Chapter 11

Safety Aboard Chinese Vessels

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Introduction

The aim of this chapter is to explore the factors that affect ship to shore safety reporting in the Chinese shipping industry. The study was motivated by of the paucity of research in this specific area. Previous research in shore-based industries suggests that there may be cause for concern in shipping as ashore there is evidence of significant underreporting across a wide range of industries. This study, though it is small in scale, was conducted to partially fill the existing gap. The data used was collected from two major chemical shipping companies in China. Both employer and employees' perspectives were considered in the process of data analysis. Furthermore, the 'social factors' behind the scene of reporting—underreporting, or biased reporting—were explored.

It has been widely acknowledged in the maritime literature that the shipping industry is highly risky (Anderson 2003; Havold 2005; Oltedal and Wadsworth 2010). Seafarer fatalities and injury rates are much higher in seafaring (Lindoe 2007) than the average found in land based industries. The industry also has a higher reported frequency of incidents than some others (Walters 2005). Against this background, Occupational Health and Safety Management (OHSM) is a critical issue.

By tradition, ships are subject to the laws, rules and regulations of their own flag states and in the countries where they sail. For many years there was a lack of multilateral harmonization and uniform standards. However, the introduction of the International Safety Management Code (ISM) in 1998 marked a 'turning point' for the industry. It brought about a fundamental change to the way in which OHSM was previously conducted (Anderson 2003). The International Maritime Organization (IMO), a specialised agency of the United Nations (UN), required every member to

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implement the Code by enacting corresponding mandatory standards to regulate OHSM in its shipping industry (IMO 2007). The philosophy underpinning the Code is to require shipping managers and seafarers to transform their traditional operational practice into a regulated system-based approach in order to better manage Occupational Health and Safety (OHS) issues and reduce harm to persons, ships and the environment (Anderson 2003; Bailey 2006).

According to the ISM Code, all shipping companies (subject to the Code) are required to establish mandated forms of safety management systems (SMSs). An Occupational Health and Safety Management System (OHSMS) should consist of some essential elements contained in the Code with safety reporting an integral part of a safety management system. The reporting of events is of great value for 'proactive remedies', 'organizational learning', and 'continuous improvement' as well as 'increased safety' (Ogbonnaya and Valizade 2015; Oltedal and Wadsworth 2010; Oltedal and McArthur 2011; Psarros et al. 2010). The smooth functioning of the reporting system is a precondition for successful organizational management and this requires an effective reporting culture (Graham et al. 2002; Havold 2000), one of the key features of a high reliability organization (HSE 2000; Kuhn and Youngberg 2002; Reason 1997).

A major finding from studies of land-based industries showed that the 'underreporting' of safety-related events was omnipresent (Oltedal and McArthur 2011). To a great extent, this is echoed by the limited amount of pre-existing research related to the shipping industry. For example, the ten-year study of maritime casualty/accident databases (1997–2007) from Lloyd's Register Fairplay and Norwegian Maritime Directorate showed that more than 60% of accidents were underreported (Psarros et al. 2010). In general, the literature suggests that underreporting is a 'considerable problem' in this industry, and 'a culture of underreporting' of safety related occurrences is prevalent (Bhattacharya and Tang 2012; Bhattacharya and Tang 2013; Ellis et al. 2010; IMO 2008; Oltedal and McArthur 2011). Such underreporting undermines the normal and effective operationalization of established safety management systems, as stated by Oltedal and McArthur (2011, p. 331):

A fundamental pillar of safety management is that information reported into the system is reliable and reflects the actual situation in working operations. Thus, under-reporting of safety related events constitutes a major threat to the efficiency and utility of a safety management system.

This chapter is going to explore the reporting practices in the Chinese shipping industry. It is informed by some of the findings of a qualitative study which I undertook in recent years. As part of this I carried out interviews with 47 seafarers while sailing on board their ships and making observations. The fieldwork was mainly conducted in two major Chinese chemical shipping companies (C1 and C2 hereafter) where I also conducted 13 interviews with managers and superintendents. The findings of this study are presented from both the management and the crew's perspectives. Furthermore, the influential factors that affect safety reporting will be explored.

