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Leaders' Influence Tactics for Safety: An Exploratory Study in the Maritime Context

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Abstract: A growing body of research has pointed out effective leadership as an important influencing factor for safety performance in various high-risk industrial contexts. However, limited systematic knowledge is available about how leaders can effectively persuade rule compliance, and stimulate actions and participation. Recognizing effective means of influence is of value for safety leadership development and evaluation. This study seeks to empirically investigate leaders' influence tactics for safety in a maritime context. Qualitative exploration is performed with data being collected through focus group discussions and individual interviews with 41 experienced shipboard leaders from various shipping sectors. Five core influence tactics—coaching, role modeling, pressure, consultation and exchange tactics—appeared to be the shipboard leaders' effective tactics to influence subordinates' safety compliance and participation behaviors in ship operations. Safety leadership influences flow from exemplification, expert and personal sources of power, and being pursued through soft and rational influence tactics rather than coercion or constructive inducements. The results indicate that the more relationship-oriented the leaders are, the more effective their safety leadership would be in influencing safety behaviors. The implication of the results for maritime safety leadership research, maritime education and training are discussed.

Keywords: safety leadership; influence tactics; safety behaviors; maritime industry

1. Introduction

Despite continual improvements to safety records at sea, the scope and severity of maritime accidents persist [1,2]. Human failures—errors or violations—are still the main issues when it comes to maritime safety, which accounted for 75 percent of marine liability claims, with over USD 1.6 billion of losses for the industry in the period 2011–2016 [3]. Among many contributing factors to safety, the pivotal role of leadership influence has been continually highlighted as a crucial determinant for safety culture, effective safety management and organisational safety performance [4–8]. Shipboard leaders, e.g., deck (bridge) and engine officers, are the ones who closely related to supervision and operations, with an essential role in influencing safety culture, crew members' safety perception, and safe work practices [2,9]. Their leadership competence has also been considered as an important position-based expectation, as stated in the 2010-amended International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) [10].

To effectively influence others so that they accomplish organisational objectives is the essence of leadership [11]. A growing body of research has broadened our perspective on various general leadership styles and their effectiveness in driving organisational safety performance. However, there

has been little crossover of this body of research into the maritime sector, with only a few studies examining safety leadership behaviours (e.g., [12]). Investigations into leaders' influence tactics, i.e., the method of exerting influence [13] for safety purposes, remain scarce. The ways in which leaders can effectively stimulate and persuade subordinates' safety compliance (i.e., adhering to safety rules and procedures) and safety participation (i.e., engaging in safety activities, raising safety concerns), have received scant attention in the maritime context.

The influx of new technologies on ships today—together with increasing administrative requirements, economic pressure, as well as the dynamic situations occurring at sea—applies constant pressures and increased demand on shipboard personnel [14,15]. The shipboard leaders play an increasingly important role in leading their crews to deal with complex demands and promote safe working behaviour while they themselves must cultivate a portfolio of leadership styles and tactics that address different situations. To our knowledge, limited studies to date have been conducted to explore the influence process of leaders on safety behaviour and to categorize the ways in which they can effectively stimulate actions, persuade compliance and participation in safety. Following up on our previous research [12], the intent of the present study is to address the research gap by inductively exploring the following research question: What are the shipboard leaders' effective tactics to influence subordinates' safety compliance and participation behaviours in ship operations? The paper begins with Section 2 describing the theoretical background of safety in ship operations. To understand the extent to which influence tactics have been studied in relation to safety, a review of relevant studies is also presented. In accordance with the chosen methodological approach, as described in Section 3, results of the collated data are presented in Section 4. The emerged influence tactics dimensions are discussed in light of previous research in Section 5, in which safety leadership practices and different influence tactics used by shipboard leaders are elucidated, and followed by the concluding remarks.

2. Theoretical Background

2.1. Safety in Ship Operations

The pursuit of safety in ship operations is a long-standing goal of industrial practice and academic research, due to the possible human, financial, legal and reputational consequences subsequent to an accident [16]. Safe, reliable operational performance relies on the systemic safety management strategies [17], collective commitment [12], and the frontline teams' expertise in adapting to and addressing the dynamic situations [18]. As stated by Wahl and Kongsvik [19], "safety needs to be considered as a social and collective accomplishment".

The hazardous working conditions, international character, hostile and dynamic nature of ship operations [20] have evolved the maritime industry into a highly regulated domain [21]. An increasing amount of safety rules and requirements has been set by the International Maritime Organization (IMO), flag and port state control, as well as the ship-owning companies. Complying with the established safety rules and requirements in ship operations is part of the formal responsibilities of all seafarers [10]. Individual unsafe acts and breach of safety procedures and regulations are often considered as important accident causations [22]. Adhering to safety rules, operating procedures, checklists, using personal protective measures are generally referred to as safety compliance [23,24]. Compliance with established safety rules to avoid unsafe work processes and reduce the occurrence of errors is essential in pursuit of highly reliable operational performance.

