

**TRANSFORMATIONAL LEADERSHIP AND SOCIO-TECHNICAL
SYSTEMS: TOWARDS A MODEL OF COMPLEMENTS**

Marwa Moses Siruri*

Abstract

The subject of sociotechnical systems is progressively becoming important, particularly in an age of increasing technological innovations. Complementing men and machine at the workplace has moreover been a challenge in many organizations, especially where the technology being introduced is one perceived to take away the jobs of employees. This paper is a research agenda that seeks to explore how transformational leadership can play a role in influencing employee commitment in organizations; and as such, how a model that facilitates successful implementation of sociotechnical systems at the workplace can be attained.

Key words: Sociotechnical Systems, Transformational Leadership, Systems Theory.

* PhD Student, Kenyatta University, School of Business

1.0 Introduction

Principally, at the root of the emergence of socio-technical systems, as a concept in organization development practices, was the need to reciprocate, in the work environment, extant interrelations between employees and machines (Ropohl, 1999). In general terms however, the socio-technical system can simply be considered to be a construct used to explain technology at the workplace (Ropohl, 1979; 1999). Adoption of this definition is quite important as the discussion of socio-technical systems in broad gamut needs to be against a backdrop of understanding the critical role that technology plays in facilitating human resource functions.

Indeed, human resource management functions have over the years increasingly relied on technology to attain organizational objectives (Hempel, 2004). Nevertheless, more often than not, the decision to willfully embrace technology in substitution of human resource is in itself not an easy one: not to the implementers, and not to employees being affected by material technological changes (Mullins, 1999).

Essentially, the foregoing dilemma is resultant from the fact that many organization intervention processes are typically emotional processes (Ajay, 2002). Therefore, given this emotionality in implementation of socio-technical systems, leaders, as opposed to managers, are argued as to be best positioned to drive implementation of socio-technical systems (Bejestani, 2011).

A thorough understanding of the role leadership plays in implementation of socio-technical systems can thus provide academia, and industry alike, insights on how to tactfully complement the human resources of an organization with relevant technology, without occasioning a fall out, which in any case would be injurious to organizations.

2.0 Literature review

While leadership is one of the most studied themes in social science, it still remains to be one of the murkiest subjects of study in social science research (Gardner *et al.*, 2010). Indeed, previous attempts of understanding leadership has only just served to open up more views on what constitutes, or what does not constitute, leadership. As such, from early works of scholars such as Stogdill (1974), to recent scholarly undertakings, research on how leadership affects

organizations, has never been quite conclusive (Gardner *et al.*, 2010). The abstraction of what constitutes leadership has, in addition, continued to largely remain amorphous (Grint, 2004).

Nonetheless, leadership can still be amenable defined as a process of social influence that is exercised by people in formal positions of power in organizations, such as managers and supervisors (Kelloway & Barling, 2010). Leadership therefore is basically concerned with influencing people through working with them, with a view of attaining organizational or departmental goals (Northouse, 2010).

2.1 Leadership schools of thought.

Research has yielded a number of schools of thought on leadership. The first among these schools of thought was the trait school of leadership thought, which argued that a leader should be defined by his/her disposition and traits (Stogdill, 1948). Key traits of leadership in this school of thought included intelligence and dominance (Stogdill, 1948). Gardner *et al.* (2010) nonetheless indicate that the trait theory has gradually received little reviews and publications in the recent past, as gleaned from *The Leadership Quarterly*, a high profile journal devoted to publishing articles on leadership research.

The behavioral school of leadership thought sprung after the trait school of leadership thought, and its tenets were argued for from the University of Michigan (Katz *et al.*, 1951) and Ohio State (Stogdill & Coons, 1957) studies. This school of thought deduced that leadership behaviours were important factors that defined leadership. Nevertheless, this school of thought was however not widely acclaimed across scholars (Gardner *et al.*, 2010).

A new school of thought, the contingency school of leadership thought, later developed. This school of leadership thought brought to the fore the importance of context. Instructively, this school of thought was largely attributed to the works of Fiedler (1971). Although the school got an immense level of interest from scholars, Gardner *et al.* (2010) indicate that research and publications regarding this school has tremendously reduced over the years.

The relational school of leadership thought subsequently developed, with the most popular theory under this school being the leader–member exchange theory, commonly abbreviated as the LMX theory (Graen & Uhl-Bien, 1995). The theory delved into relationships between supervisors and subordinates, and posits that trust and mutual respect are the basis of high quality relationships between these two; whereas strict requirement to fulfill contractual obligations is what leads to low quality relationships between leaders and their followers. Essentially therefore, the theory suggests that high quality relationships between the leader and the follower produce better outcomes than low quality leader follower relationships (Gerstner & Day, 1997).