Contradictory Messages from Managers

Managers in both companies strongly stated their commitment to encouraging accident reporting. Their stated objective was to ensure that remedial actions were taken after all reported incidents for the purpose of the continuous improvement in safe operations and management.

The Publicly Stated Commitment by Managers to Reporting: ‘We Encourage Reporting’

The reporting of accidents was seen to provide a ‘window’ which allowed managers to consider shipboard work practices and provided a way of directing safety improvements for ‘the ship, the company and its fleet’. As such it had considerable implications for promoting shipboard safe working practices. Data showed that the managers of both companies shared a similar safety attitude towards crew reporting—phrases like the ‘non-blame attitude’ or ‘non-blame culture’ were frequently mentioned in discussing the principles of their safety management policy. For example, one superintendent said:

The company is always advocating a no-blame policy. You (crew) may report whatever you want. We hope you report ten near-misses, but we don’t want to see one accident.

Furthermore, in order to eliminate the misgivings of crew members in making safety reports, ‘fair treatment’ was also guaranteed in text form. For example, a paragraph in the SMS of C1, stated:

Company guarantees that the person who makes the report will not be treated unfairly; instead, the company will give awards to those who are helpful in improving company’s safety management and environment protection.

In terms of the role of reporting in the improvement of safety management, it was regarded as ‘good practice’ that could contribute to ship’s safety. For example, one superintendent said:

For a major case, there is a need for the company to make countermeasures. For a minor case, it could remind others to care more about it. It’s a good practice. It’s for the good of safety management.

In consideration of the fact that there might be certain factors that affected a crew member’s motive for reporting, both companies insisted that there was ‘no ground’ for the crew to have any hesitation. For example, a manager explained:

(If) you (crew) hide problems, you do not fully understand the essence of the ISM and SMS. If you found problems and made reporting, it was the company to hold accountability. If you hide and they are disclosed by the company, you will take full responsibility.

Therefore, both companies’ publicly stated attitudes were clear: that reporting helped to promote shipboard safe working operations and practices. If a problem was

not reported, it would be very likely to ‘develop into an accident sooner or later’, which would lead to ‘damaging consequences’ (superintendent)—which was believed to be undesirable to both the management and crew.

The Received Message from Management: ‘Fewer Reports are Better’

As stated earlier, in both companies, there was what appeared to be overwhelming agreement relating to the desire to encourage crew to engage in safety reporting. However, the data also suggested another seemingly contradictory view that: ‘the less reporting (there was) the better’. Notwithstanding the management’s publically stated commitment to ‘near miss’ reporting, and accident reporting more generally, they were not happy to see problems reported from ships. For example, a manager said:

If there is no such a (problem) report, it’s good news. It signifies that that ship’s management is good. Every aspect on board is good.

In a similar way, one superintendent also stated:

If the captain doesn’t report any problem, and neither does the chief engineer, this ship is perfect. It shows that everybody is very good.

From such comments, it becomes clear that there was a common understanding among the managers, which was at odds with their stated objectives of encouraging near-miss reporting. The ‘number of reported events’ was considered to be an important indicator of the quality of shipboard safety management. In this sense, less reporting was equated with ‘better’ ship management. It is self-evident that if such an attitude is conveyed to seafarers then near miss reporting is likely to be constrained.

One of the major duties of shore management is to monitor the completion of a ship’s voyage plan. From the management perspective, the number of reported cases becomes one of the important indicators for measuring the successfulness of a voyage. For example, a manager commented:

If you (ship) completed the voyage, and didn’t report any incidents/accidents, this meant that the ship didn’t cause a major economic loss to the company and successfully completed the voyage tasks.

Consequently, it seems that in contrast to the apparent commitment to near-miss and accident reporting, such reports were not actually desired by the companies’ management. Reason (1997) had similar findings from research at organizational level—low reporting frequency may suggest an ‘image of safety’ but he warned that it may not reflect reality and as a consequence the improvement of workplace safety could be seriously compromised. It seems that whilst company managers understood this message to the extent that they could and would emphasize the importance of incident reporting they had not understood it (or internalized it) well enough to be

free of the overwhelming view that a ship reporting few incidents (or none) must be a very safe ship.

