Jones & George, 1998; Simons & Peterson, 2000). Mutual trust was also important for acceptance of shared leadership processes. Team members were willing to engage in lateral and reciprocal influence processes associated with shared leadership because they trusted each other.

Team meetings at Jones High School were critical to team coordination processes. Meetings were formal and informal and provided the opportunity for team members to communicate with each other. Formal meetings were instigated by the vertical leader while informal meetings were instigated by team members largely in response to environmental demands. Meetings facilitated team coordination processes such as orientation, resource distribution, timing, response coordination, motivation, system monitoring and procedure maintenance activities. For example, resource distribution activities occurred when meetings involved task assignment to a relevant team member, the distribution of material resources across tasks and efforts to balance task work loads. These team coordination activities were identified by Fleishman & Zaccaro (1992) as important for team effectiveness and performance.

## Conclusions

In summary, evidence from this exploratory case study supports the contention that leadership and team processes moderated by school context and team member characteristics interact to influence team effectiveness and performance. Although, we acknowledge these findings require replication with a larger sample of senior executive teams in NSW state secondary schools, we think the findings offer a number of important insights with regard to the relationships between leadership processes, team processes and team effectiveness.

First, vertical and shared leadership processes were identified in the case study and this challenges conceptions about how leadership happens in team based leadership structures. To date, the literature has tended to focus on the leadership behaviours of a single individual, often the formally appointed leader and the relationship is typically a vertical one (Conger & Pearce, 2003). The findings from the case study have suggested that leadership may be transferred among team members or may be exercised collectively by the team so that, the relationship is lateral and reciprocal. Clearly, we need to develop a much better understanding of school leadership processes in a team setting.

Second, evidence from the case study suggested team cognitive, motivational, affective and coordination processes were associated with the team effectiveness and performance and this is consistent with the literature (Bandow, 2001; Cannon-Bowers et al. 1993; Hackman, 1976; Marks et al. 2001). However, particularly important were the shared mental models among team members which provided a common set of assumptions, guiding how individuals and the team responded to environmental conditions. The team was able to optimise leadership, coordinate and adapt actions increasing effectiveness and performance because team members shared a common understanding of task, team and situation. Findings with regard to shared mental models in the case study prompt questions such as, how are shared mental models developed and which shared mental models are more likely to positively contribute to team effectiveness and performance? Similar questions might also be raised about team motivational, affective and coordination processes.

Last, results from the case study indicated that team processes interacted with leadership processes to facilitate team effectiveness and performance. For example, vertical leadership processes such as team formation and boundary management facilitated the development of shared mental models of tasks, the team and situations and the latter facilitated shared leadership processes. Shared mental models of team member characteristics and particular situations meant team members were able to recognise when leadership should be transferred. In addition, shared team and situational mental models encouraged facilitation of adaptive team actions. The interaction of leadership and team processes is consistent with suggestions made by Conger & Pearce (2003). However, it is contrary to current leadership and team dynamics theories which tend “to minimise the contributions made by each of these processes on the other” (Zaccaro et al. 2001, p. 477). Further, despite extensive literature in both leadership and team dynamics, few theories explain how leadership and team processes interact to influence team effectiveness and performance (Zaccaro et al. 2001) suggesting that an important area for research is to investigate the interaction between these processes.

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