# Performance of Maritime Students' in International Shipping Federation – Training Record Book (ISF – TRB) – Based Navigation

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***Abstract*** –The study was determined the performance of maritime students in International Shipping Federation – Training Record Book (ISF-TRB)-Based Navigation in the College of Maritime Education, Naval State University, Naval, Biliran, school year 2013 to 2015. Specifically, it sought to answer the students' final grades in the following subjects' terrestrial and electronic navigation 1 & 2 and significant relationship between final grades and level of performance of the respondents based in ISF-TRB. Descriptive research design was used in this study. There were 100 4th year students taking up Bachelor of Science in Marine Transportation (BSMT) enrolled at CME-NSU. The researcher utilized quota sampling method. The study was conducted in College of Maritime Education. Final grades in terrestrial & electronic navigation and level of performance of the students were used as secondary data. Pearson product moment correlation was employed to test the identified variables. The findings revealed out of one hundred (100) respondents, majority of them obtained very good grades in navigations. Ninety-three percent were competent, while only seven percent were evaluated not competent on the level of performance based on ISF-TRB. There was significant relationship between final grades and level of performance ISF-TRB-Based Navigation.

***Index Terms*** – performance, maritime students, international shipping training record book, navigation.

## I. INTRODUCTION

The common causes of ship accidents were due to lack of seafarer's competence. Historically, there have been a lot of examples of accidents occurred worldwide. One of the most known ship accident was the sinking of the Titanic last April 15, 1912 which had taken more than one thousand five hundred lives (Bassett, 1998 as cited by Yu, 2012), while in the Philippines, the sinking of Doña Paz passenger ship in Leyte, Province, Philippines, that have also become a tragedy for families of those who died (Perez, Antonio, &Consunji, 2011). These were just few of many examples of the accidents happened due tolack of competence/human error. However, this can be corrected when the seafarers were competent and motivated to handle the specific task.

The International Shipping Federation Training Record Book for deck cadets is a mandatory requirement upon apprenticeship onboard national and international fleet. The competence in navigation was indicated in Section 6 of the International Shipping Federation – Training Record Book for Deck Cadets (ISF-TRB, 2009). The details of the training tasks that students should follow to make them competent in the field of navigation. The competence was arranged into a framework that brings together a number of job roles and required capabilities that the job holder must met or acquired in order to perform the job effectively. The ISF-TRB also was used by the students in order to provide documentary evidence to government appointed assessors of having completed a properly structured onboard training programmed in accordance with STCW '78 as amended (IMO, 2011).

The goal theory of Pintrich (2000), supports that all human actions and behavior were motivated by a goal. Human being was more motivated to perform the task when there was a reward at the end. However, the reward should be clearly stated and specific. In addition, the empirical results from correlation studies with survey data have found that

mastery and performance goals may be negatively correlated, uncorrelated, or even positively correlated. People need to feel the competency, connection or relatedness and autonomy in order to achieve such psychological growth. Competence means people need to gain mastery of tasks and learn different skills while connections or relatedness means people need to experience a sense of belonging and attachment to other people and autonomous states that people need to feel in control of their own behavior and goals (Gagne & Deci, 2005).

The terrestrial navigation cannot be defined in a rigorous manner. The heterogeneous techniques and methods made it difficult to define a unique classification. It was applied to all techniques that were based on terrestrial sightings and measurements such as dead reckoning that pertains to the relative positioning with respect to previous position (Bowditch, 2002) and visual navigation corresponds to fixing positions with respect to known position using maps (Hofmann-Wellenholf, et. al., 2011).

The technical and social economic developments entail that new equipment and systems will constantly be introduced and implemented in the shipping industry. This development and its consequences must also be reflected in the applicable teaching aids. Hence, Electronic Chart Display and Information System (ECDIS) by integrating additional data streams, like tide information that it is one of IMO requirement for seafarers. The hydrographical community needs to take that in account when preparing for future of electronic navigation to increase safety of navigation in a rapidly changing environment with larger ships and more traffic in areas with specific navigational challenges (Bergmann, 2013).

In order to address the phenomena, competencies were needed and this study was conducted to make possible for the students become globally competitive and efficient seafarers in the future. In addition, it could help eliminate the ship's accidents at sea.

## II. METHODOLOGY

**Objectives of the Study**

- To determine the students' final grades in terrestrial and electronic navigation 1 & 2.
- To find out the level of performance of the respondents based on ISF-TRB.
- To test the relationship between students' final grades and performance based on ISF-TRB.
- To give suggestions to improve the performance of maritime students based on ISF-TRB.

**Research Design.** Theresearcher was used the descriptive research design because it aims to determine the students' final grades in navigation 1 & 2 subjects and performance of maritime students in ISF-TRB based navigation.

**The Study Sample.** The sample of 100 selected respondents were fourth year level currently enrolled in the program, Bachelor of Science in Marine Transportation (BSMT). The students underwent shipboard training from school year 2013-2015.

**The Research Instrument.** The researcher was utilized the following secondary data: the final grades in terrestrial navigation and electronic navigation subjects taken from the registrar's office and students' performance in navigation based on ISF-TRB from the shipboard training office.