So far, the discussion has drawn upon the perspective of the company management. The picture is now presented from the crew's perspective in terms of their understanding of the requirement to report safety-related issues.

The Message Conveyed to the Crew: If Accidents Occur Then There Must Be Something 'Wrong' with the on Board Supervision

According to the reporting requirements of the SMS in each company, each crew member had a responsibility to report accidents if they have safety implications, no matter how minor they were. Most crew members seemed well aware of this stated requirement. However, in reality there was a wide gap between what the management expected and what the crew did in terms of reporting practices. The research revealed that a significant number of safety-related issues were underreported. It also identified biased reporting.

Given the formal obligation of the crew to make reports, it was noticeable how many seafarers were reserved in their comments when asked about accident reporting. Surprisingly few agreed that 'all safety related problems were fully reported according to the facts'.

Ratings, were particularly uninterested in reporting safety-related issues. In particular they demonstrated indifference towards making near-miss reports. One rating explained:

Generally it would not. The near miss...there are no real consequences...we feel it has passed and there is no need to report it. What is it for?

It could be said that their lack of interest appeared to be because they thought reporting was done by senior officers and it was therefore unnecessary for them to make reports. For example, one rating said:

The reporting is done by the captain. Whether he reports to the company, it's up to him. The low rank crew would not report. The low rank crew...it's unnecessary to talk about this. There is nothing to do with my job.

Consequently the officers might be expected to be more active in making reports. However, even amongst officers voluntary reporting was rare in both companies. A second officer expressed his unwillingness to report near-miss cases in the following way:

It's rare. I didn't meet such a case. Who voluntarily made such reporting? It's only me who knew it, and nobody else knew it. I kept it in my mind then that's ok. I would not talk to captain if he didn't see.

This is consistent with the finding by Oltedal and Wadsworth (2010), that crew working on an individual basis (alone) are less likely to report any accidents which

occur. As an 'alternative' way, 'self-reflection' was commonly referred to by some crew as the 'substitute' for reporting. For example, a chief officer said:

It was rare (to report). If you reported to the company, it would cause trouble. But in reality, we would not report. It would be digested on board unless it had serious consequences.

Fear of 'trouble' (for the whole crew and not simply the individual reporting an incident) was suggested as a reason for underreporting and this will be returned to in due course. In C1, in order to encourage more reporting of near misses, a box was placed in public places on the two ships. During my time on board, questions were raised about how individual crew contributed to the near-miss box. The interviewees' reaction seemed to vary, some gave awkward smiles and some were unwilling to talk about their own experiences, just giving a superficial answer saying that it was the company's requirement. However a second officer gave a clear and firm response, 'it was empty...nobody care about it'. This general impression showed that commitment to submitting reports to the near miss box remained weak (notwithstanding the superficial anonymity it provided¹).

The discussion in this section shows that underreporting of shipboard accidents and near-misses was common. Few safety-related problems were reported unless there was a significant consequence with which the crew could not cope without shore support.

Biased Reporting and Underlying Social Factors

Not only did this study find considerable under-reporting of accidents and near-misses, it also found that the reporting in both companies could be biased in one way or another. It seemed that the crew, particularly the senior officers, would carefully deliberate as to what to state prior to giving any account to their companies. Their 'general principles' appeared to be to focus on trivial matters so that some matters could be reported as required by the company without reflecting badly on the crew. One suggested that:

Basically for us, the principle of reporting is to report only the good not the bad, to avoid the critical points and dwell on the trivial (Captain).

We had certain consideration. . .The ship could not report all the issues [to the company]. Also, [the ship] could not report nothing. [So] some innocuous cases might be reported (Chief Officer).

Reported incidents demonstrated that the crew tended to report 'innocuous' cases or 'something unimportant' to their companies. For example, a chief officer said:

¹Crews are so small and subdivided in terms of role and department that it is unlikely that anonymity could in fact prevail.

