

# The Issues of Consciousness and Conscience in the High Tech Maritime World

## *Pitanja svijesti i savjesti u visoko tehnologiziranom svijetu pomorstva*

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UDK 37:656.6

Prethodno priopćenje / Preliminary communication  
Rukopis primljen / Paper accepted: 26. 7. 2013.

### Summary

The rapid development of new technologies has led to significant changes in the work environment in general, as well as in seafaring, namely on board. Moreover, the daily life of the modern man is inextricably intertwined with technology. Its impact on personal and professional life leads to a series of changes that are reflected not only in the mode of business performance but also in the influence of private events during professional work. The significant and rapid progress of technology presents a challenge to our consciousness and conscience that has to be discussed over and over again, as both categories are exposed to the influence of personal experiences and environment. Originating from the interaction of one's personality and his environment, our consciousness and conscience potentiate us to act in accordance with socially established rules and values. In addition, the lack of training after the official education, except by inertia with respect to the requirements of the work position, certainly increases the percentage of errors, ultimately leading to difficulties in performing vocation and even to disaster. The tragedy aboard Costa Concordia and other maritime accidents, involving passenger and cargo vessels with increasing harm to humans and the environment, point to the growing importance of the categories of human consciousness and conscience in performing the profession of seafarer's profile.

### KEY WORDS

new technologies  
sailors  
consciousness  
conscience  
maritime accidents  
lifelong learning

### Sažetak

*Ubrzani razvoj novih tehnologija doveo je do značajnih promjena u radnom okruženju općenito, pa tako i u pomorstvu, točnije na brodu. Također je svakodnevni život suvremenog čovjeka neraskidivo isprepleten tehnologijom. Njegov utjecaj na osobni i profesionalni život dovodi do cijelog niza promjena koje se očituju, ne samo u načinu obavljanja posla, nego i kroz utjecaj privatnih događaja za vrijeme trajanja profesionalnog rada. Brzi napredak tehnologije predstavlja izazov za našu svijest i savjest o kojima treba razgovarati uvijek ponovno jer su obje kategorije podložne utjecajima vlastitog iskustva i okoline. Nastajući iz interakcije osobnosti pojedinaca i njihove okoline, svijest i savjest omogućuju djelovanje u skladu s društveno utvrđenim vrijednostima i normama. Osim toga, manjak usavršavanja nakon službenog školovanja, osim po inerciji, s obzirom na zahtjeve radnog mjesta zasigurno povećava postotak greški koje u konačnici dovode do poteškoća u obavljanju radnih zadataka, pa i do katastrofa. Tragedija na brodu Costa Concordia, kao i druge pomorske nesreće putničkih i teretnih plovila sa sve većom štetom po čovjeka i okoliš ukazuju na rastuću važnost ljudskih kategorija svijesti i savjesti u organizaciji i obavljanju dužnosti pomoraca svih profila.*

### KLJUČNE RIJEČI

nove tehnologije  
pomorci  
svijest  
savjest  
pomorske nesreće  
cjeloživotno usavršavanje

### INTRODUCTION / Uvod

Today's ships are technologically advanced, thus determining the importance of the continuous professional development of seafarers, as well as the importance of decision-making at all levels of the crew in high risk situations in which the ship can be found. In spite of the development of

marine technology and comprehensive training for maritime professions, there are frequent boat accidents, mostly as a result of human error. Experts often associate these errors with consciousness and conscience, the psychological factors that affect deliberation and decision making. There is a tendency to

overestimate the effects of technology, which stems from ignorance, fatigue, high spirits, preoccupation with factors that are not associated with work, etc. Therefore, it has become important to study and teach about human behavior on board, especially about the psychological and sociological aspects. In psychology,

research and theorizing focuses on the seafarers internal states as a result of the cause-effect relationship with the environment of individuals. Moreover, sociology studies their work context, such as organizational values and norms, the structure of work positions and their roles, power and leadership relations, etc. Because of the comprehensive approach of the mentioned disciplines, the integration of their research goals is sometimes practiced, especially in psychosociology as an interdisciplinary science.<sup>1</sup> The comprehensive knowledge can contribute to an optimal education and informing of the crew in relation to the marine context, which is marked by constant and rapid technological advances, and increasingly diverse interaction between men and machines during working process.