However, actual operational environment may differ from what was anticipated: pre-defined safety rules and procedures have a finite limit to their applicability and effectiveness [25], as it may not be possible to account for the fluid, dynamic nature of operations that involve many unpredictable and unusual situations [26]. Thus, it is paramount to learn from near misses, non-conformities and improvised actions in order to develop new risk-control measures and solutions [27]. Frontline operators' voluntary and active safety participation—through providing safety suggestion, honest reporting, commitment to developing novel safety solutions—can facilitate early detection of rule inconsistencies

and early signs of dysfunctionalities in systems that are not yet being anticipated or built into the procedures. Facilitating safety participation opens the way for collecting input from frontline operators for improving the rules, systems design and the capability to eliminate potential errors from future occurrences [28]. To produce dynamic non-events, both safety behaviours, i.e., safety compliance and participation from frontline operators, should be encouraged not only to achieve performance reliability but also to increase the system capability to absorb more situations and unexpected disruptions to deliver sustainable safety performance.

2.2. Influence Research

Recognizing the effective means of persuasion for safety is valuable for practitioners in developing and enhancing their safety leadership capacity and potential [12]. However, the initial literature review using the databases of Scopus, Google Scholar, Web of Science, ScienceDirect with the search words, e.g., "safety behaviours" and "influence tactics", revealed few peer-reviewed studies specifically focused on examining leaders' influence tactics for safety (e.g., [29,30]). None of them concentrated on the identification aspect of leaders' influence tactics for safety purposes in the context of hazardous systems operation in high-risk industries. Nevertheless, in general organizational settings, Kipnis, Schmidt [13] have spearheaded an empirical and inductive study aimed at identifying upward, downward and lateral tactics according to their influence towards superiors, subordinates or peers. The result has been widely used as a landmark in influence research. Investigating downward influence is customarily referred to as the study of leadership [13], which has received most research attention. A review of the most relevant and notable peer-reviewed articles on influence tactic identification and validation is summarized in Table 1.

Table 1. Prior research on influence tactic identification and validation (in chronological order).

Author	Type of Study	Sample and Data Collected	Data Analysis Method	Key Findings
Kipnis, Schmidt [13]	Exploratory study/tactic identification	n = 293, collected critical incidents that describe successful and unsuccessful influence attempts	Content analysis and factor analysis	1. Identification of 8 influence tactic categories: • Assertiveness: Instructing, demanding and setting deadlines for task completion • Rationality: Using logical arguments and factual information to convince a target • Sanctions: Using administrative sanctions such as "prevented salary increases" and "threatened job security" to induce compliance from subordinates • Blocking: "Engaging in a work slowdown" and "threatening to stop working with the target person • Upward appeals: Bringing additional pressure for conformity by invoking the influence of higher levels authorities in the organization such as making a formal appeal to higher levels or obtaining the informal support • Coalitions: Using co-workers to create steady pressure for compliance • Exchange: Exchanging of positive benefit, e.g., "offering an exchange" and "offering to make personal sacrifices" • Ingratiation: Making the other person feels appreciated and important 2. Description of the directional difference in using tactics (upward, downward, and lateral)

