Transformational Leadership and Its Implication for Leadership at Sea

Nan Xiang

PhD Student, Department of Maritime Research and Innovation, University of Southern Denmark
Niels Bohrs Vej 9, DK-6700 Esbjerg, Denmark, nx@sam.sdu.dk

Abstract With more and more seafarers of different ethnic, cultural and national groups working together on board vessels in international trade, it is a growing conviction that managing a multicultural crew has become a pressing concern for maritime industry. Shifts in demographics over the past decade combined with increasing globalization are creating significant challenges for shipping companies. Perhaps the greatest challenge in dealing with a multicultural crew is leading in a way that effectively motivates and inspires those with different work-related values and beliefs. However, most researches concerning human behavior on board have put emphasis on human factor and safety culture, little has been written on the subject of leadership practice. In recent years, transformational leadership has received considerable attention in the area of leadership research. Therefore the objective of this paper is to draw parallels between the transformational leadership literature and organizational literature in the maritime domain and discuss the applicability of transformational leadership at sea. This paper presented the potential of the application of transformational leadership to promote effective performance and improve quality of life at sea.

Keyword: *Transformational leadership, Maritime moderators, Education and training*

1. Introduction

Results from BIMCO/ISF Manpower Updates (2005) confirmed that 'the centre of gravity of the labor market for seafarers has continued to shift from the traditional maritime countries of Western Europe, Japan and North America towards the Far East, Indian sub-continent and Eastern Europe'. Findings from Marcom Project (1998) demonstrated that approximately 80% of the world's merchant fleets are manned by mixed nationality crews. The scale of ethnic heterogeneity in the population of worldwide shipboard crews has expanded. There is a variety of crew composition. For example, it could be a single nationality crew recruited from the ship-owner's country, or officers from the ship-owner's country and ratings from a third world country. The crew could also be composed of senior officers from the ship-owner's country, or the master could come from the owner's country and all the rest of the officers and ratings from a wide range of countries (Devanadera & Espiritu, 2003).

With more and more seafarers of different ethnic, cultural and national groups working together on board vessels in international trade, it is a growing conviction that managing a multicultural crew has become a pressing concern for maritime industry (Horck, 2005). Shifts in demographics over the past decade along with increasing globalization are creating significant challenges for shipping companies. Perhaps the greatest challenge in dealing with a multicultural crew is leading in a way that effectively motivates and inspires those with different work-related values and beliefs.

Most researches concerning human behavior on board have put emphasis on human factor and safety culture, little has been written on the subject of leadership practice. It is for this reason the focus of this paper is to discuss leadership at sea. Over the past two decades, transformational leadership has emerged as one of the most important leadership concepts and there is still a growing interest in the functioning of this kind of leadership style (Felfe & Schyns, 2010). Numerous literatures have demonstrated positive connections between transformational leadership and desirable outcomes. Specifically, in the area of cross culture studies, researchers try to bridge culture and leadership and test the effectiveness of transformational leadership (Jung et al., 1995).

The objective of this paper is to draw parallels between the transformational leadership literature and organizational literature in the maritime domain. Classical theories of transformational leadership are reviewed in the paper. Following the discussion of leadership-outcome linkage, this paper analyzed possible situational factors which may hinder the effectiveness of performance on board. The applicability and impact of transformational leadership in the maritime context is discussed along with leadership education and training issues.

2. The full range of transformational leadership

Burns (1979) is the first scholar who differentiated transformational leadership from transactional leadership. Exchange process is the basis of transactional leadership. Transactional leaders manage followers by expectation and provide appropriate rewards for attaining agreed-upon objectives. The contingency model (Fiedler, 1967), path-goal theory (Evans, 1974) (House, 1971), vertical dyad linkage theory (Dansereau, Graen, & Haga, 1975), and the Vroom-Yetton model (Vroom & Jago, 1974) are examples of leadership theories which are compatible with transactional leadership. Transformational leadership put emphasis on individual development by raising the interests and needs of followers and providing them with confidence to perform beyond the expectations. Burns (1979) treated transactional and transformational leadership as two extremes. Bass (1985), on the other hand, suggested that transactional leadership behaviors can also be employed by transformational leaders when these are considered to be suitable for the situation. Bass (1985&1994) expanded the paradigm of leadership proposed by Burns, developed Multifactor Leadership Questionnaire (MLQ), offering an operational definition of transformational leadership and conceptualizing six measured factors of leadership behaviors.