Unfortunately, despite the development of psychology and sociology over the past century, there is little interest devoted to the study of maritime affairs within these disciplines. This is confirmed by rare and unsystematic literature, the underdevelopment of psychological and sociological subdisciplines dealing with maritime affairs, as well as their non-representation in the education of seafarers. However, it should be noted that the maritime theme is becoming a recognized subject of sociological interest. For example, in 2013, the European Sociological Association (ESA) organized two scientific conferences in Turin and Zadar to encourage its study.<sup>2</sup> Not surprisingly, they were held in traditionally maritime countries, but it is still too little an effort for a systematic approach to maritime affairs within the psychological and sociological sciences, which can contribute to the safety and efficiency of seafarers in a changing work environment.

### THE IMPACT OF TECHNOLOGICAL PROGRESS ON CHANGES IN SEAFARING / *Utjecaj tehnološkog razvoja na promjene u pomorstvu*

Modern technological progress has led to a significant acceleration of lifestyle, as well as to having activities

in several areas simultaneously for most of time. The former meaning of time and space have been significantly changed. "The information technology has enabled people to interact almost simultaneously in their physical and virtual space that can be found in remote areas of the world. Hence the current age is often described as a "real virtuality", "global village" and using other similar concepts."<sup>3</sup> The achievements of modern communication technology allow each seafarer to be informed during the voyage about everything that happens with his family and the other important social groups, while he can perform various actions such as stock tickers considerations, observation of changes in the value of shares, on-line gambling and to have fun in different ways, in short – to do lot of things that were not possible twenty years ago while he was on board. Previously, such activities were considered as plans when docking or upon arrival home. Actually, now sailor can actively participate in all the events which he used to take during his stay on the land, during the voyage.

However, there is one particular aspect that is reflected in the fact that the seaman is isolated from his family and other common environment and can not react the same way as when he is situated in that setting. He is often just an observer of family and other emotionally important events, which he can only participate in from a distance. This dimension was even previously in the mind of sailors, but with the difference that just rare and filtered information were coming to seafarers by letter or telegraph and less frequently by phone, which for the most of them represented an emotional protection not just from others, but from themselves. This is not irrelevant according to the research which show that maritime accidents are still very frequent although shipbuilding industry has made significant efforts to improve the structure and reliability of ships to reduce the number of accidents and the value of the damage, but also to increase the efficiency and productivity of labor compliance. However, while the former maritime accidents were frequent due to unsafe and unequipped ships, it is

clear that modern shipping technology is only one factor in the overall safety of the ship where the man and his use of technology are crucial.<sup>4</sup>

In addition to complexity of maritime occupations, technology often represents a new burden and challenge for sailors which they have to cope with. "It should be noted that technology always carries specific cultural meanings. It is necessary to train for its use that often involves changes in the perception of the environment such as changes in values and normative orientation of individuals."<sup>5</sup> Furthermore, the technology provides lot of benefits. The development of shipping industry has contributed to global connecting, technological progress, expanding markets and increasing prosperity over the last two centuries. "Seafaring contributes to globalization so far since it is the incomparably biggest and most important segment of the transport system by the value and quantity of transported goods."<sup>6</sup> However, the technology carries risks that can endanger people and environment if used incorrectly. In order to be able to cope with these challenges, first we need to recognize them. Technological solutions take lot of actions that previously needed to be performed slowly and with more human involvement. However, it does not relieve employees from liability of programming, monitoring, supervising and coordinating activities with other agencies responsible for boating, boarding, docking, unloading and recently an increasing defense from hijackers.

All the above shows the necessity of monitoring technological developments with the ongoing influence of consciousness and conscience. As one's presence of mind in the act of understanding and trials, one's conscience (Latin *Conscientia*) is a subjective judgment about the morality of the desired act. It is the last standard that should be followed during the operation. This is allowed by morality, a psychological function, which enables one to impose and comply with value norms, but also to insist on self-punishment in the case of non-

<sup>1</sup> M. Biličić: Psihosociologija rada u brodarstvu. Visoka škola za pomorstvo, Odjel za pomorstvo, Rijeka, 2001, str. 4-7.