The crew make reporting to the captain. . . it is rare. Most reports made were minor issues. Like in the kitchen, the flour was put on the fire prevention station, where it was not allowed.

Given the necessity of reporting serious cases such as incidents/accidents which were impossible to hide, the data showed further bias. During my time on board, I came across a chief engineer who had worked for C1 for thirty years before coming to C2, and he talked about his strategy in dealing with such reporting:

First, the reporting should not link to my own responsibility; second, (it) should not link to my colleagues; third, (it) should not link to company leaders. If you discharge all the responsibility to your company, do you mean that the company's management is not effective? No. This is not good. Then how to deal with this? Try to find some causes from our own, to find some from external objective environment. The rationale is not to [negatively] affect, or criticize, anybody.

Therefore, it could be seen that the reporting would be 'manipulated' by the crew, while the real situation would not be truly reflected. Thus it is apparent that the four major factors that influenced safety reporting were managerial, cultural, personal and occupational. These are detailed as follows.

The managerial factor arose as a result of fear of condemnation for bad management practice, with the crew holding a strong collective view that if a problem was reported it would imply that the ship's on board safety management was bad. A third officer explained:

If you report, it is certainly not good for the ship. It implies that this ship's work was not done well. The company would think your ship has safety problems [that] this ship's leader was not good.

Not only would the company's leaders think the ship management was not good, but they would also doubt the ship leader's competence. One second engineer stated:

If you could not solve problems on board and they were reported and you need support from the shore base the (company) leaders would have second thoughts. It might mean that your individual competence is bad.

The seafarers on board held the same understanding that is created in the literature on employee performance. This suggests that problem solving is central to success in modern organisations (Tews et al. 2010). While seafarers felt obliged to show problem solving skills on board they were reluctant to demonstrate these in relation to the follow-up of minor incidents associated with safety. According to the SMS, even where an incident did not lead to a major problem on board (perhaps following seafarer intervention) it should still be entered into the System to be reported to shore-side management. In these cases, however, seafarers were afraid that negative judgements associated with the original event would outweigh any positive conclusions that might be arrived at in relation to the way they had 'problem solved' after an event had taken place. Therefore on board reports were rarely made. Furthermore, in the chemical shipping industry, it is common for chemical tankers to have industrial external inspection, typically inspection from major petro-chemical companies. Reporting was also affected by fears relating to such inspection. For instance, a second engineer said:

Also, it (the reporting) is not good for external inspection. If the inspectors found that you had more problems reported, they would doubt your ship's management and check in more detail.

Therefore, it is clear that, for fear of the condemnation of bad management, crew showed a selective attitude in any safety-related problem reporting.

If a safety problem was reported to the company, it would be investigated by the management of the company. The research showed that the 'perceived investigation result' didn't encourage crew reporting. Field notes record a few personal injuries on the four ships, and none of them were reported. Among these, one injury case was described as follows:

The rating showed his finger pervasive with the blood. The finger was hit by a roller in the engine room. His right fingers pressed the root of the finger that was hurt, he gnashed his teeth, and showed pain on his face.

The cut was further treated and shore medical assistance was called on arrival at a foreign port. A second engineer commented about this injury:

It would not be reported. If it is reported, the company would think it is mainly because of violation of procedures. Safety bonus would be deducted from top (leader) to the bottom (ratings). But the real cause is fatigue.

On board the ship, almost all the crew I met thought the injury was caused by fatigue. Meanwhile, they strongly believed that any investigation would conclude that it was more simply caused by 'the violation of procedures' by individuals on board. A third engineer talked about his experience:

More than 90 percent of the company's investigation conclusions were violation of operational procedure. They thought if it was not (because of it), it (injury) would not happen. If you saw many safety circulars (sent on board), they were all about violation of operations.