2.1.1 Transformational leadership

Bass (1985) is credited to have proposed one of the most celebrated leadership schools of thought, the transformational leadership school of thought. This school of thought, bundled together with the charismatic leadership school of thought, have increasingly received wide attention from researchers (Antonakis & House, 2002) and indeed have the highest number of publications in *The Leadership Quarterly*, over a two decades of analysis (Gardner *et al.*, 2010). The theory posits that inspiring leadership induces followers to rise above their interests to pursue a greater common good (Bass, 1985).

According to Anheier (2005), this kind of leadership is involved with motivating employees to perform beyond normal expectations, primarily through inspiring staff to put aside self-interest and to pursue the common good of the organization. This stems from the fact that transformational leaders espouse certain salient attributes in their behaviour (Hood, 2003). These behaviours include morals such as forgiveness, affection and responsibility; social values such as freedom and equality; and also personal values such as honesty and broad mindedness (Hood, 2003) and these are important virtues that facilitate a good organizational climate.

Riggio *et al.* (2004) argue that the essence of transformational leadership is the transformation of followers to help them realize their highest potential. Transformational leaders hence affect the attitudes, values and beliefs of followers with the intention of inspiring them to pursue the good of the organization in parallel with their own self-interests (Kanungo, 2001; Burns, 1978) and as such influence follower's performance (Boerner *et al.*, 2007).

Burns (1978) championed the fact that transformational leadership is multi pronged and has four important facets which are communication, charisma, individualised consideration and intellectual stimulation. However, Bass and Bass (2009) modeled transformational leadership on four behavioural components which include idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.

Idealized influence refers to the social interaction that the leader creates with his followers causing them to want to identify with the leader (Oke *et al.*, 2008). The benefits of increased idealized influence include, but are not limited to, enhanced self-sacrificial behaviour (Oke *et al.*, 2008). Motivation and inspiration of followers falls under the inspirational motivation facet (Oke *et al.*, 2008). The same can be enhanced by the leader setting realistic targets and demonstrating a shared commitment to pursuing the organizational or departmental vision (Oke *et al.*, 2008). Intellectual stimulation on the other hand relates to the ability of a leader to motivate followers to have new and ingenious ways of undertaking tasks (Levine *et al.*, 2010). Levine *et al.* (2010) allude to the fact that individual consideration entails a leader's ability to develop higher order needs of followers while at the same time providing feedback to them with a view of helping them achieve organizational goals.

Judge and Piccolo (2004) indicate that meta-analysis of studies has indicated that transformational leadership has strong direct relationships with outcomes such as turnover intent; aspects that are usually very key in implementation of sociotechnical systems. This is so as transformational leadership has an ability of changing followers' attitudes to a way that makes the followers attitudes tandem with the vision of the organization (Kanungo, 2001). Transformational leadership has also been argued to have the ability to promote follower creativity (Jung *et al.*, 2003). Indeed, Gumusluoglu and Ilsev (2009) in a study to establish the relationship between transformational leadership and follower creativity established a positive relationship between these two. It is important also to note that leadership with values such as ones espoused by transformational leadership helps build trust (Hess & Bacigalupo, 2011) and this improves the organization climate (Grojean *et al.*, 2004) which makes it easy to implement sociotechnical systems.

Finally, transformational leadership is quite important in the management of change (Bommer *et al.*, 2004). It even becomes more important if the change relates to technology acquisitions and follower acceptance of the technology (Nemanich & Keller, 2007). As socio technical systems involve these kind of changes, the need for transformational leadership is thus seen to be indispensable.

2.1.2 Transformational leadership versus transactional leadership

Boerner et al. (2007) argue that transformational leadership influences followers' performance more than transactional leadership. MacKenzie et al. (2001) also hunch that transformational leadership has a direct relationship with performance of employees in key areas of organizational performance. This is achieved primarily by transformational leaders rallying their followers behind a common cause thus making followers transcend expectations (Purvanova *et al.*, 2006). Moreover, transformational leadership has better ability in promoting organizational learning and also better ability in creation of team cohesion and work unit effectiveness than transactional leadership (Zagorsek *et al.*, 2008). MacKenzie et al. (2001) also argue that transformational leadership has a greater relationship with employee organizational citizenship than transactional leadership. As such, transformational leadership can be said to influence employees' commitment to the organization more and hence reduce turnover intentions than transactional leadership (Scandura & Williams, 2004; Rafferty & Mark, 2004).