Idealized influence is the extent to which leaders behave in charismatic ways, which has great power and influence over followers. Charismatic leaders excite, arouse, and inspire their subordinates (House, 1977). A high degree of trust and confidence is instilled among the followers. Subordinates want to identify with these leaders, make attributions to them, and endow them as having extraordinary capabilities, persistence, and determination (Yammarino, Spangler & Bass, 1993).

Inspirational motivation is the extent to which leaders formulate and articulate visions/challenges that will energize followers. Transformational leaders instill pride and team spirit in others for being involved in envisioning attractive future states, encourage followers to go beyond self-interest for the good of the group, create clearly communicated expectations that followers want to meet, and demonstrate commitment to goals and the shared vision (Bass& Riggio, 2006).

Intellectual stimulation is the extent to which leaders question assumptions, reframe problems, and solicit followers' ideas. Transformational leaders stimulate followers' efforts to be creative and innovative. Leaders are willing and able to show subordinates new approaches of looking at old methods. Not only is an awareness of problems and followers' own thoughts and imagination aroused, but also the recognition of their beliefs and values. Followers are encouraged to seek new perspectives when completing assignments, and their ideas are not criticized because of the differences (Bass, 1985, 1990; Yammarino, Spangler & Bass, 1993).

Individualized consideration is the extent to which leaders listen to followers' concerns, attend to followers' needs for development and growth, and act as mentors or coaches. Leaders recognize and accept individual differences in followers' needs and desires, encourage two-way exchange in communication, personalize interaction, provide for continuous follow-up and feedback, link individuals' current needs to the organization's mission, and elevate those needs when it is appropriate (Bass, 1985, 1990; Bass & Avolio, 1989; Bass& Riggio, 2006).

Contingent reward is a constructive transactional component which has been found to be reasonably effective in motivating others to carry out assignment satisfactorily. Transactional leaders clarify expected achievement of followers' performance, and obtain followers agreement on the enactment of their work role by promising to attend to their needs and desires or offering actual rewards. In some

occasions, contingent reward is not necessarily a constructive transaction. For example, when the exchange of reward is intangible, such behavior can be considered as transactional.

Management by exception (MBE) is a corrective transaction which involves two forms of transactional leadership, namely active MBE and passive MBE. In active MBE, leaders take active supervision and correct mistakes/errors occurred in followers' assignment when it is necessary. Passive MBE leaders wait for the mistake/error to occur and then take action to rectify the mistake (Bass, 1985, 1990; Yammarino, Spangler & Bass, 1993; Bass& Riggio, 2006).

With regard to the universality of transformational leadership, Bass (1997) argued that transformational leadership can be found in ordinary places and in all forms of organizations. Meantime, transformational leadership should be globally endorsed because it matches people's ideal leadership prototype.

3. Transformational leadership and performance

The past few decades have witnessed the growing research attention on leadership-outcome connection. Many researchers have proposed well established models, which indicate positive relationships between transformational leadership and a series of desirable outcome variables (Bass, 1985; Avolio & Bass, 1988; Sosik et al., 1997; van Knippenberg et al., 2004; Yukl, 2010).

A large proportion of these researches focused on the individual level. For example, empirical evidence (Yammarino, Spangler & Bass, 1993) provided support for the positive interplay of transformational leadership and leaders' performance. Yukl (2010) also demonstrated that transformational leadership has a profound optimistic influence on leaders' behaviors. Besides the leader oriented researches, others put emphasizes on followers perspectives. Followers' psychological processes, such as self concept and identity, are considered of great importance in the translation of leader behavior into follower action (Shamir, et al., 1993; van Knippenberg & Hogg, 2003). Podsakoff et al. (1990) conducted an empirical study and found a strong link between transformational leadership and followers' job satisfaction. Both experiments and field studies have found significant relationships between transformational leadership and subordinate creativity under certain conditions (Kahai et al., 2003; Sosik et al., 1998; Shin & Zhou, 2003; Wang & Rode, 2010). Lowe et al. (1996) reviewed previous leadership researches and found positive relationship between transformational leadership and conceptually related variables such as individual performance.

