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## ASSESSMENT IN MARITIME EDUCATION BY STUDENTS' MUTUAL COLLABORATION

### ABSTRACT

Student's self-assessment must be taken into account as well as teacher's assessment to evaluate educational process and the level gained. Students in Latvian Maritime Academy get a unique sea going experience that can be shared. Students in self-assessment charts marked course mate made assessment about their competencies. They assess each other rather seldom. As self-assessment in educational psychology is explained as parameter that arises also in relationship with others, it is important to organize involvement of fellow students in assessing process. Results of questionnaire about mutual assessment made by students about other students showed that such assessing method can be reliable if such opportunity is offered and criteria are known. Important abilities to assess in other students' activities include choosing an objective, ability to enrich self-experience. In this process collaboration is improved and mutual trust can be raised.

**Keywords:** *awareness, collaboration, evaluation, self-assessment.*

### Introduction

Insufficient student's self-assessment leads to increasing pedagogue evaluation into educational process by using assessment done by pedagogue. Such criteria as the only one does not fully describe the quality of educational process and the level of qualification gained. There is a specification of minimum standard of competences for officers in charge of navigational watch, chief mates and masters on ships to prove ability of safe operation and management of vessels. Such standards are stipulated in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers and included in professional maritime education subjects (International Maritime Organization, 2011).

Self-assessment derives from valuation made by student own and valuation made by others around. L.S.Vygotsky's sociocultural theory of human learning describes learning as a social process, in which author believes that before learning individually, everything is learned through interaction with others (Vygotsky, 1978). This theory is further investigated by several researchers. That is essential to organize such interaction to make self-assessment as a component of study process (Maslo, 2006, Meikšāne, Plostnieks, 1998).

Studies in Latvian Maritime Academy (LMA) are alternated with sea going practice at least twice to get a ship officer's qualification. A board of the ship is made as study environment as well as academy. In this way students get unique self-experience that can be shared among fellow students. After completing Watchkeeping studies every half year in LMA students filled self-assessment charts to determine their level of understanding ship collision avoidance rules and watchkeeping principles. Beside students marked source from which such understanding is determined. Whether it is self-assessment, teacher's evaluation or assessment is made by course mate. Unfortunately, students assess each other rather seldom and reasons for that must be found. In the second step a questionnaire about mutual collaboration between students in assessing each other were given to make conclusions about study process and possibility to improve that.

### **Self-assessment in studies**

Five questions of quest do exist. Three of them about facts – what, where, when? Two of those questions are about cause and motivation of activity – why and wherefore? That makes students think about personal and social objectives in activity. An interaction in society leads to sense of study and answers what to do, if question about causes had been highlighted. None of the cause exists without consequences, so cause and consequences are sides of causation. Defining the cause means to explain, but not contrariwise (Vedins, 2008). A switch from changing person to offering a relationship which this person may use for his own personal growth makes that the change and personal development will occur (Rogers, 1993).

The teacher can offer system how to develop needed competencies by organizing work in groups, discussions, different tasks. Competence can be explained as proved ability to use knowledge and skills for personal and social growth in methodical and educational situations, also professional cases. Competence in relevance with personal responsibility and autonomy create dynamic combination of cognitive and metacognitive skills, ability to use and understand gained knowledge as well as interpersonal, intellectual, practical and ethical skills (Taurina, 2013). Competence is described as

quality level of human activity that divulges in exact situation. It is found in observing and self-evaluating (Tilla, 2005).

Collaboration between students and teacher as well as among students themselves creates transfer of competence by self-experience. That is useful in professional subjects in LMA. A perfection of self-experience is professional growth. Skills that are gained in one particular subject can be used in other subjects and for solving problematic cases. So the transfer of theoretical competence from learning to practice happens. Ability to use conclusions is being developed. Evaluating of self-experience is complex and difficult to realize because it evolves personal for each student individually.

Self-assessment in educational psychology is explained as a cognitive parameter that grows out of self and other valuation. It starts to develop in childhood and firstly comes from comparison of surrounding people. Self-assessment arises and discloses not only in activity, but in relationship with others as well (Šteinberga, 2013). Furthermore McKay and Fanning (2000) point out that ability to define identity and give a value to that, so as awareness about himself, are critical factors for human being. They express that self-awareness comes together with self-esteem. It is crucial to open up for others, to hear critics, ask for help or additional explanation or problem solving. Authors link that with being afraid among course mates. Significance of freedom expands as perception and sense of judgments changes.