<sup>2</sup> www.europeansociology.org/

<sup>3</sup> O. Čaldarović, J. Šarinić: Suvremena komunikacijska tehnologija i urbana sredina – prostor, mjesto, vrijeme. Socijalna ekologija: časopis za ekološku misao i sociološka istraživanja okoline, 17, 2008, str. 331-332.

<sup>4</sup> T. Bielić: Pojam „complacency“ kao utjecajni element pri nastanku pomorskih nesreća. Naše more, 51, 2004, str. 89.

<sup>5</sup> V. Davčev, E. Ačkovska-Leškova: Tehnologija kao oblikovateljica ljudske kulture: društvene i psihološke posljedice. Filozofska istraživanja, 28, 2008, str. 75.

<sup>6</sup> I. Domijan-Ameri: Globalizacija i morsko brodarstvo. Naše more, 53, 2006, str. 12.

compliance.<sup>7</sup> His rules of conduct, man learns through his interaction with the outside world (environment), through a life-long process of socialization, in which he learns specifics of the society in which he lives. In time, he develops his identity through the internalization of values and norms, and when he starts to understand them as a part of himself, he holds to them firmly, seldom breaking them. During this process, parallelly, he develops his conscience according to the ethical principles, i.e. that which society comprehends as good and desirable. Nevertheless, there are different reasons behind why people, frequently or not, act in discordance with the established values and rules (hindered accomplishment of goals, quick social changes without the ability to adapt to them instantly, labelling individuals as deviant, which results in their association with other problematic individuals and groups, etc), which "society sanctions informally (rebuke, avoidance, etc) or formally (fines, prison, etc.) if such behaviour is recognized, depending on the severity of the deed".<sup>8</sup>

As a result of some kind of experiential (perceptual) integration and stabilization, consciousness (Latin *Notitia*) is correlated with morality and conscience, as well as the outside world. It shapes our experiences and distinguishes us from other living beings.<sup>9</sup> Obviously, it is not enough to be a good and experienced naval officer (be it captain or sailor) because the professional changes are such that one can always expect to make some significant errors in the evaluation and work during his career. Therefore, we need to constantly contemplate our actions and adapt ourselves to the changing environment.

## THE ROLE OF CONSCIENCE IN MODERN SEAFARING / *Uloga savjesti u suvremenom pomorstvu*

As a conscious being, human being has the ability to self-observation which means the ability to control and express procedures. Its review is often called the "voice of conscience" which Kant referred to as "practical reason", which means that

<sup>7</sup> D. Statt: *The Concise Dictionary of Psychology*. Routledge, New York, 2003, str. 30.

<sup>8</sup> R. Matić: *Društvena promocija bezakonja*. Hrvatska sveučilišna naklada, Zagreb, 2003, str. 78.

<sup>9</sup> D. Statt: *The Concise Dictionary of Psychology*. Routledge, New York, 2003, str. 30.

we explain, justify and analyze our actions. Thus, conscience occurs simultaneously with observation as a functional analysis. Human being should perform tasks according to his conscience, that is unconditionally connected to his duty, as a good and desirable action toward his environment.

Conscience is similar to a legal process and is often referred to as the inner judge. It arbitrates and imposes punishment often requiring a change in behavior. Since conscience is a subjective category, it is frequently repressed when people do not show remorse for their actions. "However, human being is a social being and he is liable to justify his arguments to others with their consciences."<sup>10</sup>

The accident on a cruiser *Costa Concordia* suggests many questions about captain's, officer's and the rest of the crew's conscience who had left the ship without care for the passengers. Stranding on the Italian island Giglio rocks in early 2012, thirty-two passengers lost their lives. The captain did not call for help until the Livorno port authority compelled him to do so and to take command of evacuation. He could be sentenced to years in prison on the judgment of manslaughter and abandonment of ship. Furthermore, several members of the crew have already been convicted to prison.

Many examples show that maritime accidents are often caused by human error and that the malpractice after an accident leads to serious consequences. "More than 6000 people die on the sea everyday. An average of five shipwreck occur and take many human lives, permanently damaging the flora and fauna and causing significant economic losses."<sup>11</sup>

Some of the most distinct maritime accidents caused by careless actions are the sinking of the tanker *Dona Paz* in 1987, which collided with another tanker where the overcrowded boat killed 4341 people; the sinking of the Kursk submarine in 2000 that killed 118 crew members who lived a few days after the accident, but the Russian government has hesitated to seek international help, believing that they would rescue sailors; the sinking of the overcrowded ferry *Jool* in 2002 that killed more than 1000

<sup>10</sup> I. Tomić-Koludrović, A. Leburić: *Sociologija životnog stila*, Naklada Jesenski i Turk, Zagreb, 2002, str. 47.