Nonetheless, transactional leadership has the advantage of building organizational identification and high satisfaction as compared to transformational leadership (Wu, 2009; Epitropaki & Martin, 2005). This arises mainly from the fact that transactional leaders leave subordinates to pursue self-interests (Sadeghi & Pihie, 2012) as compared to transformational leaders who rally subordinates to pursue common organizational goals. Moreover, it has been argued that transactional leadership facilitates high satisfaction by tying rewards to performance and also through giving resources needed to make the work done (Zhu *et al.*, 2005). Subordinates under a transactional leader thus are motivated to work harder as the incentives and rewards are more than under circumstances of transformational leadership.

2.2 Sociotechnical systems theory

The Socio Technical systems theory primarily advocates for work to be structured in a way that focuses on both the social and technical systems of an organization (Trist & Bamforth, 1951). The argument therefore in this theory is that work designs based purely on technological systems, with no regard to social aspects, are sub-optimal. As such, based on the propositions of this theory, there ought to be a fit between the social and technological design features of organizations and departments (Lawler, 1996). The sociotechnical systems theory therefore principally presents a transferal in how work and organizations are to be designed (Trist, 1981).

This theory is categorized under the open, natural system models (Scott, 1987). With such a view in mind, it has been argued therefore that the theory dissipates the concept of 'technological determinism' (Eason, 1988) and this implies that the theory suggests that there exists a close nexus between technology, individual roles and the social system.

Important to note as well, in the theory, self-managed teams, that is teams that are autonomous, are essentially the core building blocks of organization designs (Appelbaum & Batt, 1994; Lawler, 1996; Macy & Izumi, 1993; Pasmore, 1988; Trist, 1981). Such self-managing teams basically are engaged in planning and sharing work, and as such are an effective way of managing tasks in the workplace environment (Robbins & Judge, 2009). Whilst this is highly desirable, putting forth such a working team is not easily attainable (Salas et al., 2005) and therefore, the continued need of leadership, even in self-managed teams, cannot be sidestepped.

This theory has been applied in a number of ways in many nations of the world (Cummings & Worley, 1997) with relatively good levels of success. Noteworthy though, the socio technical systems approach is concerned with group and organizations as units of analysis. Nonetheless, given that it takes a systems perspective, it presumes therefore that analysis must, and should be, at multiple levels.

2.3 Systems theory

The term General System Theory was advanced by Ludwig von Bertalanffy, and came as a result of his critique of teleological approaches to biological phenomena. In his own words, the General Systems Theory thus was a 'logico-mathematical discipline, which is in itself purely formal, but is applicable to all sciences concerned with systems (Bertalanffy, 1950). The main objective of the General Systems Theory was essentially to integrate the analytical, descriptive and normative tradition of systems thinking (Rapoport, 1986).

In the broadest sense, the theory is primarily a collection of general concepts and principles associated with systems; of which systems are viewed as arrangements of individual components interrelated to form a unified whole (Klir, 1972). The theory has been used to develop better models of human machine interaction (Majumder, 2000) and as such is seen to be relevant in the implementation of sociotechnical systems at the workplace.

Relating this theory to understanding the sociotechnical system, from the perspective of this study, takes the view that organizational leadership is an input into the departmental system. The throughput or within-put can be characterized by employee commitment to the sociotechnical systems, while the output, is characterized by success of the sociotechnical system.

3.0 Towards a model of complements

Leadership is preferred than ordinary management, as besides helping the organization pursue its objectives, it helps organizations exceed expectations (Bass, 1998; Bass & Riggio, 2006). Kotter (1990) is also seen to emphasize the importance of leadership over ordinary management, especially in the field of change management. Bryman (1986) moreover is also of the opinion that leadership catalyzes an organization's strategy more than ordinary management.

These opinions notwithstanding, leaders' behaviours and styles have been argued to be important aspects of organizations, as they are great determinant of employee organizational commitment (Northouse, 2010). This is especially so because leadership style is a great determinant of

workplace climate (Grojean *et al.*, 2004). Additionally, leadership behaviour is a vital determinant of employee turnover (Momeni, 2009).

