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EVALUATION OF STUDENT'S PROFESSIONAL PERFORMANCE BASED ON THEIR SPECIALIZATION SKILLS – A CASE STUDY

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Abstract:*The present study aims to analyze the significant differences in the level of professional and transversal competences based on students ' self- perception, on peer-reviewing and on the evaluation made by an expert teacher specialized in Navigation, Maritime and River Transport. A number of questionnaires on professional and transversal competences specific to the specialization Navigation, Maritime and River Transport, was administered to a number of 119 students (N=119 students).This provided us with a database for our case study, which is part of a larger project, called "Facilitating the insertion into the labor market of the future navy graduates. "*

As a result of processing, analysis and interpretation of data and statistical inference, by analysis of variance, we have found the existence of an effect on the analyzed competence, dependent on the type of evaluation. Measuring the effect caused by the variable "type of assessment" (self-evaluation, peer evaluation, expert teacher evaluation) on the „investigated dimension" (professional and transversal competency), expresses significant variations only in the expert assessments, while between self-assessment and peer review assessment there are no significant differences, statistically speaking.

Within this context, we intend to psychologically explore the dynamics of this type of perception ofcompetences in the specialization field. This will lead to forming and strengthening of students' professional identity and vocational route.

Key words: *perception of competences, vocational route, significant variations.*

1. ARGUMENT

Within the project *"Facilitating the insertion of the future navy graduates into the labor market",*under development in the "Mircea cel Batran" Naval Academy, *a* group of teachers -researchers have introduced, in theirresearch experimental design,a methodological strategy for quantifying the level of professional and specific competences, so as to increase the success rate of young graduates into the labor market of naval industry.In order to make the concept of competence more operational, we started from a definition that has received greater consensus among specialists inthe field, i.e: "one's ability to solve a problem, appropriately, to makesuitable decisions to carry out a mission or to practice a profession in good conditions and with good results or at least admitted to bethe best "(I. Jinga, 2006, p.77)

Therefore, professional competence provides relations about the psycho –aptitude potential, as a dynamic set of latent predispositions which, under the influence of external factors i.e. sustained practice and training, qualitative characteristics of socio-cultural environment, enables the conversion of certain characteristics or abilities into skills, then into automatisms and, finally, into professional skills..

In another train of thoughts, the level of professional competences expresses the extent to which the latentpsycho-aptitude potential can adjust tothe optimal requirements of a particular profession, in our case, that of a Navy officer. The same assumption is supported by A. Tabachiu who slightly discriminates the notions of competence and performance: "competence is a person's intrinsic potentiality while performance isone'sachieved potentiality." (A. Tabachiu, 2003, p. 127) So,in work psychology, the term performance is associated with effective conduct which refers to the concept of professional skill, i.e. executionof tasks in the workplace, in work behavior, with increased efficiency.

The instructive - educational process in the higher education navy institution aims both at formation of professional skills emerging from a certain specialization and at training of transversal competences, of psychological origin, as basic pillars around which professional performance is built.

Critical thinking and feed-back received from employers in the maritime field lead us to believe that this is an extremely efficient wayto facilitate the insertion into the labor market of the future navy graduates, in today's exigencies of the naval industry.

Transversal competences are intrinsically linked to vocational personality traits, especially those expressed by aptitudes (intelligence and creativity), but especially by the attitudes of character expressed in behaviors traits, adapted to work in a certain field, such as: perseverance, teamworkskills,increased socio-relational potential, initiative, cognitive and emotional empathy, tolerance to stress and frustration…

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2. EXPERIMENTAL DESIGN

For the purpose of this study we "cut" a piece of work from our aforementioned project, i.e. a case study representing the statistical results obtained from the observation carried out on a total number of 119 students(N=119 students)from our institution, enrolled in the undergraduate program Navigation and Maritime and River Transport. Mention should be made on the fact that the results obtained whileinvestigating all theother students, of other study programs, i.e. Bachelor and Master, are similar in statistical significance and interpretation.