In the team level, emerging researches suggested that organizations may improve team performance through effective leadership. Schippers et al. (2008) used empirical data to test the hypothesis of whether transformational leadership is positively related to team reflexivity and performance. Their research findings support the notion that transformational leaders will stimulate the formation of a shared mental model within teams and, subsequently, increase reflexivity within teams. There also has been some effort on the theoretical development of transformational leadership and team performance linkage. Bass (1994) discussed that transformational leaders may improve team decision-making skills. Waldman (1994) found the reliance on transformational leadership may improve multi-functional team innovation processes. Atwater and Bass (1994) developed a conceptual model of the interaction between transformational leadership and team factors such as cohesion and conflict management. Kahai et al. (2003) stated in their research that transformational leaders are more likely to increase group performance through overcoming social loafing among group members. Additionally, Bass et al. (2003) found that transformational leadership ratings of platoon leaders and sergeants in the U.S. army predicted unit performance in combat simulations. Lim and Ployhart (2004) demonstrated in their empirical study that followers' ratings of transformational leadership were positively related to team performance. Therefore they come up with the conclusion that "leadership may have its most important consequences for teams and thus a focus on the team level is also important" (Lim & Ployhart, 2004, p. 610). There are also some literatures introducing various mediating variables into the linkage between team performance and transformational leadership. For example, Schaubroeck et al. (2007) argued that transformational leadership influenced team performance through the mediating effect of team potency. Dionne et al. (2004) examined the possible role of teamwork processes on performance and established a conceptual model of transformational leadership and team performance.

There have been studies of transformational leaders in a variety of settings, including the military (Kane & Tremble, 2000), health care (Avolio et al., 2004), education (Kirby et al., 1992), and business (Howell & Avolio, 1993). One of the early empirical studies of transformational leadership was conducted in the context of United Stated Navy, using a representative sample of 186 navy officers (Yammarino, 1993). Research findings included the positive relationship between the attributed effectiveness of officers' behavior and transformational leadership. More recently, Eid et al. (2004) demonstrated that transformational leadership among naval and air force officers can emerge as a predictor of situation awareness and interpersonal influence. Olsen et al. (2006) explores the utility of transformational leadership and moral indicator in Norwegian naval officer cadets. These empirical researches account for a small proportion of transformational leadership studies in special working environment settings, more specifically, noisy, vibrant, mobile and stressful working places (e.g. vessels, airplanes) These small samples show the utility of transformational leadership under certain context: a) Transformational leadership can have positive influences on followers' development and performance; b) Transformational and transactional leadership can both contribute to desirable outcomes; and c) Transformational leadership can be exercised at many different rank levels (Bradley & Charbonneau, 2004).

4. Transformational leadership in maritime context

4.1   Leadership at sea

A vast majority of ship management literature concerned about safety culture and human errors on board, very few have been written about the practice of leadership at sea. However the few literature existed demonstrates pressing needs for effective leadership under the changing crewing and ship management patterns. Leadership issues in a multiethnic maritime context have received growing attentions among researchers.

Horck (2004) developed a lab experiment to investigate the decision making process on board vessels, using a sample of maritime students from Malmo University. The objectives of the research include examining the role of senior officer in the process of decision making. Research findings demonstrated that the behavior of idea exchanging along with attitude towards participative leadership styles seems to differ by culture. Horck discussed communication problems existed among multiethnic crew members. Ineffective communications originated from cultural variances may endanger safety and efficiency on board. Therefore, a leader must be prepared with culture awareness in order to articulate missions and express intended objectives properly to subordinates.

In another paper, Horck (2005) also demonstrated the importance of communication in the management of shipboard crew, which is no surprise since a starting point of effective leadership is to 'mitigate communication so that people can freely speak to each other.' Horck pointed out that ineffective leadership styles maybe one of the reasons why multiethnic crew has become a challenge. On the other hand, the practice of democratic leadership style may not be the resolution as people expected. Given the relatively hierarchical working environment on board, structured and clear orders from supervisors may be more welcome among seafarers.

Knudsen (2004) explored leader - follower relationships in a multiethnic crew setting, namely Danish officer and Filipino ratings. The research voyage observed certain cultural barriers on board such as different perceptions of hierarchy and social relations, which in turn affected crew members' commitment and attitude towards job assignment. For example, interviews with Filipinos suggested their tendency to overplay the shipboard hierarchy, which subsequently leads to one way communication and retention of separation between two nationalities. Research findings also include the pragmatic attitude held by both Danish officers and Filipino ratings. In other words, although they prefer to work with people from their home countries, multiethnic crews seems to be 'that one has to fit in and accept things as they are.' It can be deducted from the results that officers feel reluctant to invest efforts to motivate shipboard crews. Management by expectation is the common practice in multiethnic maritime context.