**The Validity and Reliability.** The gathered data were valid and reliable because the researcher personally went to the registrar's office in-charge to get the final grades of the respondents in terrestrial and electronic navigation. He also asked the shipboard training officer on how the students' being assessed their competence in navigation upon evaluation of their International Shipping Federation – Training Record Book (ISF-TRB).

**Statistical Analysis.** The researcher was used the exact statistical treatment for data analysis which include the percentage, frequency, and Pearson product moment correlation.

## III. RESULTS AND DISCUSSIONS

**Table 1**
**Students' Final Grades in Terrestrial Navigation 1&2**

| Final Grade | Description | Frequency | Percentage (%) |
|---|---|---|---|
| 1.0 – 1.4 | Excellent | 0 | 0.00 |
| 1.5 – 1.9 | Superior | 15 | 15.00 |
| 2.0 – 2.4 | Very Good | 74 | 74.00 |
| 2.5 – 3.0 | Good | 11 | 11.00 |
| 3.1 – 5.0 | Failed | 0 | 0.00 |
| **Total** | | **100** | **100.00** |

The students' final grades in terrestrial navigation (Table 1), out of one hundred (100) respondents, seventy-four (74%) percent got very good grades (2.4 - 2.0); fifteen (15%) percent of them obtained superior grades; and eleven (11%) percent evaluated good grades in terrestrial navigation. This was indicated that nobody got excellent grades because majority of the respondents' intelligent quotient were in the average level in the subject and no one failed because all of them were completed the 3-year academic requirements and confirmed already by the NSU Board of Regents before underwent their apprenticeship.

**Table 2**
**Students' Final Grades in Electronic Navigation 1&2**

| Final Grade | Description | Frequency | Percentage (%) |
|---|---|---|---|
| 1.0 – 1.4 | Excellent | 0 | 0.00 |
| 1.5 – 1.9 | Superior | 15 | 15.00 |
| 2.0 – 2.4 | Very Good | 58 | 58.00 |
| 2.5 – 3.0 | Good | 27 | 27.00 |
| 3.1 – 5.0 | Failed | 0 | 0.00 |
| **Total** | | **100** | **100.00** |

As shown in table 2, out of one hundred (100) respondents, fifty-eight (58%) percent got very good grades (2.4 - 2.0); fifteen (15%) percent of them were obtained superior grades (1.9 – 1.5); and twenty-seven (27%) percent evaluated good grades (3.0 – 2.5) in electronic navigation. This was indicated that majority of the respondents their intelligent quotient was average in electronic navigation subject, that is the reason why nobody got an excellent grade. In addition, no one failed in the subject because the respondents already graduated and confirmed by the Board of Regents.

**Table 3**
**Students' Performance in Navigation based on ISF-TRB**

| Grade (%) | Description | Frequency | Percentage (%) |
|---|---|---|---|
| 75 - 100 | Competent | 93 | 93.00 |
| Below 75 | Not Competent | 7 | 7.00 |
| **Total** | | **100** | **100.00** |

Table 3 summarized the students' performance in navigation based on ISF-TRB.Table 3 above shown, out of one hundred respondents, ninety-three (93%) percent of the respondents evaluated passed and only seven (7%) percent failed of the competence in navigation based on ISF-TRB.

Therefore, it means that majority of the respondents learned the competence and achieved higher performance in navigation on ISF-TRB; however, respondents with least learned competence should advice to undergo retraining using bridge simulator in maritime institutions or training center.

**Table 4**
**Relationship Between Students' Final Grades and Performance in ISF-TRB-Based Navigation**

| *Variables* | $\rho - Value$ | *Decision Ho* ($\alpha = 0.05$) | *Interpretation* | *r-computed* | *Strength* |
|---|---|---|---|---|---|
| Terrestrial Navigation and performance in navigation based on ISF-TRB | 0.008 | Reject Ho | Significantly Related | 0.264 | Small Positive Relation-ship |
| Electronic Navigation and performance in navigation based on ISF-TRB | 0.032 | Reject Ho | Significantly Related | 0.214 | Small Positive Relation-ship |

Table 4 summarized the results of the test significance between grades and performance in navigation. The p-values were less than to the 0.05 level of significance. This would lead to the rejection of the null hypothesis that there was no significant relationship between the paired variables. Hence, it means that there was significant relationship between the paired variables looking at the computed values of r; it means that there was a small positive relationship between the paired values. Therefore, it implied that there was a small positive relationship between the final grades in terrestrial navigation and performance based on ISF-TRB, likewise, there was a small positive relationship between final grades in electronic navigation and performance based on ISF-TRB.

## IV. FINDINGS

- Majority of the respondents obtained very good grades in terrestrial and electronic navigation subjects.
- Most of the respondents passed the performance evaluation in navigation based on ISF-TRB.
- The students' final grades and performance in navigation based on ISF-TRB were significantly related.

## V. SUGGESTIONS

- The incompetent students should focus on the least learned competence and undergo enrichment exercises using simulator to improve their performance in navigation.
- Massive monitoring of the students' ISF-TRB is important basis for an assessment evaluation whether the students obtained the competencies indicated in the ISF-TRB.
- The administrators and faculty in Maritime Higher Education Institution's in the region (MHEIs) should formulate programs, activities, and trainings that may help the students to become competent seafarers.

## VI. CONCLUSION

Navigation courses should be aligned with the students of competencies based on the ISF-TRB standards so that students will become more globally competitive and efficient seafarers in the future.

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