In developing the methodological strategyformeasuring thelevelofprofessionalandtransversal competences formed at the beginning of academic education and training within programs of study, wetook into consideration the competence gridsspecific to each specialization. As a method of research, we opted for the 360 □ assessment strategy, with multiple sources, on the basis of which we built self-assessment questionnaires, peer review questionnaires and questionnaires by a teacher to assess the levelof skills acquired by students, on a Lickert evaluation scale, from 1 to 5 where 1 represents the lowest score and 5 the highest score. Within the program of undergraduate studies Navigation and Maritime and River Transport the following professional competences were evaluated:

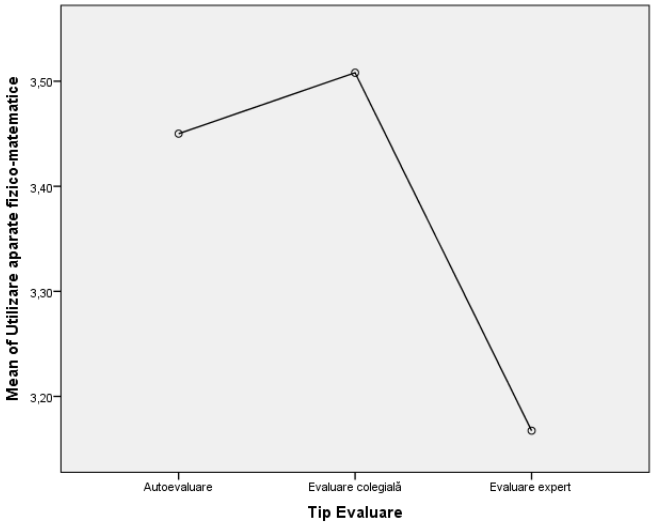
- use of physics, mathematical, informational devices, specific to the field and ethnic communication language;
- application of basic technical concepts concerningissuesand projects relatedto the field of study;
-execution ofnavigationdutiesat the operational level;
- execution of cargo handling and stowageduties at the operational level;
- operational control and protection of shipboard peopleat the operational level;

Thequantified transversal skills for this program of study were as follows:

- demonstration and implementation of rigorous, effective and responsible attitude towards the work performed, showing ethical behavior in problem solving and decision making;
- effective use of techniques concerning interpersonal relationships in a multicultural team, on various hierarchical levels of oral and written communication, efficient collaboration with experts from multiple fields;
-objective self-evaluation of the need for continuous training and effective use of language skills, of knowledge on information technology and communication for personal and professional development,all for easier insertion into the labor market and adjustment to the dynamic requirements thereof.

Analysis of the research data, through the analysis of variance, facilitated theprocessing and interpretation of data, thus generatingstatistical-type inferencesfor each competence analyzed,with the followingresults:

Assessment of the "Utilization of physics and mathematical devices"Dimension



In this respect, we notice the existence of an effect determined by the type of evaluation on this variable ($F_{(2, 354)}$=8,51; p< 0,01) with an extent of η^2 = 0.046.

The evaluations of experts ($m_{(experts)}$=3,167) are statistically significantly lower both in comparison with peer evaluations ($m_{(peer\text{-}evaluation)}$=3,50; Bonferroni=0,340; p<0,01)and with self-assessments ($m_{(self\text{-}evaluation)}$=3,45; Bonferroni=0,282; p<0,01) and statistically there are no significant differences between self-assessments and peer reviews.

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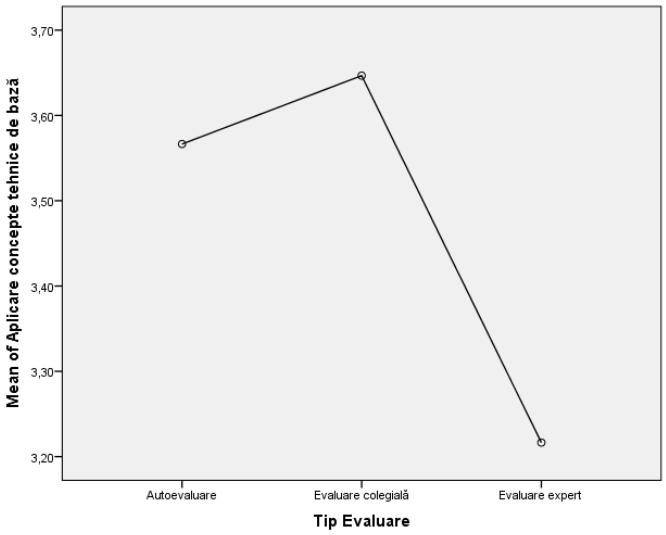
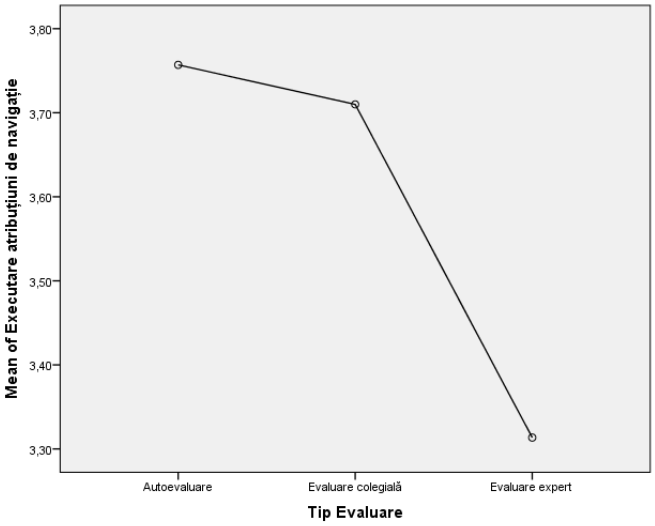
Assessment of "Application of technical concepts" Dimension



