



## Research Article

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# Reshaping Leadership in Schools: A Social Neuroscience Lens

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## Abstract

Inspiring teams to engage actively in the pedagogical improvement agenda of the school is the challenge for every school leader (see, for example, Drago-Serverson & Blum-Destefano, 2018; Fullan, 2018; Kalkan et al., 2020; Leithwood et al., 2020) [8,14,18,21]. Recent research (Newman, 2022) in Australian high schools aimed to determine how a principal's leadership impacts the self-reported inspirational levels of their teams. In particular, to identify leadership attributes principals utilise to appeal to the team's inner motivations to inspire them to engage, thus, understand the behaviours, and means through which such principals do so. The study found that insights from neuroscience could shed light on why particular leadership attributes could strengthen the leader's ability to influence and inspire.

To answer the research questions a case study design using a mixed methods approach, with largely a qualitative focus was used. Data collection from interviews, observation, artefacts, and surveys form the research design. An analysis of the data revealed three clear themes: the high school principals in the study inspired their staff by building trust, establishing rapport, and providing opportunities for growth. The research findings add to the evidence base for what are the crucial attributes of an inspirational leader in Australian high schools. The neuroscience helps us to understand why and how some principals can inspire and unite a team to engage and why others cannot.

## Research Question

What are the attributes of a high school principal's inspirational leadership as perceived by teams and what can neuroscience offer to best understand a principal's inspirational leadership behaviour?

## Literature review

Two general types of leadership approaches, emerge from the literature review. Over time, there has been a shift from a leader-centred, egocentric leadership approach to a more collaborative relational style. A more relational leadership style moves away from focussing on the principal as an ego-centred, 'hero' leader, toward a collective interactive approach and shared leadership (Elliot &

Hollingworth, 2020) [10]. The more leader-centred, fear-based approaches are based on a simpler one-dimensional model of leader and follower model and are embedded in positional power. There is little evidence to show that it is successful today in schools. There is mounting evidence that although this type of leadership can get results, the outcome is at the cost of employee motivation, retention, and trust and in the long-term disengagement (Schaufenbuel, 2014). The more relational and collaborative leadership approach, calls for leaders who work with and through others as a reciprocal process (Boyatzis, 2012; Dimitriadis & Psychogios (2016); Duignan, 2012; Feser, 2012; Krouze & Posner, 1990; Wang 2020) [3,7,9,13,20,25].

These theories describe leaders that influence follower behaviours and motivations.

A literature review of leadership attributes in education proved dearth. However, numerous studies have been conducted in business across industries. Integrity (trust, honesty, fairness, respect) and strength (courage, confidence, competence, composure) have been identified as the most valued character attributes in a leader, as shown by identifying the patterns in a number of major studies (see, for example, Enfroy, 2021; 2010; Hossain, 2015; Kouzes & Posner, 1990; Wang, 2020) [11,16,20,25]. This would suggest that the leader's ability to inspire their teams to engage is more about developing their personal power rather than their positional power and more about the people element rather than a product or results focus. The insights from neuroscience can shed light on why the more relational leadership styles are more inspirational thus the central argument of this research was based on five themes, emerging from social cognitive neuroscience in regard to leadership influence (Arnsten, 1998; Cacioppo & Patrick, 2008; Cozolino, 2014; Eisenberger & Immordino-Yang, 2008; Gordon, 2000; Kennedy, 2021; Perry, 2012; Rock, 2008; Rossouw, 2015; Wang, 2019) [1,4,5,12,15,19,22,24,23,25].

First, humans are hard-wired to detect and tip to the negative (Arnsten, 1998; De Co, 2018; Rossouw, 2015) [23]. Negative emotions are more easily aroused and negative memories are longer lasting and more deeply felt than positive emotions (Beaumeister et al, 2001) [2]. Just having a conversation with someone higher in rank or positional power, being asked to come to the principal's office or being given feedback can activate a threat response (Arnsten, 1998; Beaumeister et al, 2001; Rock, 2008) [1,2,24]. Second, the brain

evolved to operate and belong to a social group (Cacioppo & Patrick, 2008; Cozolino, 2014; Eisenberger & Lieberman, 2004) [4,5,12]. Fear and anxiety that can result from social interactions and social isolation can cause us to withdraw, freeze, give up, or resist rather than take action and engage (Cacioppo & Patrick, 2008)[4].

Third, humans have an innate urge to learn and achieve. When an individual achieves something, masters something or completes something, the brain releases dopamine which makes them feel good and is highly addictive. Dopamine gives humans an achievement bias. Fourth, motivation driving social inspirational behaviour is governed by an overarching organising principle of minimising threat and maximising reward (Gordon, 2000; 2022) [15]. The dopaminergic system is the brain's reward centre, responding with feelings of satisfaction and joy when activated (Wang, 2019) [25]. When this area of the brain is stimulated, the hedonic pleasure drives a reward-motivated decision-making cycle. The dopamine release makes us more likely to repeat that pleasurable behaviour again and again as we move towards things that make us feel good.