Table 1. *Cont.*

Author	Type of Study	Sample and Data Collected	Data Analysis Method	Key Findings
Yukl and Falbe [31]	Study 1: Replication of the Kipnis, Schmidt [13] research Study 2: Verification from the target point of view	Study 1: n = 197, using agent version of influence questionnaire Study 2: n = 237, using target version of influence questionnaire	Duncan multiple range test	1. Exclusion of "blocking" and "sanctions" due to conceptual problems and infrequent use 2. Re-conceptualization of six of Kipnis et al.'s dimensions, e.g., rational persuasion was substituted for rationality, pressure was substituted for assertiveness 3. Claim that consultation and inspirational appeals are important additions to Kipnis et al.'s list of influence tactics: • Consultation: Seeking participation in planning stage or decision making regarding a suggested change or policy • Inspirational appeals: Making an emotional request or proposal that motivates enthusiasm by appealing to target values and ideals 4. No significant directional differences were found for rational persuasion
Schriesheim and Hinkin [32]	Validating Kipnis, Schmidt [13]'s research	Study 1: 34 judges Study 2: n = 251 Study 3: n = 281 Study 3: n = 181	Factor analysis	1. Validation of the influence tactic typology proposed by Kipnis, Schmidt [13] 2. Exclusion of two tactics: sanction and blocking, due to their inappropriateness for upward influence
Yukl and Tracey [11]	Hypothesis testing	526 subordinates, 543 peers, and 128 superiors from five large Companies using Influence Behaviour Questionnaire (IBQ)-1990 version	Factor analysis	1. Found that some tactics were more effective than others in influencing target commitment 2. Effective tactics were rational persuasion, inspirational appeal, and consultation; the least effective were pressure, coalition, and legitimating 3. Ingratiation and exchange were moderately effective for influencing subordinates and peers but were not effective for influencing superiors
Yukl, Falbe [33]	Exploratory study	n = 145 (≥ 3 incidents/stories each)	Qualitative analysis of collected influence incidents	1. Confirmation of most of the findings from Yukl and Tracey [11] 2. Ingratiation and personal appeals were used more in initial influence attempts. Exchange and legitimating were used more in immediate follow-up influence attempts. Coalitions and pressure tactics were used more in delayed follow-up 3. Inspirational appeals are seldom used as single tactics, but rational persuasion is used most often both alone and in combinations
Yukl, Guinan [34]	Hypothesis testing	Study 1: n = 215, Collection of influence incidents Study 2: Questionnaire study	Chi-square test	1. Most of the tactics can be used for any of the objectives 2. Tactics used most frequently for a particular objective may not be the most effective one 3. Most managers would benefit from formal training in how to diagnose their power relationship and how to use each type of influence tactics effectively
Kennedy, Fu [35]	Identification and validation study	Collection of influence incidents across twelve countries	Discriminant analysis	1. Rational persuasion, consultation, collaboration and apprising were identified as effective tactics in all the countries 2. Patterns of perceived effectiveness for the influence tactics can distinguish countries in a manner consistent with their known cultural values

Table 1. *Cont.*

Author	Type of Study	Sample and Data Collected	Data Analysis Method	Key Findings
Yukl, Chavez [36]	Tactic identification and verification	Study 1: 259 subordinates and 229 peers, field survey using IBQ Study 2: n = 29, collection of influence incidents Study 3: n = 318, experiment	Confirmatory factor analysis, inductive analysis, analysis of variance	1. Validatation of two new influence tactics • Collaboration: Offering to provide relevant resources or assistance if the target will carry out a request • Apprising: Explaining how the target person will benefit by complying with the request 2. Collaboration is more effective than exchange, and rational persuasion was more effective than apprising
Clarke and Ward [29]	Hypothesis testing	n = 105	Structural Equation Modelling (SEM)	1. The result indicated a strong effect of Kipnis's leader influence tactics on individual employee behaviours in relation to safety 2. Suggest that leadership development would be an effective intervention for enhancing employee safety participation
Yukl, Seifert [37]	Validation study	Sample 1: 259 subordinates, and 229 peers; Sample 2: n = 70; Sample 3: 71 subordinates, 75 peers of 26 middle managers; Sample 4: 45 subordinates, 65 peers of 9 middle managers	Confirmatory factor analysis	The results provide support for the reliability and validity of the 11 tactic scales in the newest version of the IBQ including • Legitimating: Make appeals to the rules, policies, norms, or authorities • Pressure: Using demands, threats, or harassment to induce compliance from the target

As presented in Figure 1, a total of eleven influence tactics has been identified hitherto. Among these, inspiration appeals, ingratiation, pressure, apprising, exchange, collaboration, and consultation were found being frequently employed in downward influence attempts [11,36]. Since downward influence tactics are clearly related to leadership, those are the most relevant for this study.

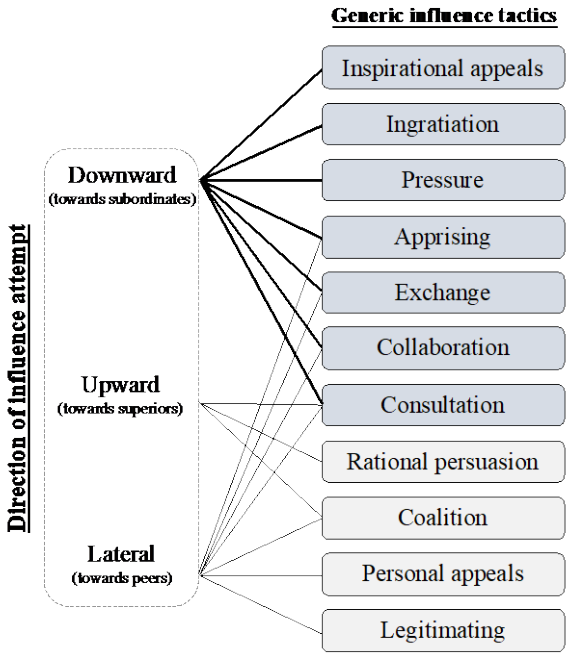

Figure 1. Summary of downward, upward and lateral influence tactics.