Survey (Theotokas & Progoulaki, 2007) conducted among Greek seafarers found that crew performance are more likely to be effective if crew members work under a flexible leadership and management style. From the perspective of leadership and communication system, conclusions

deducted from survey data included extreme leadership styles may have negative impact on desired outcomes, and communication problems between crew members and third parties may be partially eliminated through democratic leadership.

Multicultural crewing patterns and current practice of leadership on board give room to the development of transformational leadership theories in maritime context.

4.2   Situational moderators

Emerging evidences suggest that situational factors such as organizational climate and external environment play a crucial role in the delivery of transformational leadership (Bass, 1990; Yukl, 2010; Wang & Rode, 2010). Much has been written about how the task design and followers' demographic statistics moderate the effectiveness of transformational leadership. Organization's legitimate principles, normative values and social structures can determine leadership in an organization. Leading on board is nothing like common practice of leadership in business organizations ashore. A vessel is mobile, with frequent turnover of personnel and emergency like work conditions. Therefore, situational factors must be taken into consideration while examining the applicability of transformational leadership in maritime context.

Team cohesiveness

Team cohesiveness is vital to team performance. Zander (1979) stated that team cohesiveness is one of the essential concepts for understanding group dynamics. It has been defined in a variety of ways, such as the degree to which team members are motivated to remain in the team (Shaw, 1976), the average member's attraction to the group (Bass, 1960), the resultant of all forces acting on all the members to remain in the group (Cartwright, 1968). Additionally, Mudrack (1989) identified team cohesiveness with other concepts such as team spirit, interpersonal attraction, and sense of belongingness. Team cohesiveness can be considered as a causal mechanism that determines individuals' attitude and behavior towards membership. Therefore, highly cohesive team members are more concerned with their membership, and subsequently are more strongly motivated to contribute to the team's welfare, to coordinate during team tasks, to achieve team objectives, and to be involved in team activities (Cartwright, 1968).

Team cohesiveness of shipboard crew is always considered relatively low. Recruitment and retention of seafarers has become a serious problem for ship owners worldwide. Dropout and turnover rate of registered officers is increasing. Despite the continuing expansion of world fleet volume, there is a modest shortage of officers worldwide and the shortfall is expected to be more severe in the future (BIMCO/ISF Manpower Update, 2005). Gekara (2009) pointed out that the growth rate of junior officers graduated from UK MET has almost remained the same over the past few years. The willingness of choosing seafarer as a lifetime profession among young people has significantly declined. On the other hand, as previously discussed, within the remaining seafarer labor market, multicultural manning is prevailing in the industry. Researchers (Kahveci & Sampson, 2001; Knudsen, 2004) suggested that this multiethnic composition of shipboard crew leads to a segregated social environment on the vessel. Østreng (2000) found that despite the fact that sailors stay together in the same social setting for a long period of time, intergroup contact and elimination of stereotype rarely take place. Another problem brought by mixed crew composition is the unequal social status of the crew members. In Knudsen's (2004) report, the superiority of OECD countries in the economy may be one explanation of the ethnic hierarchy on board. Meantime, ethnic identities are reflected upon task distributions. In other words, Danish seafarers relatively rank higher than their Filipino colleagues. Status inequality has given rise to intergroup hostility and conflicts among crew members.

Empirical evidences demonstrated that transformational leadership can be instrumental in organizations and help to mitigate the tension in teams by enhancing team cohesiveness (Carless, 1998). Transformational leaders articulate goals of the team and vision of the organization that is congruent with values of crew members. Establishment and communication of a shared vision, which is of mutual interest for individuals in the team, can motivate crews' desire to make extra efforts and achieve team success. The ability of transformational leader to recognize individual differences in followers' needs and desires can create loyalty and cooperativeness. A considerate leader, who always attend to followers' needs for development and growth, will more likely to be accepted by followers. Therefore, despite the existence of ethnic identification distinctions among shipboard crews, a shared

organizational identity can be created on board. Instead of alienating themselves from their subordinates, officers on board can be perceived as in-group members by ratings. In-group perception of followers also facilitate leadership acceptance, which subsequently enhance followers' commitment to the team. Therefore, in-group favoring of followers contributes to the promotion of team cohesiveness.