Fifth, the brain responses to social interaction are interrelated and sequential incorporating the emotional, social and thinking brain. Emotion and cognition, feeling and thinking are fundamentally interrelated (Immordino-Yang & Gotlieb, 2017) [17]. Social experience draws upon the same brain networks to maximise reward and minimise threat as the brain circuitry that is used for instinctive survival needs (Lieberman & Eisenberger, 2008) [12]. This means, that our human need for social connection is treated by the brain in much the same way as the need for survival factors such as food and shelter (Rock, 2001) [24]. The brain components during social interaction do not act in isolation (Perry, 2012) [22].

## Social Interaction Model (SIM) ©

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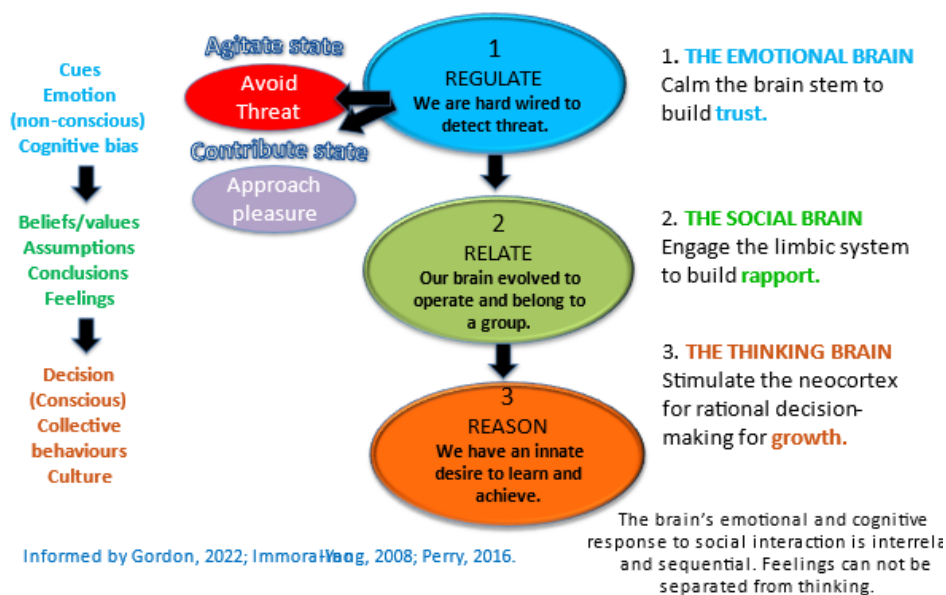


Figure 1: Social Interaction Model (SIM) Newman, 2022.

It might be inferred from Perry's sequential brain model that to optimise the success of a positive interaction between a staff member and the principal, there are sequential processes that are activated, starting with calming the brain stem to avoid activating threat mode, followed by the utilisation of what Perry (2012) [22] calls 'relational buffers' (building rapport and trust) in order to access the thinking part of the brain, the prefrontal cortex. Therefore, for effective interaction between a leader and a follower that is to be inspirational, one must first regulate the emotional brain (calm the brain stem and build trust), engage the social brain (establish connection and rapport associated with the limbic system), in order to stimulate the thinking brain (for learning and achievement). This concept formed the basis of the conceptual framework for this study (Figure 1).

Based on what is known about the brain and what was found in the research, I argue that educational leadership should be viewed as a social phenomenon, that occurs through biological processes manifesting in the brain as defined by Feser, (2016) [13]. It is a process of social influence in which you inspire the support of a team, by appealing to their inner motivations and values with the aim of creating a commitment to action towards a vision. A school principal needs a set of leadership attributes that have an uplifting influence on the team's intellect, emotion, and energy to transform and grow people and school communities (Feser, 2016) [13].

## Research Methodology

Four experienced Australian school principals from large Queensland high schools in very large band 10 and 11 State schools were the key participants in the study. These are some of the

largest schools in Australia that have been staffed with experienced principals who have a long history of success. Using a multiple case study methodology with a mixed-methods approach to data collection, the research aimed to identify the leadership attributes that inspire team members. The data collection methods included interviewing the principals and five of their staff members at each school and observing the principal across a normal workday to capture their interactions with staff in context. Artefacts in the form of newsletters and School Annual Reports were another source of data. The interviews were coded to reveal patterns in themes, using content thematic analysis, to identify the leadership attributes and their associated sub-factors. After the interviews were analysed, a survey was designed to help further deepen and refine categories to determine the most significant influence factors. The twenty teachers who were interviewed were also surveyed. A cross-case analysis was used to identify similarities and differences within the four case studies and the collective data was compared across the different data collection methods.

## Results

The results of the research found 12 leadership attributes to inspire as reported and perceived by school staff, shown in Table 1. Staff reported that they were inspired to engage by a principal through their behaviours (actions, words, tone, values, body language). The attributes that bubbled to the top perceived as more important were integrity, strength, humility, and connectedness. The leadership attributes can be grouped into three categories each of which is associated with a function of the brain, five associated with building trust, three associated with establishing rapport and four associated with growth and purpose (Table 1).