Downward influence tactics (i.e., the type of tactics used to influence subordinates) have been further grouped into hard, soft and rational tactics, differentiated by the degree to which the agent takes control over the situation or threaten the target's autonomy. Hard influence tactics (e.g., pressure, apprising) draw on positional power to force compliance in an impersonal way [38]. Conversely, soft influence tactics—such as inspirational appeals, consultation, ingratiation—are associated with employee commitment through the transformation of employees' value systems to be aligned with organizational goals—which also reflected a transformational leadership style [39]. Rational influence tactics—e.g., exchange, persuasion on the basis of logic or self-interest rather than transforming values—were closely aligned with transactional leadership [29]. Among these, soft and rational influence tactics have been proven to be most effective in engaging employee commitment, and are being more frequently used by leaders comparing to hard influence tactics [40,41]. In testing the effect of general leaders' influence tactics on employees' safety participation in manufacturing, a prior study [29] has observed that the use of rational persuasion and coalition was directly effective in enhancing subordinates' safety participation and involvement.

3. Method

An exploratory study with abductive reasoning [42] was used as the methodological approach as it offered the opportunity to develop new theoretical insights through the process of revisiting and enriching the existing theoretical frameworks. Establishing the credibility of qualitative studies depends on the quality of the data as well as how condensation, abstractions and interpretation are carried out [43]. This study was compiled with a sequence of procedures in order to draw valid inferences and explanations from the valuable responses provided by the informants, as illustrated in Figure 2.

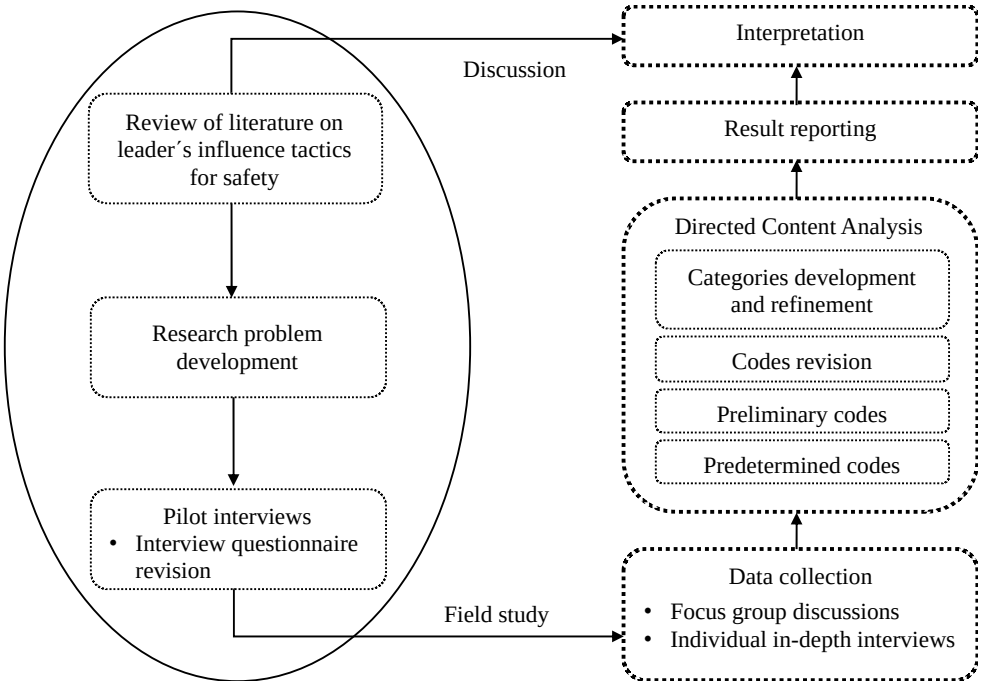

Figure 2. Methodological approach.

An interview guide, consisting of two sections, was developed for both focus groups and interviews. Section 1 involved four research questions to elicit views and experiences, e.g., "In which way do you influence your crew in order to strengthen their compliance on safety rules, policies and procedures? Can you give an example/story of when you have successfully improved the safety compliance of a crew/team?"; "Have you tried to encourage voluntary participation in safety activities

and motivate them to report near misses/deficiencies, suggest safe action plans, etc.? Can you describe the initiatives you've led and the outcome?". The questions enabled the shipboard leaders to describe the method used to influence their crews on safety compliance and participation. Additional questions were also asked during the focus group discussions and the individual interviews, in order to obtain information regarding the specific situation, target attitude, followed responses or resistance. Section 2 involved the demographics, including current position, year of experience, nationality, maritime sectors. Two field tests were conducted; first, a pilot interview with one ship captain (year of experience ≥ 20). The questions were then evaluated and revised before the second pilot interview with another captain (year of experience ≥ 20) to check if the answers were in line with the theoretical focus of the study.