The dimension **"Application of technical concepts"** has also a statistical significance expressed bythe value ($F_{(2,\ 354)}$=11, 632; p< 0,01) with an extend of η^2= 0,061. There are no significant statistical differencesbetween self-evaluations and peer evaluations, the latter ($m_{(peer\text{-}evaluation)}$=3,646; Bonferroni=0,430; p<0,01) have the highest statistical significance compared to self-evaluations($m_{(self\text{-}evaluation)}$=3,566; Bonferroni=0,350; p<0,01) while the evaluations of experts ($m_{(experți)}$=3,216 are statistically significantly lower.

Assessment of "Navigation duties" Dimension



We observe thestatistical effect resulted from the type of assessment on the dimension**"Navigation duties"** ($F_{(2,354)}$=11,964; p< 0,01)withan amplitude ofη^2=0,063.

Self-assessments($m_{(self\text{-}evaluation)}$=3,757; Bonferroni=0,443; p<0,01) contains the highest statistical significance, followed by peer evaluations ($m_{(peer\ evaluationl)}$=3,709; Bonferroni=0,396; p<0,01) between which there are no statistically significant differences. Evaluations of experts ($m_{(experți)}$=3,313) are statistically significantly lower compared to the other two types of evaluation.

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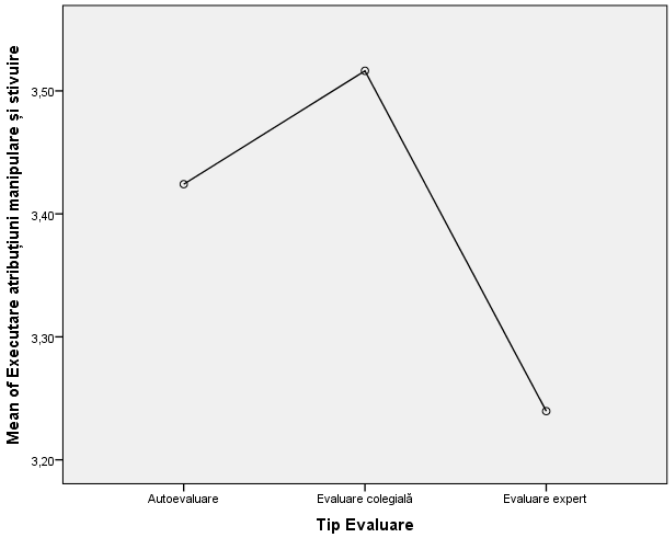
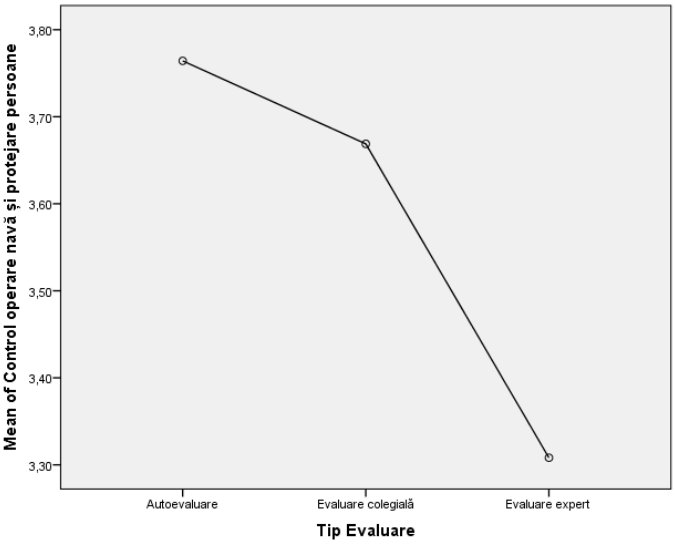
Assessment of "Handling and stowing responsibilities" Dimension



