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Original article

IDENTIFICATION OF DIMENSIONS OF THE PROFESSIONAL PROFILES OF THE ABSOLVENTS OF THE MECHANICAL AND MARITIME FACULTY OF THE OVIDIUS UNIVERSITY OF CONSTANŢA

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ABSTRACT

Objectives. Forming future specialists is a process that nowadays no longer happens at will. This process is largely governed by the phenomena of the contemporary world (globalization, the common market, market liberalization, widespread labor mobility, the emergence of new specialties or new areas of knowledge, etc.), which led to a series of changes and reorganization all areas of activity.

Methods of research. Both preliminary and experimental studies were carried out at the Faculty of Mechanical, Industrial and Marine Engineering at Ovidius University in Constanta. The Sports Base of the University operates in an exceptional natural setting that provides an environmentally friendly framework for practicing exercise or practicing sports. This is very important because it acts as an element of great attractiveness for which most students love it.

Our material base ensures the continuity of the sports activity carried out during the year. Thus, we have the following edifices dedicated to the teaching of physical education and sports: basketball courts, minifootball, canoeing and other water sports, fitness halls, balloons with different facilities where different sports can be practiced.

Results. Comparative analysis of the data obtained by the two groups (control-experiment) Height - the results obtained by the two groups after the final analysis regarding the anthropometric-functional somatic parameters (height), we will notice that $P \geq 0.05$. Statistically, the results do not differ significantly. Following the verification of the statistical hypotheses using the Anova Test, the null hypothesis was accepted for all parameters, the significance threshold (p) being calculated being higher than the fixed confidence threshold, $\alpha = 0{,}05$. Body weight - the results obtained by the two groups from the final analysis regarding the anthropometric-functional somatic parameters (body weight), we will notice that $P \geq 0.05$. Statistically, the results do not differ significantly. Following the verification of the statistical hypotheses using the Anova Test, the null hypothesis was accepted for all parameters, the significance threshold (p) being calculated being higher than the fixed confidence threshold, $\alpha = 0{,}05$. However, we noticed that in the experimental group we found that body weight decreased (from x = 71.5 to x = 70.7 with about 800 grams).

Conclusions. The study of the situational framework of teaching physical education in the engineering faculties of Ovidius University in Constanta, with the help of: the protocols and documents presented in annexes A1, A2, A3, through the opinion poll for the students and graduates of the Faculty of Physical Education and Sport. (B1, B2) have allowed us to find that the process of teaching physical education in Engineering faculties is oriented towards the following directions:

a. practicing sporting means and branches that subsidize from the biological and psycho-social point of view the exercise of the profession.

b. the choice of means (sporting branches) that ensure the compensatory nature of professional demands and / or their free practice in their spare time.

*Key words***:** exerciții, facultate, teste, studenți, exercises, faculty, tests, students.