## Methodology

In LMA self-assessment charts were given for the third and fourth year students of Navigation Department to mark the level of knowledge after completing studies in Watchkeeping. The fourth year students filled self-assessment charts in year 2016 and 2017 (respectively 49 and 36 students), but the third year students in year 2017 only (36 students) to show whether they mastered totally, partly or did not learn or gained abilities at all.

Parameters they marked were defined as competencies concerning the International Rules for Avoiding Collisions at Sea and watchkeeping principles stipulated in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers. That includes competence as skills proving knowledge and ability to provide safe navigation watch on the ship's bridge to avoid collisions and steer the ship safely.

Assistance for maritime education and training institutions and their teaching staff can be found in International Maritime Organization model courses. Precisely for officers in charge of navigational watch, chief mates and masters on ships model courses 7.03 *Officer in Charge of a Navigational Watch* and 7.01 *Master and Chief Mates* are made to introduce and organize

new training courses and enhance existing training material. In such manner the quality and effectiveness of education process may be improved. The model course material identifies the basic entry requirements and specifies the technical content and levels of knowledge and skills necessary to fulfill related recommendations and conventions (International Maritime Organization, 2014).

Additional students marked the source from which they know their level of particular knowledge and ability. Whether they think of knowing parameters as teacher said that they know, or course mates said that, or students is aware of knowing parameters by their self-assessment.

Low percentage of course mate evaluation being used in studies led to the next step of research. Causes and solutions are searched for such unpopular method for assessing knowledge and abilities that makes up competence as using course mate's account of level being reached. Creating a questionnaire about using assessment made by the course mates was on purpose to find why students do not use such method so often. Additionally students answered questions under what conditions the assessment made by course mate can be used as a reliable method and if there are professional study subjects where students had been given an opportunity to evaluate each other. Importance factors what abilities must be considered during assessing others among course mates were asked.

The questionnaire covered 11 students of the fourth year and 30 students of the third year. Little number of the fourth year students is due to being at sea going practice on ships during the time when the survey was carried out. Methodology of that questionnaire can be further provided for all students just to obtain data in several subjects and program of studies overall.

## Results

In year 2016 the fourth year students marked self-assessment as the source of their awareness in about 50.63% of all skills required (average 26.33 out of 52), but in 36.19% of all skills students marked that teacher made evaluation (average 18.82 out of 52). Among the fourth year students in year 2017 these variables had been changed to 39.69% (20.64 out of 52 skills) of self-assessment and 32.85% (17.08 out of 52 skills) of teachers made. In year 2017 the third year students marked 40.60% (19.08 out of 47) as self-assessment and 44.62% (20.97 out of 47) as teacher evaluation of the level they reached in Watchkeeping skills (there are less skills being evaluated in the third grade). Surprisingly that course mate evaluation is not considered, showing only 0.89% (0.42 out of 47 skills in the third grade) to 3.10% (1.61 out of 52 skills in the fourth grade), in determining students' level of competence (see Tables 1 & 2).

Table 1. Source of the knowledge level (4<sup>th</sup> grade)

Assessment comes from	skills marked by 4 <sup>th</sup> grade students			
	2016		2017	
	count	percentage %	count	percentage %
teacher	18.82	36.19%	17.08	32.85%
course mate	<b>0.78</b>	<b>1.49%</b>	<b>1.61</b>	<b>3.10%</b>
self-assessment	26.33	50.63%	20.64	39.69%
teacher & self-assessment	2.55	4.91%	4.75	9.13%
teacher & course mate	<b>0.00</b>	<b>0.00%</b>	<b>0.03</b>	<b>0.05%</b>
course mate & self-assessment	<b>0.04</b>	<b>0.08%</b>	<b>0.00</b>	<b>0.00%</b>
without answer	3.43	6.59%	7.81	15.01%
teacher & course mate & self-assessment	<b>0.06</b>	<b>0.12%</b>	<b>0.08</b>	<b>0.16%</b>
Total	52.00	100.00%	52.00	100.00%

Results of questionnaire showed that opportunity to evaluate course mates they had in such subjects as Environment Protection, Ship Handling and Maneuvering, Navigation, Meteorology for Navigation and others. On question “Do you think that assessment made by course mate can be considered as reliable?” most of students answered affirmative (see Table 3).