The variable **"Handling and stowing responsibilities"** records the lowest level of the statistical significance among all of the 8 situations under variance analysis, i.e. ($F_{(2,\ 354)}$=3,316; p< 0,01) with an extend of η^2=0,018.
The peer evaluations ($m_{(peer\ evaluation)}$=3,516; Bonferroni=0,276; p<0,01) do not show significant differences as compared to self-evaluations ($m_{self\text{-}evaluation)}$=3,424; Bonferroni=0,276; p<0,01),the average values not showing significant differences.The lowest statistical significance is shown, in this case, by the evaluations of experts ($m_{(experts)}$=3,24).

Assessment of "Ship operation and safety of crew and people on board" Dimension



In this situation of **"Ship operation and safety of crew and people on board" dimension,** we notice the presence of an effect similar in value with all the other variables of the variance analysis ($F_{(2,\ 354)}$=11,187; p< 0,01) with an amplitude of η^2=0,059.
Evaluations of experts ($m_{(experts)}$=3,308) are statistically significantly lower both in comparison with peer reviews ($m_{(peer\text{-}evaluation)}$=3,668; Bonferroni=0,456; p<0,01) and with self-assessments ($m_{(self\text{-}assessment)}$=3,764; Bonferroni=0,360; p<0,01) and there are no statistically significant differences between self-assessments and peer reviews.

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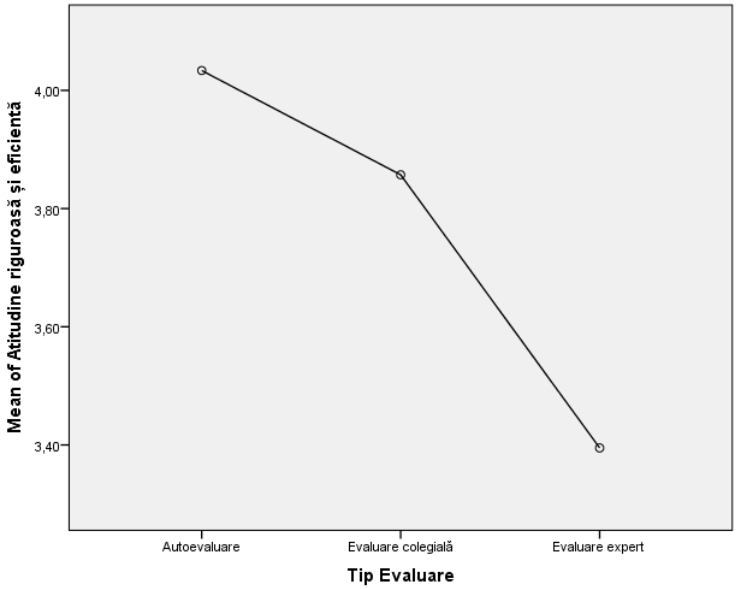
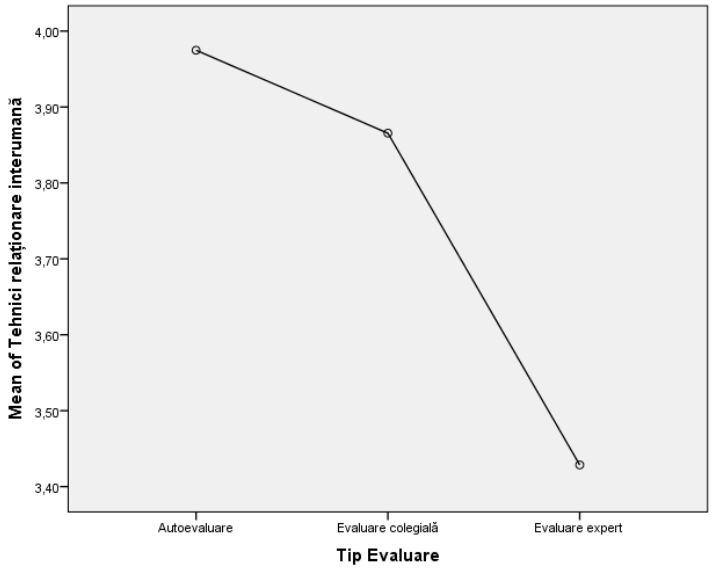
Evaluation of "Rigorous and efficient attitude" Dimension