Introduction In the process of shaping the personality of the

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future specialist, the part of physical and sport education is more and more a social necessity, demanded, on the one hand, by the professional profile for which students are trained and, on the other hand, by the conditions under which will work.
The attributes of economic and social phenomena require the involvement of physical education and sport in the formation of healthy, physically vigorous and competent citizens, in order to meet the demands imposed by social order. In this regard, we can say that a whole series of studies (researches) have been launched that aimed to optimize the social order report - professional skills and Bio-psycho-social. As a result, as in our case, the old teaching technologies were rethought and restructured according to the practical needs, and in this orientation were involved specialists from different fields of activity, including the field of physical education and sport. An important point of view of Romanian and foreign specialists was to provide students with a level of physical training that is likely to achieve the above-mentioned goals, ie health, physical and mental vigor, and sufficient knowledge to maintain these lifelong attributes. Physical Fitness: "the ability of the human body to function with force and liveliness, without exaggerated fatigue, with enough energy to enjoy leisure activities and to prevent physical stress. Muscular strength, muscular endurance, cardiovascular endurance, and vigor are the visible signs of physical condition "(Celeste Ulrich, 2000, Encarta, quoted by M. Epuran, 2005). Profesiogram, "encompasses the psychophysiological, psychological and social requirements of the profession. Physique, weight, health requirements, sensory requirements, all included in the somatofiography of the profession and skill requirements, professional knowledge, intelligence, attention, observation, requirements for the features of the temperament, social, ethical requirements, etc. which are included in the psychography of the profession "(N. P. Popescu, 1978, 556). Technological education is a component of general culture, an expression of modern man's relationship with technology. This expression has recently been assimilated into the educational language, many pedagogy works still use the term of professional education. I. Radu and Liliana Ezekil, highlight the degree of complexity and complexity of the new concept. Thus, they argue that "technology education involves active behavioral acquisitions that allow young people to quickly and practically apply the knowledge acquired in school, to seek and find solutions to problems of any kind that require them in their confrontations daily (Cristea, S, (2000), Pedagogy Dictionary, Litera Publishing House, Bucharest). In fact, technological education is conceived as a general training program for the personality of modern man to adapt to the rapid changes in society and in the field of professions "(Radu, I., Ezekiel, L., 2002, pp. 124-125). The process of teaching physical education was initially influenced by the Swedish system, based on rigorous exercises designed to process all muscle groups. The military maneuver with standard exercises, as well as the systematic organization of some sporting events on the occasion of anniversaries (August 23, May 1, etc.) were not approved by the students (Filipescu D., 1979). The evaluation of the scores is performed on a half-year basis, using the following control samples: 100 m, 1000 m (M), 500 (E), length of the seat, traction, abdomen, etc., which generally affect the level of general physical training comparative-statistical grid at national level (Banăţeanu O., 1989, Drăgănescu E., 2000). In 2002, D. Colibaba and Andrei Niculescu propose a system of equivalence by percentage of the students' results obtained in the imposed control processes. This evaluation system has the merit of accurately assessing the physical condition (see VIITORUL magazine no.4 / 2002 Craiova). The same authors show that technological education is achieved through the following forms:
I. As a compulsory discipline - distinct from the education (where the utilitarian abilities are formed from the preschool to the 19th century
II. As a practical-applicative tendency of school contents (opposed to the excessive theoretical trend in schools)
III. As a precursor in the process of school and professional orientation
IV. As an entrepreneurial education
The correct understanding and interpretation of these terms was all the more necessary as we have found that other similar works (scientific papers, papers, articles, etc.) on the same subject have not been published. Specifically, the building up of the issues raised for the research has materialized through concrete steps aimed at solving the following objectives and tasks: Identifying the professional profiles for which the students from the Faculty of Industrial Mechanical Engineering and Naval Engineering are preparing.
a. Survey and questionnaire on the sectors of activity in which the graduates of the Faculty of Industrial Mechanical Engineering and Naval Engineering are employed.

b. Compilation of professiograms based on questionnaires and opinion polls.
c. Establishment of the sample (experimental and control groups)
d. Measurement of biomotorological potential of students in the first and second year.
e. Elaboration of accessible fitness programs to be applied both in the open air and in the room depending on the season.
f. Designing programs for body maintenance and leisure
g. The results obtained and their interpretation.

Research Methods

To identify the dimensions of the professional profiles of graduates (engineers) of mechanical and maritime engineering faculties, we have used three protocols to record and systemize the data. Thus, with the help of the three registration cards, the following elements were made:
From the very beginning we would like to show that the 12 graduates of mechanical, industrial and maritime engineering faculties were:
Prof. Dr. Ing. PERIDE NICULAIE - Resistance of Materials - F.I.M.I.M. -Ovidius University in Constanta.
1. Prof. Eng. ZĂGAN REMUS - Machine Tools - F.I.M.I.M. -Ovidius University in Constanta
2. Assoc. Prof. MIHAIEŞ GHEORGHE - Materials Technology - F.I.M.I.M. -Ovidius University in Constanta.
3. Assoc. Prof. Dr. LUNGU IOAN - Mechanical Processing - F.I.M.I.M. -Ovidius University in Constanta.
4. Head of Works - ILIE CONSTANTIN - Research - Design-Production - Ovidius University of Constanta
5. Head of Works - BUCUR COSMIN - Research - Designing - Production - Ovidiu University in Constanta
6. Head of Works - RĂDOIU BOGDAN - Research - Designing - Production - Ovidiu University in Constanţa
7. Head of Works - PINTILIE ALEXANDRU - Research - Design - Production - Ovidiu University of Constanta
8. BĂLAN A - Constanţa Shipyard
9. Ing EREMIA S - Shipyard Stx Europe - Tulcea
10. Ing GEORGESCU B - Shipyard Stx Europe - Tulcea
11. POPA C-Constanţa Shipyard