Data were obtained through focus group discussions and individual interviews with 41 experienced shipboard leaders working in various shipping sectors. As illustrated in Table 2, four focus group discussions with 30 experienced shipboard leaders were performed. In addition, 11 individual semi-structured in-depth interviews were conducted to obtain more detailed information with new informants working in various sectors of the global maritime industry. Due to physical restrictions such as duty period at sea and limited internet connection, a written form of the individual interview, with the pre-determined questions, was preferred by three informants. All subjects gave their informed consent for inclusion before they participated in the study. The research was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Norwegian Data Protection Services (NSD).

Table 2. Data collection.

Method	Instrument	Informant	Documentation
Focus group discussions	Individual and group reflection and discussions based on given questions	Four focus groups with 30 informants	Individual notes Researcher notes Group presentations
Individual in-depth interviews	Interview guide	11 informants	Transcripts and written interview responses

The focus group discussions employed the Individual, Group and Plenary discussion (IGP) method [44], which consists of four phases: material reading (e.g., informed consent and research questions), individual reflection, group reflection/presentations and plenary discussions. Each focus group comprised of seven or eight informants and occupied a private meeting room. An information sheet outlining the discussion topic was distributed to all participants at the outset. The notes generated throughout the process of focus group discussions, consisting of both individual notes and group presentations as well as the researchers' own reflection notes, were collected.

All informants were officers with managerial or operational responsibilities in the safety operation of the ship and its machinery, having leadership roles in supervising and coordinating their crew members [10]. Their demographic characteristics are summarised in Table 3.

Table 3. Demographic characteristics of informants.

Characteristics	Range	Frequency	Percent (%)
Year of experience in the industry	Less than 5	6	14,63
	5–10	4	9.76
	10–20	9	21.95
	More than 20	20	48.78
	Unspecified	2	4.88
Sectors	Gas carriers (LNG, LPG)	13	31.71
	Passenger ships	3	7.32
	Seismic	17	41.46
	Navy	6	14.63
	Container	2	4.88
Age	Under 29	6	14.63
	30–39	6	14.63
	40–49	7	17.07
	50–59	18	43.90
	60+	2	4.88
	Missing	2	4.88
Leadership positions	Ship masters	9	21.95
	Deck department senior officers	14	34.15
	Deck department junior officers	7	17.07
	Engine department senior officers	7	17.07
	Engine department junior officers	4	9.76

Directed content analysis [45–47] and coding [48] were used to derive sets of similar influence behavioural categories that appear frequently and consistently in the data responses. Previous research (as synthesised in Table 1) was used as a reference during directed content analysis to draw inference and persuasive evidence to provide analytical conclusions. Data which related to the purpose but did not fit into a suitable predetermined category were coded inductively to form new categories. The influence practices that repeatedly emerged in interviews and discussions pertaining to the same phenomenon were grouped into themes. This combined use of deductive and inductive reasoning led to the abductive approach of the study. This approach allowed the researchers to go back and forth between the theories and the data sources, which could not be performed by solely using inductive or deductive approach [42]. Two maritime researchers were engaged in the process of data analysis to consolidate the data received. Individual coding processes were performed prior to discussion and merging. The datasets were analysed line by line and grouped into abstract categories to enable the authors to identify emerging patterns and similarities.

4. Results

As described by the informants, the context of ship operations demands reliability and efficiency with less room for misconduct; the shipboard leaders and the teams generally committed to producing results and act efficiently towards pre-defined priorities and goals. When taking initiatives for safety, many of the shipboard leaders prefer to look for ways that can codify their safety value and expectations into procedures and policies, and introduce it at the macro level to request changes, rather than having too frequent interpersonal interaction with their crew members. Proceduralization of safety is, therefore, a preferred response to safety enhancement for the majority of shipboard leaders. The reason for this is not only to govern or guide behaviours, but also potentially associated with the ease of management. The tactics that improve safety behaviours over the long haul were not prioritised if immediate behavioural changes were more desired and significant for the safety of the operations. Leaders' expected future interaction and the desire to sustain a comfortable relationship were found to be the salient factors affecting the choice of influence tactics. Although obtaining the desired behavioural outcome (i.e., safety compliance and participation) from the targets was by no

doubt a significant priority, the potential relational outcome of the influence attempt was an equally important consideration in tactic selection.