The dimension **"Rigorous and efficient attitude"** describes the highest result obtained byanalysis of variance of all 8 cases analyzed, namely (($F_{(2, 354)}$=15,435; p< 0,01) with an extend of η^2= 0,0802.
Thereare no statistically significant differences in this situation either between self-assessments ($m_{(self-assessment)}$=4,033; Bonferroni=0,638; p<0,01) and peerevaluations($m_{(peer-evaluation)}$=3,857; Bonferroni=0,462; p<0,01); evaluations of experts ($m_{(experts)}$=3,395) maintain the lowest level of statistical significance.

Assessment of "Techniques of inter-human relations" Dimension



The dimension **"Techniques of inter-human relations"** falls within previous descriptions frameand in this case there is an effect determined by value $F_{(2, 354)}$= 12,055; p< 0,01) with an amplitude ofη^2=0,064.
Self-assessments ($m_{(self-assessment)}$=3,975; Bonferroni=0,546; p<0,01) has the highest statistical value with no significant differences compared to peer assessments($m_{(peer)}$=3,865; Bonferroni=0,437) p<0,01, while the evaluations of experts record the lowest level of significance.

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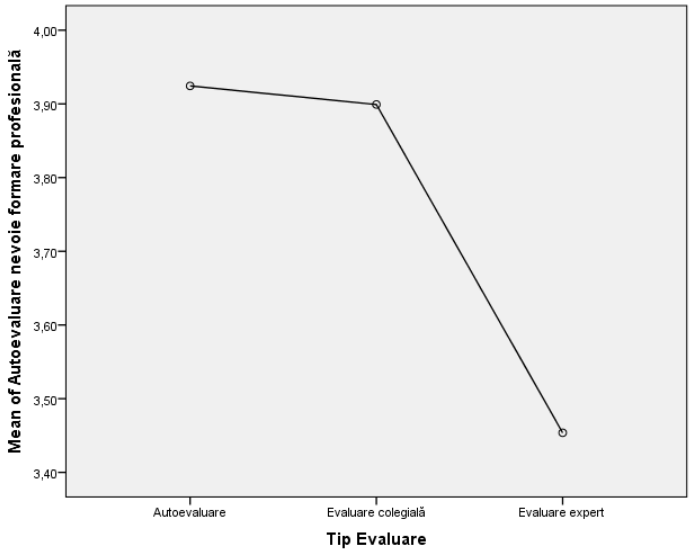
Assessment of "Self-evaluation of professional training need" Dimension



Explaining the dimension **"Self-evaluation of professional training need",** we find that **t**he value of the effect determined by the evaluation type on this variable is ($F_{(2,\ 354)}$=9,443; p< 0,01)with an extend of η^2=0,050.

Also in this situation, there are no significant differences between self-evaluations ($m_{(self\text{-}evaluation)}$=3,924; Bonferroni=0,470; p<0,01) and peer evaluations ($m_{(peer\text{-}evaluation)}$=3,899; Bonferroni=0,445; p<0,01), although the average level of self-assessments has the highest value, while the evaluations of experts ($m_{(experts)}$=3,454) are statistically lower significance.

If we interpret the statistical results obtained by analysis of variance, we draw some important conclusions:

- without exception, in all cases analyzed, there are effects determined by the type of evaluation (self-evaluation, peer review, evaluation of experts) on professional or transversal competences, different amplitudes of the effects; the highest score recorded belongs to the "Rigorous and effective attitude" dimension, the lowest score being recorded inanalyzing the"Handling and stowing responsibilities" dimension.

-with no exception, in all cases analyzed, there are no statistically significant differences between self-assessment and peer reviews.

- with no exception, in all cases analyzed, expert assessments are statistically significantly lower as compared both with self-assessments and peer assessments.

- self-assessmentsaverage scores have higher absolute statistical frequency (f = 5) compared to absolute statistical averages scores of peer reviews (f = 3).