The content and characteristics of the activities performed on the three established profiles (education, design, production) led us to apply an appropriate registration protocol.
• As regards the activities of engineers (graduates) working in education, we can note the following findings:
- according to internal regulations the 5 teachers are normalized with a number of hours equivalent to the requirements of the post and of the teaching function they exercise (teachers, lecturers, lecturers);
- the professional activity regime is not too easy. All of the above-mentioned teachers are involved in scientific research and production. We could argue that at the local level these teachers do the professional research-education-production desideratum.
• As far as graduates working in research, they have an invariable work regime. They are constantly engaged in sedentary work, design or work, where they spend an average of 8 working hours. These are interrupted by short breaks for debating issues, for conversation or professional communication, exchange of opinions, questions or rest / relax pauses. Obviously, these engineers deploy an intellectual effort of static nature that requires increased concentration.
• As for the engineers involved in the productive activity itself to control the conditions and the job application regime, we had to replace a special registration protocol that was self-completed by each engineer.
The results obtained with a stopwatch allow us to see that the activity of an engineer engaged in the productive activity is animated by many activities (about 59) which sometimes repeat themselves but are not determined by the actual production.
The practical lessons were supported, they contain the methodical indications formulated by the didactic framework, but also the games that can be assimilated during the physical education and sport classes in the university education (Popa C., Larion A., 2017, p. 59).

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Tab. no. 1 - The content, character and regime of day-to-day activities by an engineer

Nr	CONTENT OF THE ACTIVITIES	CHRONOLOGY OF ACTIVITIES	CHARACTER OF ACTIVITIES							ACTIVITY REGIME			
			TEHNOLOGICE			COMUNICATIVE			PAUSE	STAND	ASEZAT	MERS	POZITIE
			TRAINING	operationalization	NCE - VERIFICATI	PROFESSIONAL	UZUALE - AFECTIVE	AFECTIVE					
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1	Starting work	3′	3							3			
2	Checking work	35	32									15	17
3	Operational meeting	1h5				30					30		
4	Preparing commands	1h15	10								10		
5	Checking work	1h20			5′					5′			
6	Common discussions	1h25					5			3		2	
7	Watch	1h27							2		2		
8	Sit. oper. foremen	1h57				30				30			
9	Order pickup	2h	3′									3′	
10	Pause	2h1							1		1		
11	Computer processing	2h6		5′							5′		
12	Common discussions	2h11					5			5			
13	Checking the installation	2h16			5								5′
14	Project verification	2h31		25						10			15
15	Common discussions	2h36					5					5	
16	Instructions - Discussions	2h41									5′		
17	Project Debate	3h1				20				20			
18	SDV inventory	3h11		10							5′		5′
19	Checking stock	3h14			3′					1			2′
20	Pause	3h16							2		2		
21	I-point displacements	3h13	3′									3′	
22	Product Sheet Study	3h29		10						10′			
23	discussions	3h39					10			10			
24	Pause	3h40									1		
25	Machine Surveillance	3h45			5								5′
26	Machine setting	3h50		5′									5′
27	Pause	3h52									2		
28	Tracking production	4h17		25						5		10	10
29	Discussions with	4h37				20				10	5	5	
30	Machine setting	4h52		15									15
31	Pause	4h53							1		1		

32	discussions with	4h58						5					
33	process correction	5h16		18						8			10
34	Pause	5h17							1		1		
35	mechanical verification	5h20			3								3
36	discussions	5h25						5		5			
37	power plants	5h35		10									10
38	common discussions	5h40					5			5			
39	production tracking	5h44			4								4
40	movements	5h46	2									2	
41	computer processing	5h56		10							10		
42	discuss the partners	5h58						2			2		
43	project resumption	6h8				10				10			
44	beneficiary talks	6h23				15					5	10	
45	effective discussion	6h28					5				5		
46	travel	6h31	3									3	
47	product presentation	6h41				10				5			5
48	ev. calit.produs	6h51					10						10
49	product quality	6h53					2			2			
50	discussions with the	7h1				2	2	4		8			
51	discussions with foreman	7h3	3									3	
52	discussions with foreman	7h5			2								2
53	beneficiary talks	7h15		10						10			
54	office travel	7h18	3									3	
55	reverify the Order	7h33		15							15		
56	discussions with the	7h48				15					15		
57	common discussions	7h51					3					3	
58	call. telephone	7h56					5				5		
59	program closure	8h	4										4
TIMP TOTAL		8h	58	158	27	149	57	21	10	156	132	65	127
PONDERE: %		100	12,2	32,9	5,6	31,1	11,8	4,3	2,1	32,5	27,5	13,6	26,4

COMMENT: As can be seen from the contents of the protocol of finding the character and the topicality, a construction engineer (in our case: ing. Balan A) employed at NAVAL CONSTANȚA SHANTICE performs during the 480 min. (8h), the following types of activity:

ACTIVITY	Character / Regime	minutes	% din 480 min
Technological activity	- Training	= 58	= 12,2%
	- Organization	= 158	= 32,9%
	- Surveillance	= 27′	= 5,6%
Communication activity	- Professional	= 149	= 31,1%