<sup>11</sup> M. Popović, Ž. Kurtela: *Analiza većih tankerskih nesreća*. *Naše more*, 59, 2012, str. 12.

passengers who rushed to one side in order to shelter from the oncoming storm.<sup>12</sup>

Many other maritime accidents are associated with matters of conscience. Besides all the technical and technological improvements, the security on the modern ship is not satisfactory due to fact that 96% of the accidents are caused by the error of the crew of which 71% goes to management errors and 29% to the operational errors. They usually arise from multiple factors such as the dominant communication of the company in relation to the ship's crew who passively complies with its demands, usually against their better judgement, the negative impact of arbitrary leadership on board with the crew uncritically meeting the requirements of the authority, excessive feeling of ability and the impact of modern technology which is used uncritically with susceptibility to technical and technological solutions.<sup>13</sup> One of the key factors that contributes to the large number of maritime accidents is certainly crew fatigue caused by excessive work, lack of sleep and its poor quality, stress, insufficient leisure time between periods of work and other factors. Moreover, fatigue can be associated with development of technology that intensifies naval activity in terms of frequent short trips when crews work more than 12 hours per day, shorter stops in ports for loading and unloading of goods and people, frequent inspections and long-term reduction of crew.<sup>14</sup> Furthermore, the technology provides numerous opportunities for crew during leisure (playing computer games, surfing the Internet, communication with their families and friends, etc.) and thus contributes to fatigue as it may interfere when working. However, it should be noted that technological advances have contributed to the overall development of our civilization and therefore the maritime industry which is reflected in the quality of today's ships, sailor's equipment, increasingly important and differentiated education for this activity, the quality of life on board, etc.

<sup>12</sup> N. Cawthorne: *100 katastrofa koje su potresle svijet*, Zrinski d.d., Čakovec, 2006

<sup>13</sup> T. Bielić: *Pojam „complacency“ kao utjecajni element pri nastanku pomorskih nesreća*. *Naše more*, 51, 2004, str. 90-91.

<sup>14</sup> A. Komać: *Važnost prepoznavanja umora i njegov utjecaj na članove posade u pomorskoj i riječnoj plovidbi te poboljšanje preventivnih mjera posadi smanjivanja umora*. *Naše more*, 58, 2011, str. 105.

One should not ignore the danger of technology, which is consistent with the fact that it is a cultural product for who's design man has a crucial impact, but on the other hand it changes society and people - their consciousness, values, norms and understanding of conscience. Due to rapid development of technology, we are often in opportunity to let it manage everything for us. But is it always advisable to do this without supervision? Of course it is not due to the fact that technology does not have the intelligence and cannot make the best decisions in unforeseen situations. Therefore, we need to constantly review the adverse effect of routine, monotony and the sense of power that can abate the observation and perception of certain signals. If everything repeatedly passes smoothly without problems, do we feel too relaxed? If so, it is conscience that springs to prevent us from the inappropriate relaxation. Responsibility for human lives, the environment, property and all that we are entrusted with the management and usage should design not only knowledge but also the conscience, experience and skills that a person should have to deal with when seafaring.

### THE EMOTIONAL IMPACTS ON CONSCIOUSNESS AND CONSCIENCE / *Emocionalni utjecaji na svijest i savjest*

The function of one's conscience is essentially active in human conscious and unconscious actions. Conscientious people act automatically according to their ethical standards that lead them in various activities. Occasionally, however, they think about the attitude that needs to be built in relation to a particular person or a given situation, including orders.<sup>15</sup> Then the conscience is part of self-awareness and fully participates in the creation of the attitude that will be taken.

Consciousness is one of the psychological concepts that can not be directly seen or touched, yet it is more difficult to describe, but for most people it implies a reality that can be shared with others. We are not always aware of sensory stimuli. It may also happen that we are not aware of the effects of stimulus if we do not pay attention, but it does not mean that they do not participate in shaping

the perception of reality.<sup>16</sup> In addition, everyone has a sense of self, others, things and events so we need to agree on common positions - especially if it is a duty. Discussion and agreement can not be easily replaced by any technology or virtual world.