Table 2. Source of the knowledge level (3<sup>rd</sup> grade and summing)

Assessment comes from	skills marked by 3 <sup>rd</sup> grade students		Average	Difference of	
	2017			4 <sup>th</sup> grade	years
	count	percentage %	2017 (3 <sup>rd</sup> & 4 <sup>th</sup> grade)		
teacher	20.97	44.62%	38.74%	-3.33%	2.55%
course mate	<b>0.42</b>	<b>0.89%</b>	<b>1.99%</b>	<b>1.61%</b>	<b>0.50%</b>
self-assessment	19.08	40.60%	40.15%	-10.94%	-10.48%
teacher & self-assessment	2.39	5.08%	7.11%	4.23%	2.20%
teacher & course mate	<b>0.00</b>	<b>0.00%</b>	<b>0.03%</b>	<b>0.05%</b>	<b>0.03%</b>
course mate & self-assessment	<b>0.11</b>	<b>0.24%</b>	<b>0.12%</b>	<b>-0.08%</b>	<b>0.04%</b>
without answer	4.03	8.57%	11.79%	8.42%	5.20%
teacher & course mate & self-assessment	<b>0.00</b>	<b>0.00%</b>	<b>0.08%</b>	<b>0.04%</b>	<b>-0.04%</b>
Total	47.00	100.00%	100.00%		

**Table 3. Reliability of assessment made by course mate**

Do You think that assessment made by course mate can be considered as reliable?	3 <sup>rd</sup> year students		4 <sup>th</sup> year students	
	count	percentage %	count	percentage %
Yes	17	56.7	7	63.6
No	13	43.3	4	36.4
Total	30	100.0	11	100.0

Results showed that ability to choose an objective (a goal), ability to enrich self-experience with new knowledge, skills and attitudes were first two abilities for the fourth year students as well as for the third year students. Ability to take responsibility for learning outcomes was ranked as the third. Position in the rank is made by summing every answer's points (1 – the most important, 5 – the least important) (see Table 4).

**Table 4. Important abilities to consider during assessing course mates**

What is the most and the least important abilities to assess course mates? (1 – the most important, 5 – the least important)	3 <sup>rd</sup> year students	4 <sup>th</sup> year students
	Points	Points
Ability to choose an objective (a goal)	69	23
Ability to enrich self-experience with new knowledge, skills and attitudes	74	23
Ability to take responsibility for learning outcomes	82	24
Ability to choose means for reaching an objective	84	34
Ability to assess collaboration “student-student-teacher”	126	31

Answers on question “For what reasons in Your opinion it is so low proportion of and insignificant changes in course mate made assessment (see Table 1)?” showed that mainly such situation is due to little emphasis of such option, fears that it will make negative impact on self-esteem and there are not known criteria for assessing (see Table 5). Other answers that were given in open form included several opinions. For example, course mate can give positive assessment that does not show his knowledge; attitude about evaluating is differing from ones resentment to not worrying about that; unwillingness to assess course mates low; self-assessment is the most precise because student better know his benefits from process of study.

**Table 5. Reasons for low proportion and insignificant changes in course mate made assessment**

For what reasons in Your opinion it is so low proportion of and insignificant changes in course mate made assessment (see Table 1)? (more than one answer possible)	3 <sup>rd</sup> year students		4 <sup>th</sup> year students	
	count	percentage %	count	percentage %
Such option is not emphasized	17	30.9	5	35.7
Criteria for assessing is not known	10	18.2	5	35.7
Impact on overall result of studies is not known	8	14.5	1	7.1
Fears that it will make negative impact on self-esteem	14	25.5	3	21.4
Other	6	10.9	0	0
Total	55	100.0	14	100.0

Self-awareness can be raised if course mate made assessment and self-assessment is coming closes each to other. That would lead for social unity in vocational studies. Answers of students showed that they can think about others as well as about themselves if such opportunity is created and exact parameters are known for evaluation.

## Conclusions

Theoretical analysis and questionnaire that had been done gives reasonable chance to improve the quality of studies in Watchkeeping. By organizing collaboration among students mutual trust can be raised under known conditions. International Maritime Organization gives solutions for technical skills and abilities that must be accomplished to prove the level of competence. By including such parameters in self-assessment charts pedagogical objectives are reached. Self-awareness and self-esteem are raised as students become more responsible, more involved in the process of studies. Low percentage of course mate made assessment in the educational process can be improved by giving opportunity to evaluate each other. It is showed that assessment from course mates is recognized as reliable if criteria for assessing are known.

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