Job assignment

The characteristic of navigation and cargo handling determine the high level of task interdependence on the vessel. Each deck officer is assigned with at least one rating. They perform routines such as watch keeping, mooring, and anchoring together as a team. Meantime, almost all the operations of ship are carried out under a cooperative structure between deck department and engine department. High degree of interdependence requirement of tasks demand leaders on board not only to pay more attention to judgment and development of individual performance in the whole process, but also on the planning and preparation of task schedules, satisfactory mutual adjustment among team members, and relationships and cooperation (Keidel, 1984). Lord and Rowzee's (1979) lab experiment demonstrated that participative and directive leadership behaviors such as facilitating the orientation, developing working plans, and advocating coordination emerged in certain conditions when job assignments are interdependent on each other. Schaubroeck et al. (2007) suggested that transformational leaders promote cooperation among team members. Combined concern about task as well as relations of transformational leaders will stimulate a conviction among team members that any objections that arise within the team will be settled without damage team performance. Schaubroeck et al. (2007, p.1021) explained that this conviction will reinforce 'team members' confidence in their ability to complete their work successfully without being derailed by destructive intra team conflict'.

Another feature of tasks on board is the routineness. Job assignment on the vessel consists of uniform, recurring and repetitive tasks. Therefore, communication between officers and ratings tend to become task oriented, one way exchange. Individualized considerations enhance followers' commitment to orders by providing them a sense of fulfillment of career needs and increased competence to complete orders (Bass, 1998, p.22). As previously described, transformational leadership reinforce followers' mental identification with leaders. If a rating identifies himself with officer's vision, value, and interest, there is a less chance of this rating to lose his ego and self esteem while taking orders and commands. On the contrary, Bass (1998) suggested that self esteem is more likely to be strengthened with a shared organizational identification.

Shipping technology

Shipping industries continue to adopt new systems as advanced technology solutions become available. The past few decades have witnessed the deployment of automation on the vessel. On one hand, new technology altered the flow of organization information system and brought changes in organizational arrangement; on the other hand, as Bainbridge (1983) pointed out, the introduction of automation encountered negative operator attitudes such as mistrust, resentment, and resistance to change. Moreover, a wide range adoption of automation reduced the size of shipboard crew. Labor intensive and repetitive tasks are replaced by automotive systems. As described in the book of Human Factors in the Maritime Domain (2008, p. 116),

> For example, deck officers are now expected to spend long periods on the bridge alone or with just a helm, with little to do other than monitor an increasing number of automated systems both on the bridge and some in the engine room, resulting in the removal of the human operator from the control loop of a particular system. Deck officers must be aware of the various functions of the different modes of the ARPA (Automated Radar Plotting Aid) display and how each mode is set up to navigate the ship safely, as well as keep track of which mode is active. In these conditions, the safety of the ship and its crew depends on the ability of the deck officer to maintain appropriate levels of alertness and vigilance. This can be very difficult, considering that the supervisory control task is specifically ill-suited to the cognitive capabilities of humans.

Shipboard crews' task structure has been drastically influenced by the smaller crew size and increased automation systems. New technology brings challenges for crew members' learning orientation as well as leadership responsibilities. Leaders on board are required with a number of new functions, including monitoring learning process and implementing industrial standards for technology application (Potter, 2003). Yurov and Potter (2006) discussed the interaction between transformational leadership and followers' learning orientation, and came up with the conclusion that transformational leaders' behaviors can affect subordinate's intention to enhance the mastery of knowledge. Yurov and Potter argued that employees would be more motivated to learn and accept new deployment of technology when leaders attend to individual concerns about operation changes, and stimulate followers' commitment for proposing technology enhancements.

Work related stress
Many studies have been conducted concerning work related stress at sea. Jezewska et al. (2006) identified three factors which are strongly connected with work related stress on board vessel, namely work environment, psychological factors, and job responsibility. Long working hours and irregular hours of working time, constrained and isolated environment, and potential exposure to hazardous physical conditions on the vessel add to stress and anxiety of seafarers. Home sickness and long separation from home, lack of intimate social communication, and absence of stimulation and prospect for future development can be considered as psychological factors, which not only endanger seafarers' health, but also compromise task performance. Seafarers bear huge responsibility for cargo, ship operation, and most importantly safety at sea. Such work liability may impose pressure and add to mental stress.
Transformational leader may provide social support and solicitude through recognizing and accepting crew members' frustration and need for social identification, converting individual crisis into development opportunities, and migrating followers' attention from individual safety to self achievement and fulfillment (Bass, 1990). Such a leader can stimulate subordinates' contribution to creative solutions to stressful situation. Transformational leader can also inspire subordinates to look beyond self interest, transcend immediate predicament, raise awareness of the lager organizational picture and search for adaptive methods.