On the other hand, even though we are different, which is reflected in a variety of situations and relationships with different people, for most people there is a continuity of experience of their own personality. A large part of that continuity has emotional qualities and includes our relationship with other people, which is reflected in the form of general kindness, melancholy, shy demeanor, aggressive behaviour, etc. It is important to be aware that the emotional states can largely or decisively impact on the human experience, abilities and mindset.<sup>17</sup>

Chaiken, Lieberman and Eagly (1989) describe two types of processing arguments. One is systematic - one carefully examines the validity of the argument. Another includes shortcuts - it is superficial, much less careful and includes responses to a less important aspects of communication such as a personality or reputation of a person that gives an argument, not the validity of the argument. Petty and Cacioppo (1986) consider that people in a good mood follow shortcuts, while neutral or negative mood incline systematic deliberation of arguments.<sup>18</sup> In other words, instead of thinking, we often use the entrenched cliché and find it as an answer to a question or problem. Instead of stimulating our creativity, we hide behind the routine. In situations which require greater commitment, vigilance, attention and control increases the risk of overlooking important new elements that can significantly affect the conscientious performance of duty.

The systematic consideration of arguments and circumstances is particularly important in those areas (organizations) which are exposed to constant change and uncertainty, where the ship is certainly one of them. Although there are cultural differences that affect decision-making, whereby "Westerners are more individualistic unlike Easterners that focus on collective and group evaluation, modern maritime occupations

encourage initiative and the crew is chosen according the criteria of cultural coherence that allows functioning without major difficulties in communication and work".<sup>19</sup> Importance of individuality as well as teamwork, responsibility and unity among the members are emphasized. Their characteristics, knowledge and skills are essential for successful business, based on the continuous improvement of individuals and the collective progress of "learning organization" through its members in order to successfully adapt to the overall changes.<sup>20</sup>

Generally speaking, in all judgments we use incomplete knowledge and in such circumstances the judging process includes other elements. If you feel optimistic, it will affect your judgments. Good qualities and positive concepts are more easily available. Appending the effect by which every episode in memory is marked as one that has made us happy, sad, angry, etc., when we make a judgment our mood can act as a piece of information.<sup>21</sup> It is important not to forget that there is conscience besides consciousness that we have to consciously invite for help when taking the final attitude.

### CONCLUSION / *Zaključak*

The way we access the problem is essential to our efficiency in its resolving. Our conscious action should be conscientious. In other words, it should be morally acceptable for us and others. Certainly, there are other factors that affect the efficiency in resolving problems such as the level of expertise, possibility of insight into the problem, etc. When information is relatively unknown or unclear, emotional states have particular importance in human actions. With the impact of mood, people act systematically (in desolate or neutral mood) or by following shortcuts (in a good mood) that include routinely actions without much thought. Thoughtless action leaves considerable consequences for humans and environment, especially where changes are frequent, such as sailing. Although marine technology is constantly advancing, accidents are still frequent and usually caused by error of the crew.

<sup>15</sup> S. Mann, L. Holdsworth: The Psychological Impact of Teleworking; Stress, Emotions and Health. New Technology, Work and Employment, 19, 2003, str. 197

<sup>16</sup> Spancer A. Rathus: Temelji psihologije, Naklada Slap, Jastrebarsko, 2000, str. 168.

<sup>17</sup> K. Oatley, J. M. Jenkins: Razumijevanje emocija, Naklada Slap, Jastrebarsko, 2003, str. 39.

<sup>18</sup> Ibid., str. 259-261.

<sup>19</sup> T. Bielić: Utjecaj kulturoloških razlika na postupanje u rizičnim situacijama. Naše more, 52, 2005, str. 45-46.

<sup>20</sup> S. Džubur: Uloga ljudskih resursa u suvremenom poslovanju. Naše more, 50, 2003, str. 47.

<sup>21</sup> K. Oatley, J. M. Jenkins: Razumijevanje emocija, Naklada Slap, Jastrebarsko, 2003, str. 289.

Therefore, in the era of new knowledge and new technologies, it is essential to underline the key role of consciousness and conscience in controlling and responsible usage of technological advances in the current and future maritime activity.

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