To be more specific, the result revealed that leaders employ a variety of tactics to exercise influence on their subordinates' safety behaviours rather than reinforcement through the use of positional power. Offering support and experience through coaching-related behaviours appeared frequently across the responses in the attempt to reduce subordinates' non-compliance behaviours (e.g., taking shortcuts, non-compliance with precautions). One informant mentioned:

> "Understanding of the reasoning behind the safety regulations and instructions, the associated risk, or the financial implications of non-compliance are the prerequisites for the crews' compliance."

Safety compliance is understood to be strongly associated with crew members' level of risk awareness, perceived efficiency and manageability of the checklists. The informants described that they seek behavioural change from their subordinates through facilitating them to overcome ability, knowledge or motivational barriers for safety compliance. Coaching is manifested through (1) leaders offering experience-based knowledge, explaining the past events or incidents to increase awareness of risk factors, (2) providing frequent reminder of safety rules and performance feedback, or (3) clarifying risk understanding through questions, and facilitating subordinates to do the risk analysis to envision the outcome before a job. Differing from the "collaboration" tactic in prior influence research (see Table 1), coaching is didactic, focusing on skill or knowledge transmission, and directly concerned with the immediate improvement of the performance through a form of support and instructions to enhance the target self-efficacy.

Facilitating targets to overcome ability, motivation or knowledge barriers to obtain the desired outcome is one of the objectives that can generate sustained and consistent behaviours rather than short-term, one-off changes. Nevertheless, it is the leader's credibility, competence and trustworthiness, as perceived by the subordinates, that determine the persuasiveness and effectiveness of a coaching intervention. Apart from the use of experience and factual knowledge to influence compliance through coaching, several intentional exemplification behaviours also emerged from the data.

Role modelling, appeared as a new influence tactic and was coded as a key category including several types of influence behaviours such as (1) purposely carrying out the work in compliance with the requirements as set out in SMS procedures, (2) frequently citing the company's safety rules in meetings, or (3) participating actively in safety activities (e.g., drills, tool box meetings). Leaders aim to convey their safety values, attitudes and priorities to encourage their followers/observers to act as they do. Unlike coaching, role modelling is a gradual influence process, communicating through behaviours rather than through verbal sharing of information. The tactics of intentional role modelling and coaching are often combined to impart values and generate behavioural changes. As explained by several informants, full compliance to checklists also entails cumbersome paperwork, which sometimes takes the focus away from high-risk areas that need more attention and creative thinking. Leading by example is one way of softening the resistance of followers towards the overwhelming amount of procedures so that they will be more likely to pay attention to adhering to safe practices.

The data also revealed types of influence processes such as monitoring, supervising and frequent checking which were associated with pressure tactics by leaders to influence the subordinate's safety compliance. Pressure tactics are used in an attempt to influence a target to carry out a request through demands, threats, frequent checking, or persistent reminders. The influence behaviours coded into this category are more aligned with a covert form of pressure rather than overt. Despite the strict subordination relationship and the shipboard leaders' legitimate power to draw on when making a request for safety compliance, some informants deemed it negative and inappropriate to pull rank rather than show respect in the daily operations. Overt forms of pressure tactics such as impersonal or direct ordering and demanding did not emerge from the descriptions in the context of daily operations. The influence behaviours displayed by the shipboard leaders are consistent with soft and rational ways

of leading, relying less on traditional command-and-control models. The context of ship operation is characterised by intensive use of checklists and procedures to avoid hazardous work processes. The dynamic situations occurring at sea often intensify the extent and complexity of the demands placed on the crew members. As several informants pointed out, although compliance to safety rules, standards and checklists are formally required, non-conformities and improvised actions are sometimes inevitable due to the dynamic situations at sea. Predetermined safety procedures were perceived to have a finite limit to their applicability and effectiveness. Despite that the Safety Management System (SMS) itself often invites all crew members to contribute to safety with formal procedures to report non-conformities, incidents or near-misses, leaders still play an important role in motivating and generating voluntary participation. In the attempt to influence subordinates' contribution to safety, frequent use of consultation and exchange was identified.

Tool-box meetings or suggestion boxes appeared to be the means and the arenas which shipboard leaders use to enable communication on safety issues between shipboard leaders and crew members. One informant argued:

> "Beyond the formal ways to facilitate participation, generating openness through welcoming and encouraging all the crew members to report near misses and discuss possible risks without fearing criticism are clearly important."

Continual learning through non-conformities and near-misses reporting was seen as an important way of identifying vulnerability in existing operational processes, especially those processes that are particularly challenging to execute reliably or often causing problems. So that measures can be developed proactively, which can be a crucial input for safety improvement and complementary to formal safety procedures. Although the system itself often encourages safety participation through rewarding, consultation—i.e., encouraging individuals to speak out their safety concerns, observations and near-misses—is often employed by shipboard leaders as an additional means to generate commitment and contribution. Influence behaviours such as inviting the crew members to participate and help in decision-making related to planning and organisation, asking them to speak out their concerns, were also coded into this category.