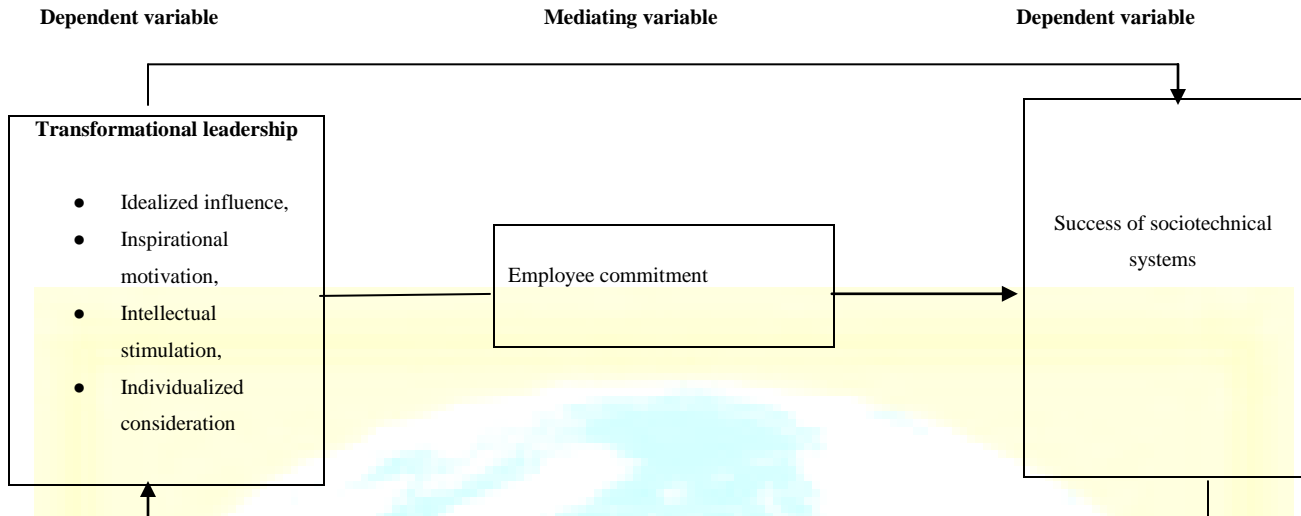
Sociotechnical systems on the other hand are seen to thrive more in self-managed teams. Such teams are characterized by planning and executing own tasks, and own work, and hence can be an effective way of managing and designing work in organizations (Robbins & Judge, 2009). But attaining such functional teams is not a rosy affair (Salas *et al.*, 2005) and this calls for abundant leadership.

Whilst leadership is deeply rooted in context (Liden & Antonakis, 2009), transformational leadership is one of the most celebrated leadership styles, even as evidenced by increased research interest over the last two decades (Gardner *et al.*, 2010). This leadership, which is epitomized by a leader's idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration is adjudged to be best suited for execution of sociotechnical systems. Such philosophy is based on the understanding that transformational leadership espouses social, moral and interpersonal values (Hood, 2003) which are important virtues in facilitating a great work environment that enable sociotechnical systems to thrive.

Relating leadership to sociotechnical systems must be against a background of understanding organizations as open systems that are in constant interactions with their environment. This view is especially important as employee commitment is usually called for during implementation of organization development interventions, as any organization intervention is usually characterized by apprehension from employees concerned (Bordia *et al.*, 2004).

Leaders therefore are tasked to influence employee commitment in periods of implementation of socio-technical systems, and through such, will facilitate the successes of these sociotechnical systems at the workplace. Nonetheless, transformational leaders are best suited to influence employee commitment and citizenship behaviour MacKenzie *et al.* (2001).

In view of the above, a conceptual framework has been developed and has been depicted here-below:



Source: Author (2015)

Discussion of the model.

A leader's idealized influence depicts the ability of a transformational leader to influence followers' primarily through charisma. Such appeal to followers is usually at an emotional level, which thus aids followers to accept radical changes in the organization. As important, this attribute is premised in followers trust in the leader's abilities, and ethics. It is considered important in the model as it influences employees in sociotechnical systems to be embrace the changes undertaken, as they trust that what the leader is proffering is for their good, and that of the good of the organization. Inspirational motivation on the other hand is the ability of a transformational leader to articulate the vision of the organization in a clear and unequivocal manner, and to rally his followers to this vision. As important, this attribute of the leader influences follower's behaviours positively. In the model, it is seen to be key as it represents the transformational leader's ability to communicate the benefits of implementation of sociotechnical systems to employees. Intellectual stimulation essentially relates to the leaders ability to influence employees towards creativity, primarily through encouraging them to get new ideas for solving problems. In the context of techno structural interventions, this is important as embracing new technology comes with challenges that require the ingenious of leaders and

followers alike. Finally, individualized consideration, as an attribute of a transformational leader, refers to the ability of a leader to undertake individual analysis of his/her followers. The leader then acts as a mentor or coach to each follower at an individual level, and listen to the follower's concerns and needs, addressing them as much as he/she can. This attribute is important from the perspective of sociotechnical systems as employees concerns about the interventions need to be addressed at individual levels if the successes of the intervention are to be guaranteed.