Based on these results, we can psychologically interpret the dynamic of the perceptive processes of students and peer evaluators, raising awareness on the correctness of the perceptive product, and thus, on the types of perception errors due to the psychological "software", on one hand, and to the external factors, on the other hand. Among the external factors we can first consider the characteristics of the instruments used in research, i.e. the evaluation questionnaires (clarity, brevity, familiarity, novelty, number of items) and particularities of the context: the technical-material conditions, organizational factors…..

Getting back to the internal factors that govern perception, a first factor taken into consideration in ouranalyzeis the biological age and thus the psychological age of the students, i.e the degree of achievement and consolidation in the development of young students personality.

The intellectual mechanisms for perceptive processing of information have as a benchmarks the permanent adjustments, readjustments of the transactional significances relationship between internal perceptive schemes and external stimuli, knowing that the perceptive schemes comprise the subject's life experience and knowledge, which are emotionally integrated and influenced by psychological age and psychological maturity of the subject. Correctness of the perceptive product is governed by thinking which "decides" eitherto change the existing schemes and patterns, when they are not adequate to reality, or to change the objective reality by forcing it into scenarios, prototypes or own models belonging to the subject's mental representations. In this case, the chances of errors of perception rise, and due to psychological immaturity, the self-perceived

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becomes unrealistic, overestimated, in our case study. The overestimatedself-evaluations described in this study show that students tend to overestimate their own performances, which they consider superior to those of other peers. "In these cases, the tendency of being highly subjective and appreciative increases. Here we deal with the error of indulgence (also called positive indulgence)". (Gh.Iosif, 2001, p. 214)

Also, the results obtained by analysis of variance show that there areno statistically significant differences between self-assessment and peer evaluations. A first explanation could be that the groups of students, in this case study are relatively homogenous and congruent psychologically, and being colleagues or friends who have shared pleasant life experience they tend to unreasonably be subjective and give favorable assessments. Then we can invoke errors in estimating the inferred unconsciously by evaluators when evaluating the professional and transversal competences based on questionnaires with rating scales. One of the most common errors is the effect of "hallo" where "the correctness of evaluators is often affected by their inability to make objective, differentiated appreciations, independent of any personal influence (dimension of professional performance)." (Gh. Iosif, 2001, p. 212)

This implies that in peer evaluations, evaluators may make unrealistic over generalized conclusions, overestimated appreciations on all the investigated aspects by taking into account only one dimension,having a single variable which they consider positive. The fact that the experts' evaluations record a significance statistically lower score as compared with self-assessments and peer assessments may be explained by the effect of "hallo", but in the critical sense, i.e. unfavorable. A. Tabachiu believes that "this effect can be minimized by requiring the evaluator to appreciate separately, i.e each component, one by one during the activity." (A. Tabachiu, 2003, p. 131) In the case of low-scored evaluations of teacher experts, a possible explanation for evaluation exigency could refer to what the literature calls negative indulgence error, expressed in this situation through an essential characteristic of mature personality, which is the tendency to judge the others by the same criteria and requirements used in estimating their own personality traits and depending on the personal equation.

One last aspect we bring into question explains, to a great extent, the absence of statistically significant differences between students' self-assessmentsand peer evaluations, i.e. central tendency error, "the tendency of evaluators to avoid using the extreme values of the scale" (Gh. Iosif, 2001 p. 214), estimating with average values. This may be due to a misunderstanding of the contents of the questionnaire items, or due to the explicit intention not to disturb, vex or put peers into embarrassing situations while they are evaluated.

Conclusions

We believe that a first advantage of this methodological approach is raising students' awareness on the importance of training, development, and taking into account the importance of professional and transversal competences required by their specialization, considered to be important criteria of selection used by crewing agencies in interviews for job applications in naval industry. Also, students have realized that professional performances are not static constructs, but they represent a dynamic, adaptive process,due to the immense plasticity and malleability of the psycho adaptive, latent aptitude potential which, if properly modeled and sustained by continuous, perseveringly work, can result intoeffective professional and human behaviors, thus promoting professional success in the occupational field.

Another conclusive aspect can be directed to transferable competences of vocational personality withessential role in adaptation to the diversity of labor market, increasing employment opportunities andachieving efficiency in activities specific to the Navy.

Student- centered education along withpsycho-pedagogic methods consistent with the individual differences of students along the instructive and educational process in our organization, comply withactivities of vocational counseling, information and career guidance - as further opportunities in education - with the explicit aim to crystallize students' professional identity, strengthen education and training in navy field, facilitating their integration into the labor market.

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