Physical and social distance
Leader- follower distance and its linkage to leadership outcomes has been studied implicitly as well as explicitly by a variety of theorists. Antonakis and Atwater (2002) proposed an integrated multi level model of leader distance based on review of available literature. They categorized leader distance into three dimensions (i.e. perceived social or psychological distance, physical distance, and perceived frequency of leader- follower interaction). Social distance can be referred to the perceived differences in status, privileges, ranking and power. Yagil (1998) noted that social proximity can be considered as being beneficial for leader- follower relationship. Physical distance can be referred to respective physical locations of individuals or seating arrangement. Researches argued that distance between leader and follower may act as a neutralizer, impose negative effects on the quality of leadership outcome, and subsequently reduce leader' influence (Kerr & Jermier, 1978; Bass, 1990).
Visible physical positions of shipboard crew are highly structured due to characteristics' of task design. Deck officers usually stay on the bridge, while the activity sphere for ratings is practically limited on the deck or down the engine room. Physically higher location of the bridge, to some extent, unintentionally amplifies the social status differences between officers and ratings. Different arrangement in cabins and mess room also reflect social status differences on board. Cabins are furnished and located according to ranking of the crew. Equally, crew members usually have their regular position in the mess room. In the case of multiethnic crews, people with the same nationality dine together. Additionally, people address captain and other senior officers by their title. Some researchers argue that distance can ensure legitimacy of captain on board and proper social order is necessary to operate a vessel. However, as discussed before, the cost of leader distance can also be high. Maintaining distance may lead to a series of negative outcomes such as defensive attitude by crew members. Fostering effective communication may be one possible approach to mitigate the negative effects caused by distance. By delivering considerate, individual tailored conversation, leaders can increase the proximity of distance and open a channel for interactions.

4.3   Training and education

There have been some literatures supporting the effectiveness of leadership training. Barling et al. (1996) demonstrated in a field experiment that bank managers assigned in experimental group for transformational leadership training resulted in higher branch level financial performance than those in control group. Evidence shows that the ability to identify effective behaviors, which are beneficial for achieving organizational goals, can be systematically learnt through appropriate training and education. Avolio and Gibbons (1988) argued that behavior skill training alone is not sufficient for transformational leadership training. More attention should be put on leadership education and development. Bass (1990) discussed possible methods for leadership coaching, including lectures and discussion, role playing, simulation, behavioral modeling and sensitivity training.

In recent years, leadership training and education for competent seafarers started to become of interest to maritime stakeholders. For example, in Denmark, the Danish Maritime Authority issues regulations and orders on crew certification and quality management pertaining crew resource management and communication skills in compliance with STCW95. MET institutions for deck and engine officers in Denmark have incorporated leadership courses into the training program. Ship owners also bear the responsibility for promoting continuous career training and development program for seafarers. Some intensive bridge tem management courses as well as people skill training programs have been introduced in training centres financed by ship owners. Training agencies in Denmark provide consultancy and leadership coaching for officers in cooperation with industry associations. However, the efforts made to promote leadership effectiveness at sea in response to the changing labour market are not rigorous. Instead of stepping up and playing as the salient role in the delivery of leadership knowledge and skills, MET institutions act only as facilitators. Courses design and structures in MET institutions, which are highly affected by training policies of ship owners, only meet the entry requirement of certification regulations. Comprehensive leadership training methods and concepts are needed to be introduced into MET.

5. Conclusions

On the basis of existing literature review, this paper concluded that there are potential for exploring transformational leadership on board vessel. Through identification of situational moderators of effective crew performance, this paper argued that transformational leadership may be instrumental for promoting team cohesion, providing social support for crew members, eliciting extra effort in goal achievement, and subsequently improving the occupational health and safety and quality of life on board vessel.

The discussion of transformational leadership in maritime context enables further studies in relation to leadership issues on board. There is need for empirical investigation of the relationship between transformational leadership and desirable outcome at sea. Furthermore, the moderating effect of situational factors along with mediating effect of contingent variables should also be looked into during empirical investigation. In addition to examination of current situation of leadership education and training establishment in maritime sector, a thorough literature review of teaching materials in use may be beneficial for better understanding and addressing maritime leadership training issues. In order to enhance quality of education and training, all principal stakeholders in MET should be encouraged to establish coordination mechanism and actively carry out leadership training.

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