Consultation tactics were also frequently used to facilitate a social and participative process for learning from past events, and a fair environment is an important condition as it provides psychological safety for crews to openly discussing errors. It is often an extra step used by senior shipboard leaders to encourage subordinates to perform to their potential during toolbox meetings and drills, which was perceived to be more effective than the organizational safety promotion programs. The data also revealed types of influence behaviours associated with the use of exchange tactics to offer recognition, incentives or awards in return for frequent safety participations, e.g., submitting safety cards and providing safety suggestions.

Soft and rational tactics were often selected and preferred in usage over impersonal tactics in pursuit of a positive relationship, without placing strain on the relationship. Achieving positive relational outcomes (such as good relationship, respect, trust) for future collaborations was perceived to be of great enduring value. The means through which to achieve the influence objective is contingent and adaptive. The targets' maturity, experience and relationship with the agent were also perceived as significant factors for the reaction towards influence attempts. Coaching, consultation and pressure tactics were found to be more appropriate and effective towards relatively new or inexperienced followers and appeared less appropriate when the desired behaviours have become the norm in daily operations.

Furthermore, whether to establish a leadership event was seen in connection with the leaders' commitment with safety and criticality of the problem. Leaders' learning orientation from errors, adverse events and incidents also determine the use or non-use of tactics in influencing for safety participation. Regarding differences in the use of influence tactics with respect to different nationalities, the observations in our study differ from previous studies, e.g., Kennedy, Fu [35], by showing a

tendency not to differentiate the leader's approach towards different nationalities. No specific patterns were observed regarding culture-based differences in tactic selection and usage.

5. Discussion

The goal of this study was to investigate effective influence tactics employed by shipboard leaders that influence their subordinates' safety compliance and participation behaviours in the maritime context. While the shipboard leaders have the formal authority available to request the subordinates to adhere to safety, the findings have revealed that leaders utilize a variety of tactics to exercise influence on their subordinates' safety behaviours rather than reinforcing through positional power. As shown in Figure 3, several generic downward influence tactics, e.g., exchange, pressure, consultation, remain effective in influencing safety behaviours in the maritime context, in which exchange and consultation were found to be frequently used when leaders seek to initiate behavioural changes on their subordinates' safety participation.

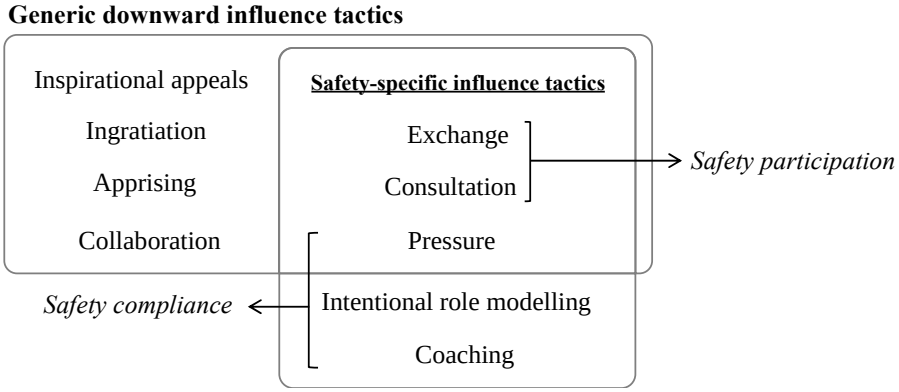

Figure 3. Identified influence tactics for safety behaviours in the maritime context.

Exchange and consultation tactics are interaction-oriented, and involve implementing a two-way communication in which the subordinates are enabled to engage in the process of exploring, exchanging information and understanding the need for changes. These ways of influence align with the relation- and task-oriented leadership mode as described by Bass and Stogdill [49]. It implies that leadership with both orientations are likely to encourage safety participation (e.g., report near-misses, submit safety cards and provide safety suggestions) from their subordinates. When looking into how leaders can effectively persuade rule compliance and reduce non-compliance behaviours (e.g., taking shortcuts, non-compliance with precautions), frequent use of pressure, coaching and intentional role modelling behaviours were observed, as described in the findings section. The use of intentional exemplification and coaching-related behaviours in the attempt to reduce subordinates' non-compliance behaviours, is distinct from other downward tactics identified in earlier research, according to their definitions (see Table 1). While requesting subordinates to adhere to safety rules may be more amendable to be enforced through use of authority [29], hard tactics such as coalitions and legitimating were not found to be prevalent means of influence for safety, neither were blocking and sanctions observed in the results, corroborating the findings of Yukl and Falbe [31]. Effective leadership influence flows from the exemplification, expert and personal sources of power, and being pursued through soft and rational influence tactics rather than coercion or constructive inducements.