Research by Ellis et al. (2010) show that the pattern of *reporting* of seafarers injuries is socially constructed. In this research, data showed the crew's past experience in reporting offended their sense of justice—as a result they felt that reporting injuries was not in their interest but would be like 'lifting a stone to drop it onto one's own feet' (Chinese proverb). Under such circumstance, the crew would rather choose not to report. The literature indicates that 'human error' investigation approaches (Oltedal and McArthur 2011; Pantouvakis and Karakasnakis 2016, 2018; Psarros et al. 2010) and a 'person oriented' focus (Oltedal and Wadsworth 2010) can lead to a failure to identify 'real causal factors'. The example described above shows some correspondence with the existing literature, inasmuch as in this incident the underlying ('real') cause of the accident—fatigue—was regarded as something that any investigation would leave unmentioned. It could be seen that the 'perceived' response from the company affected the crew's willingness to report.

Research has found that safety reporting is affected by national culture (Havold 2000; Hofstede 1991)—in this context—the Chinese culture. Previous research has indicated that the Chinese traditional culture—Confucianism—persists in modern enterprises (Yang and Zheng 1989) and this research found that some Chinese cultural elements also affected the reporting.

In reporting, crew members tended to avoid the potential negative impact of the reported issues on the shore management, particularly the superintendent in charge of the ship. A chief officer elaborated:

About what to report, there is much knowledge inside. We could not directly report if the reporting related to the superintendent's duty (fault). The superintendent in charge (of this ship) would be questioned or even reprimanded by the senior manager.

According to the safety management system, all the written reports were by senior managers as well as relevant departmental managers. Most of the crew, did not want their superintendent to be blamed because certain problems on board were reported. Such a consideration was augmented by the fact that he had the power to arrange crew appointments.² Furthermore, data indicated that reporting a problem could potentially offend one particular department. For example, a chief officer said:

The Marine Department, they wanted ships to report less problems, right? You [ship] reported more [problems], and it would be no good for the company senior managers to see that. Try to report less.

It became obvious that the nature of problems was considered by the crew before a report was made. In order to avoid offending shore management, some crew voiced the fact that pre-communication with a company's superintendent would be done prior to a formal written report. In general, the reporting would be 'guided' by the superintendent in terms of what to say and how to report. One of the core values of Confucianism is the 'respect for hierarchy' (Fang 1999). The fear of offending seniors was deeply embedded in the thoughts of the Chinese crew and had a marked impact on reporting practices.

In addition the research found that reporting could affect the interpersonal relationships between seafarers both on board and when they returned home. A chief officer explained:

When reporting to the company, the captain would consider the crew's interest. When we are [back] ashore, the superior-subordinate relationship doesn't exist anymore. We were colleagues. . .brothers.

It could be seen from the quote that the negative impact of reporting on personal relationships was considered by the senior officers on board. There is an ancient Chinese saying which addresses interpersonal relations and suggests that 'harmony matters'. In general, harmonious relationships are prized by the Chinese as one of the core values of Confucianism (Fang 1999; Porter 1996). This also applies in organisational contexts. Personal relationships could be disharmonized if a report was submitted against crew members' wishes. An example is given below:

You made such a report, then you offended that person. . .we all knew each other and were not willing to offend others (Rating).

²Part of the role of a superintendent is to evaluate crew's performance, and make suggestions for crew arrangements on a ship he supervises.

A chief officer described a serious near miss—the captain saw an appalling scene when he went to the bridge:

It's the third officer's duty. . . The Captain saw a very big ship ahead, and he could not see the sky. . . you could imagine how close it was (with that ship). . . The captain immediately took control. . . Luckily, it (accident) was avoided.

Principally, it was a typical near miss that had far reaching safety implications in terms of shipboard risk management. But it was not reported to the company because of its potential impact on a third officer:

You say, would he [captain] report this case to the company? For sure, he would not. If he reported [to the company], he would damage the third officer. The third officer would hate him forever. . . definitely finish [his career].

This example demonstrates how reporting could damage relationships. A chief engineer expressed this in a similar way when he told me that:

The young crew. . . they are very kind in usual time. But he had a dangerous behaviour because of his carelessness. Would I kick him out? Try our best to remedy on board, rather than something else [such as reporting].

Given the fact that ultimately decision-making lay in the captain's hands, some of the crew considered that the quality of the relationship between crew members and the captain could determine whether an incident was reported or not. For instance, a second officer said:

If the captain has a good relationship with me, he might cover this for me. If the captain doesn't have a good relationship with me, or he dislikes me, he would report this.