Employee commitment relates to the degree an individual identifies with an organization and is committed to its goals (Little & Little, 2006). Benefits of employee commitment are manifold. Foremost, employee commitment has been argued to have the ability to reduce turnover intentions (Tett and Meyer, 1993, Mathieu and Zajac, 1990). This is of utmost importance as an organization that has high turnover intentions is more often than not affected negatively through loss of precious talent, besides increasing its operational costs of repeat hiring of staff. Closely related to this, Meyer *et al.*, (2002) indicate that employee commitment reduces the levels of employee absenteeism as employees are more likely to attend more regularly. This hence means that an organization is able to pursue its objectives without unnecessary disruptions that could be occasioned by high levels of employee absenteeism. Cooper-Hakim and Viswesvaran (2005) and Ricketta (2002) suggest that another important value of employee commitment is the fact that it makes employees work more effectively and this is considered important in sociotechnical systems.

A systems approach has been used to depict the model and this is construed thus: Transformational leadership can influence sociotechnical systems without any mediation effect. However, transformational leadership can also influences employee commitment in a positive and linear way, and consequently has a linear positive effect on success of sociotechnical systems. The sociotechnical systems success feed back into the transformational leaders' attributes thus making the leader inspire, motivate and stimulate the followers more, through influencing their commitment levels.

To empirically test the model, a study will be carried out in Kenya's banking industry. The choice of this industry is primarily based on the fact that players in the industry are predisposed

to embrace sociotechnical systems increasingly, if they are to maintain its competitiveness. The model will be tested using multiple regression.

Conclusion

Sociotechnical systems are increasingly becoming important in an age of increasing technological innovations. Whilst self-managed teams are at the heart of sociotechnical systems, leadership is required to facilitate success of the implementation of sociotechnical systems. Transformational leadership on the other hand has been vouched for by scholars as to be one that has a great impact on followers and as such, research needs to be undertaken to establish the influences of transformational leadership on the important subject of sociotechnical systems in organizations.

References

- Ajayi, O. (2002). *Leading change*. USA: Capstone Publishing.
- Anheier, H. K. (2005). *Nonprofit organizations: Theory, management, policy*. London/ New York: Routledge.
- Antonakis, J., and House, R. J. (2002). An analysis of the full-range leadership theory: The way forward. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and charismatic leadership: The road ahead* (3–34). Amsterdam, Netherlands: JAI.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Bass, Bernard. M. and Ruth Bass. (2009). *The Bass Handbook of Leadership: Theory, Research and Managerial Application*. (4thed). New York. Free Press.
- Bommer, W., Rubin, R., and Baldwin, T., (2004). Setting the stage for effective leadership: Antecedents of transformational leadership behavior. *The Leadership Quarterly*, 15, 195-210.
- Bejestani, H, S. (2011). *Improving Project Change Management Using Leadership Spirit*.
- Boerner, S., Eisenbeiss, S., and Griesser, D. (2007). Follower behavior and organizational performance: The impact of transformational leaders. *Journal of Leadership and Organizational Studies*, 13(3), 15-26.
- Burns, J. M. (1978). *Leadership*. New York: Harper and Row.
- Fiedler, F. E. (1971). *Leadership*. Morristown, NJ: General Learning.