**Table 1:** The 13 leadership attributes that inspire.

The Three Brains	Neuroscience Theme	Attribute
The survival brain The brain stem	TRUST We are hard wired to detect threat. All these attributes build trust.	Integrity
		Humility
		Strength
		Clarity and certainty
		Positivity
The social brain The limbic system	RAPPORT The brain evolved to operate and belong to a social group. All these attributes build rapport.	Connectedness
		Appreciation
		Collaboration
The thinking brain The prefrontal cortex	GROWTH and PURPOSE Humans have an innate desire to learn and achieve. All these attributes are focussed on learning and achievement.	Purpose
		Challenge
		Autonomy
		Communication

## Discussion and Implications

A number of implications can be inferred from the findings. The role of emotion in leadership has been underplayed and is revealing to educational leadership that leadership is a social construct. The ability of the principal to tune into other people's needs and emotions and be responsive to those needs is an essential part of

effective interaction that inspires. Second, leadership is a reciprocal process of collaboration and bonding. Top-down leadership is not sufficient to build thriving schools and high-performance teams. Third, leaders are not born they are made. The school principal can strengthen their ability to influence and inspire by first being highly self-aware and adjusting their behaviours through a

neurological lens. Forth, modifying their behaviours (tone, words, body language and actions) and regulating their emotions during social interactions to minimise threats and maximise activity to the reward-related centres of the brain will help bring the best performance from the team. The way we feel about someone or something will either inhibit or enable our willingness to engage. The collective feelings as a result will drive behaviour that creates the work culture that will either speed up or slow down change.

Fifth, executive brain-based coaching is an appropriate strategy to grow leaders and is less threatening than other methods. It is about coaching the human, not just the content. Sixth, Leaders can actively aim to prime conversational chemistry to shift collective feelings to create positive helpful states. The 12 attributes themselves foster a positive climate of positive emotion. For example, when a leader has a clear purpose by articulating a vision the team reported feelings of hope. These feelings are summarised in Figure 2.

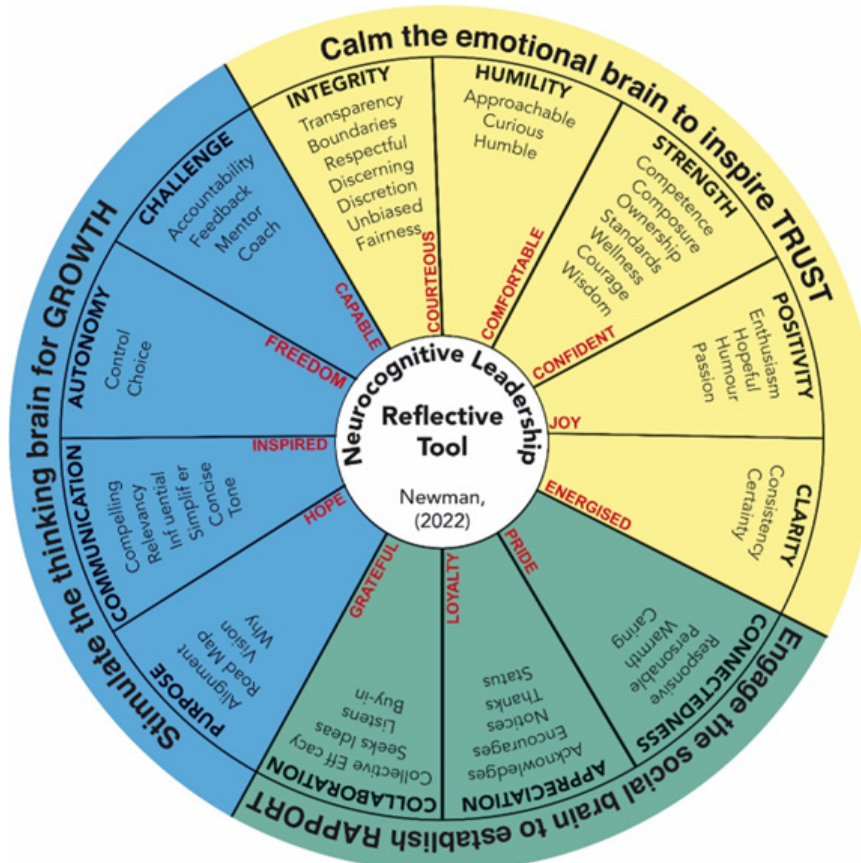


Figure 2: The 12 Leadership Attributes for inspirational influential leadership.

## Conclusion

School leaders need to be mindful that their ability to inspire others is inherent in their ability to tune into others' needs and emotions or we ignore such insight to our peril. Inspiring teams comes down to "keying into neurological and psychological triggers in all of us" (Feser, 2016) [13]. By approaching leadership through a neuroleadership lens and developing the 13 attributes as a set, school's cultures will benefit. Using this knowledge allows school principals to align their behaviour with the physiology, not against it.

## Acknowledgement

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## Conflict of Interest

No Conflict of interest.

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