These examples illustrate the ways in which personal relationships influence decisions in relation to the reporting of safety-related incidents.

Crew members also took into account their personal interests when they decided whether a safety related problem would be reported or not. For example, a rating said:

It [reporting] directly affects individual interest. . . bonus, salary, and company's appraisal.

Consideration of these kinds of issues was expressed by a significant number of crew members in both companies. In C1, recent salary reforms aligned salaries more closely with performance appraisal. A captain explained the situation:

Personally my salary is often deducted by the company. Now it is tricky. If there is a problem to be reported, my money would also be deducted.

The interviews revealed that such reporting was also regarded as having the potential to impact on future appointments. For example, a second officer said:

Although it is said there is not any unfair treatment, in reality it would still have potential affect. Apart from safety bonus, the company would have other considerations on the next (job) appointment.

In both companies, anonymisation was required for the reporting of near misses. However, it was considered to be easy to identify who had made the report and also

who was involved in the reported incident. The reason was that shipboard work allocation was ‘one radish; one whole’, as the crew termed it, which meant there was very little overlap in terms of each crew member’s duties. Therefore, in practice anonymisation seemed to have little effect. In C1, if someone was found to have caused an ‘unusual’ safety problem on board a ship, then in the future seafarers believed that they might be dispatched to another company working as an ‘exported’ seafarer. This was regarded as very negative because it was seen as ‘punishment’ for bad performance and was also generally regarded as involving joining ships where conditions were worse than they were on the company’s own vessels.

Therefore, it became clear that crew members’ fear of reporting was related to the perception that individual interests were likely to be damaged as a result of making a report. Consequently, the reporting tended to coalesce around non-human related problems. As one superintendent in C1 said: ‘mostly the reporting was about the equipment’ and ‘it was rarely about crew themselves’.

Finally, it seemed that the fluidity of employment further weakened crew members’ willingness to report incidents. In C2, the majority of the crew were employed on short term contracts. They were particularly reluctant to report incidents. For example, one senior bosun reflected on his thirty years of experience as a seafarer and said:

I met many occasions of near misses. In general I would not report. We are the freelance seafarers. I worked in this company today, it’s uncertain that I would leave some day. Why should I care about it? It would not be reported until there is an accident.

The unwillingness to report incidents also related to a desire among long-serving seafarers to be returned to familiar vessels. For example, a third officer said:

If you were only on board for a few months, you reported this and that, wanting to change everything, and then you were going to leave. . . many people don’t want to do like that. Next time, I might change to another ship. I would not go to this ship again.

Although crew in both companies had differing contractual terms and conditions the data did not significantly differ between them.

Conclusion

Effective communication within an organisation is considered a prerequisite for successful safety management (Leiss 2004), and one of the valuable characteristics of an organisation with strong safety culture (Michael et al. 2006). The examination of both management’s and crews’ perspectives showed that there was a significant gap between what the management expected (although this in itself was contradictory) and what happened in reality. Shipboard safety reporting was affected by a complex combination of managerial, cultural, personal as well as occupational factors, which were made manifest in both underreporting and biased reporting.

To sum up, the study revealed that although the importance of safety reporting is widely acknowledged, the crew did not seem to understand its importance and

therefore prioritized other issues such as concern for their personal interests and relationships. Despite the strong impression given by the management of a desire to pursue a no-blame attitude in safety reporting, they tended to say one thing but actually mean another. A particularly clear example of this was provided by their contradictory stance relating to reports. Whilst they recognized that reporting was part of good safety management they concurrently took reports to indicate that different practice was being followed on board. In general, the data suggests that safety reporting practices fail to function properly if managers do not adjust their attitudes and behaviour.

Based on the results of this study, it seems that there is a need for considerable training for both managers and crew in terms of the attitudes and behaviour that underpin the proper functioning of a safety management system. The research depicts a complex picture which should be considered by those maritime practitioners or policy-makers concerned with improvements to the globalized shipping industry.

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