- Gardner, W. L., Lowe, K. B., Moss, T. W., Mahoney, K. T., and Cogliser, C. C. (2010). Scholarly leadership of the study of leadership: A review of The Leadership Quarterly's Second decade, 2000–2009. *The Leadership Quarterly*, 21, 922–958.
- Graen, G. B., and Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6, 219–247.
- Gerstner, C.R. and Day, D.V. (1997). Meta-analytic review of leader-member exchange theory: Correlates and construct issues. *Journal of Applied Psychology*, 82(6), 827-844
- Grojean, M. W., Resick, C. J., Dickson, M. W. and Smith, D. B. (2004). Leaders, values, and organizational climate: Examining leadership strategies for establishing an organizational climate regarding ethics. *Journal of Business Ethics*, 55(1), 223-241.
- Grint, K. (2004) *What is Leadership? From Hydra to Hybrid*. Working paper, Saïd Business School and Templeton College, Oxford University.
- Hess, J. D., and Bacigalupo, A. C. (2011). Enhancing decisions and decision-making processes through the application of emotional intelligence skills. *Management Decision*, 49(5).
- Katz, D., Maccoby, N., Gurin, G. and Floor, L. G. (1951). *Productivity, supervision and morale among railroad workers*. Ann Arbor, MI: Institute for Social Research, University of Michigan.
- Hempel, P.S. (2004). Preparing the HR profession for technology and information work. *Human Resource Management*, 2(3), 163-177.
- Hood, J. (2003). The Relationship of Leadership Style and CEO Values to Ethical Practices in Organizations, *Journal of Business Ethics*, 43, 263–273.
- Judge, T. and R. Piccolo (2004). Transformational and Transactional Leadership: A Meta-Analytic Test of their Relative Validity. *Journal of Applied Psychology* 89(5), 755–768.
- Kanungo, R. (2001). Ethical Values of Transactional and Transformational Leaders. *Canadian Journal of Administrative Sciences*, 18, 257–265.
- Kelloway, E. K. and Barling, J. (2010). Leadership development as an intervention in occupational health psychology. *Work and Stress*, 24 (3), 260-279.
- Ludwig von Bertalanffy, An Outline of General System Theory, *The British Journal for the Philosophy of Science*, Vol. 1, No. 2 (Aug., 1950), pp. 134-165.
- Levine, K. J., Robert A. M., and Abby M. B. (2010). Measuring Transformational and

- Charismatic Leadership: Why Isn't Charisma Measured? *Communication Monographs*, 77 (4), 576-591.
- MacKenzie, S., Podsakoff, P., and Gregory, A. (2001). Transformational and transactional leadership and salesperson performance. *Journal of the Academy of Marketing Science*, 29, 115-134.
- Majumder, D.D. and M Bhattacharya, 2000, "Frank H. George Research Award Winning Paper - Cybernetic approach to medical technology: application to cancer screening and other diagnostics," *Kybernetes*, 29:(7-8) 871-895, 2000.
- Nemanich, L. and Keller, R. (2007). Transformational leadership in an acquisition: A field study of employees. *The Leadership Quarterly*, 18,49-68.
- Northouse, P. G. (2010). *Leadership: Theory and practice*. (5th Ed). Thousand Oaks, CA: Sage Publications, Inc.
- Oke, A., Natasha M., and Fred O. W. (2008). The Influence of Leadership
- Purvanova, Radostina K., Joyce E. Bono, and Jessica Dzieweczynski. (2006). Transformational Leadership, Job Characteristics, and Organizational Citizenship Performance. *Human Performance* 19, (1), 1-22.
- Rapoport, A. (1986). *General system theory: essential concepts & applications*. Cybernetics and systems series. Tunbridge Wells, Kent: Abacus Press.
- Robbins, S., & Judge, T. (2009). *Essentials of Organizational Behavior* (10th ed.). Pearson.
- Riggio, R. E., Bass, B. M. and Orr, S. S. (2004). Transformational leadership in nonprofit organizations. In R. E. Riggio & S. S. Orr (Eds.), *Improving leadership in nonprofit organizations*. 49-62. San Francisco: Jossey Bass.
- Scandura, T. and Williams, E., (2004). Mentoring and transformational leadership: The role of supervisory career mentoring. *Journal of Vocational Behavior*, 65, 448-468.
- Stogdill, R. M. (1974). *Handbook of leadership: A survey of theory and research*. New York: Free Press.
- Salas, E., Sims, D., & Burke, C. (2005). Is there a "Big Five" in Teamwork? . *Small Group Research*, 36, 555-599.
- Trist, E. L. The evolution of socio-technical systems. 1981. Toronto: Quality of Working Life Center.

Trist, E. L., and Bamforth, K. M. (1951). Some social and psychological consequences of the long wall method of coal-getting. *Human Relations*, 4, 3–38.

Zagorsek, H., Dimovski, V., and Skerlavaj, M. (2009). Transactional and transformational leadership impacts on organizational learning. *Journal for East European Management Studies*, 14(2), 145-165.