Leaders' safety compliance-gaining tactics were also integrated in both relationship and task orientations. As relationship- and task-oriented leadership behaviours have been recognised as linked to transformational and transactional leadership styles, where transactional is defined as task-oriented while transformational is defined as a relationship-oriented leadership style [50], it can therefore be concluded that transactional and transformational leadership styles are directly effective in influencing safety compliance and participation behaviours in a ship operational context. This point is inconsistent

with previous research which suggested that transformational leadership is positively and directly related to employee safety participation [29,51], but indirectly [29] or not significantly related to safety compliance behaviours as it did not affect whether the subordinates followed safety rules [52]. Through looking into the effective means by which leaders exert influence over subordinates' safety behaviours, our exploratory study reveals the existence of both leadership styles in the maritime setting.

However, as the majority of the reported influence tactics are in favour of a relationship orientation, the result indicated that the more relationship-oriented the leaders are, the more effective their safety leadership would be in improving safety behaviours. This result corroborates the findings of [53] and also supports another study conducted in a functionally similar field (i.e., air traffic control), which concluded that the most frequent leadership style for safety has a high relationship-oriented and low task-oriented behavioural pattern [54].

Previous studies argue that leaders may select their influence tactics depending on various factors peculiar to the organization, situation and followership [55]. As described in Section 5, our data has also revealed several factors influencing the selection of tactics. One of those is the expectation of future interaction. The transitory nature of ships' crew structure does not foster the development of unfriendly or coercive interaction patterns, the expectancy of harmonious interaction diminishes the use of hard tactics. This point echoed the findings from Van Knippenberg and Steensma [41], who claimed that the expectation of future interaction is an important determinant for the use of hard and soft influence tactics. Another factor that evidently influenced the choice of influence tactics was the competence level of the subordinates. This aligned the underlying assumptions in situational leadership that subordinate maturity determines the leader's choice in the use of task- and relationship-oriented behaviours [49].

Safety leadership in ship operations has clearly shifted from long-recognised authoritative approach to a more structural, resourceful and supportive way of leading. As discussed in many safety studies, e.g., Dekker [26], Wachter and Yorio [56], effective safety management goes beyond the general goal to be compliant with safety rules and procedures. The revealed influence tactics also suggest that ensuring safety in operations cannot be achieved through only constraint or control of people to be compliant with regulatory demands for checklists and paperwork. The importance of making subordinates behave in a participative way with regard to safety, and empowering them to generate ideas for safety improvement, is clearly important for good safety performance.

To our knowledge, this is the first qualitative study that explores the influence process of leaders on safety behaviours and categorizes the ways in which the leaders can effectively stimulate actions, persuade compliance and participation in safety. However, several limitations need to be mentioned. Firstly, due to the vast amount of data collected, the emphasis was placed on the investigation of the most relevant and core influence tactics. The categories presented here is not a complete representation of all the available influence behaviours but a representative and legitimate set of tactics that can be used by leaders in a high-risk and highly regulated work context. Due to scarcity and difficulties in recruiting female shipboard leaders, the informants were primarily males. Secondly, the analysis relied on the incidents provided from the supply perspective. Future research can explore how the tactics can be perceived on the other side of the dyads.

6. Conclusions

To facilitate good levels of procedural compliance and safety participation is a persistent leadership challenge for shipboard leaders. Building on the analysis of the literature and the diversified influence attempts described by 41 shipboard leaders, five core influence tactics—coaching, role modelling, pressure, consultation and exchange tactics—appeared to be the shipboard leaders' effective tactics to influence subordinates' safety compliance and participation behaviours in ship operations. The results indicated that the more relationship-oriented the leaders are, the more effective their safety leadership would be in influencing safety behaviours.

This study has both theoretical and practical implications. Theoretically, it brings together prior influence and safety research to empirically investigate leaders' influence tactics on safety in the maritime context and provides systematic information about how leaders can effectively persuade rule compliance, stimulate actions and participation for safety. The important role of leaders in influencing and shaping safety behaviours should not be overlooked. The study extends the argument that more research is needed to explore and understand the complexity and particularities of shipboard officers' leadership behaviours and practices. Furthermore, the results should prove of value to enable analytical generalisation to other industrial contexts and as a starting point for further explorations using different methodological approaches spanning different sectors. Practically, the influence tactics revealed in this study provide practical implications for mariners, maritime education and training institutes to establish best practices and to build needed safety leadership skills to pursue better safety performance.

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