	- Uzuale	= 57	= 11,8%
	- Afective (Skill)	= 21′	= 4,3%
Breaks between activities		= 10′	= 2,1%
		480h	= 100%
Deployment Mode	- Sitting	= 156	= 32,5%
	- Sitting	= 132′	= 27,5%
	- Go	= 65′	= 13,6%
	- various forms	= 127′	= 26,4%
		480h	= 100%

a. second registration protocol was prepared for the purpose of identifying the professional competencies concerned to be acquired by F.I.M.I.M. and Constanta Universities since the studies. This document overcomes the following distinct elements:
a) The five fields of the polytechnic faculties and the specialties for which they are formed:
1. Naval engineering and navigation - systems and equipment
2. Mechanical engineering - machinery and plant installations
3. Motor vehicle engineering - road vehicles
4. Industrial Engineering - Welding Engineering
5. Engineering and management-management
6. Energy engineering - industrial energy
b). Professional skills meant to be formed during the course of study.
c). Implications of physical education and sport in optimizing professional profile.
On the basis of the information gathered using the observation protocols, table no. 2 - which, besides our professional competences (recognized at European level), we also had the opportunity to identify the specific means of physical education with which we could influence directly or indirectly the dimensions of the professional profile.

Tab. Nr.2 - Competenţe profesionale vizate spre a fi achiziţionate de către studenţii F.I.M.I.M

DOMENIUL	SPECIALITATEA.	COMPETENȚE PROFESIONALE
1. ENGINEERING NAVAL AND NAVIGATION	Systems and equipment Naval	General skills: - development of systematic and analytical logical thinking; - engineering and practical engineering skills Professional skills: - design capability; - Skills in the design, construction and operation of ships; - Skills in the design, construction and operation of ship installations, systems and equipment; - Ability to operate computerized surveillance systems and to ensure operational safety of ship installations, systems and equipment
2. ENGINEERING MECHANICS	Equipment and installations port	- design of port equipment; - operation, maintenance and repair of port equipment; - handling and loading of bulk materials and containers; - the mode of operation of the vessels
3. ENGINEERING VEHICLES	Vehicles road	- computer assisted design, road construction and manufacture; - maintenance, operation, diagnosis and repair of motor vehicles; - testing, expertise and homologation of road vehicles; - insurance, import, financing and sale of motor vehicles; - environment protection and engineering in the field of vehicle engineering; - the control, organization and optimization of road transport

4. ENGINEERING INDUSTRIAL	engineering welding	- application of modern welding technologies; - design of metallic and non-metallic constructions; - optimization and development of welding technologies; - performing destructive and non-destructive control on welded joints; - approval of welding procedures; - authorization procedures for welders; - design of welding equipment; - design of mechanized and automated welding lines
5. ENGINEERING AND MANAGEMENT	The management Engineering mechanical	- Skills, knowledge and conceptual abilities; - Implementation and exploitation of production processes and systems; - Skills, knowledge and skills regarding the economical and efficiency analysis of investors in production processes and systems; - acquiring knowledge and skills in the programming and management of production projects; - the use of modeling, simulation and optimization techniques and process systems and production systems; - use of programming languages, computer aided design environments; - configuration and implementation of system engineering, quality engineering, value engineering and logistics; - applying the elements of general, operational, strategic and marketing management; - Ability to communicate in foreign languages
6. ENGINEERING ENERGY	energy industrial	General skills - the ability to learn; Pc operation; developing logical thinking; - interdisciplinary training; - deepening the English language; - ability to work in a team Professional skills - the ability to apply knowledge in the energy field in practice; - design and operation skills of power and thermal power plants; - knowledge of energy systems management; the skills necessary for activation in the field of research / development of energy systems; - Knowledge of the environmental impact of power generation systems; - Ability to design and operate renewable energy systems; - drawing up of energy, electricity and thermal balances; - knowledge designing and manufacturing systems for reducing energy consumption for household and industrial users; - optimization and design of electric and thermal energy consumers in order to reduce energy consumption; - skills in the use of software applications specific to the design and execution of high power power systems; - modeling and simulation of electrical and thermal systems using professional software; - knowledge to ensure the adequate quality of electricity to consumers and electromagnetic compatibility

Important note:
The professional competencies listed in this table as well as the results obtained with the other observation protocols favored the drafting of the main dimensions of the professiograms as well as the reference elements that can influence them by the means specific to physical education and sport.

Discussions

Another paper mentions the contribution of physical education and sport to optimizing man / work relationship. In this respect (Colibaba, 1987)

shows that "the effects of physical exercise (training and perfecting motor skills, adapting the body to demands of a certain intensity, speed and complexity, etc.) are favorably resolved by nonspecific and specific transfer of labor efficiency. The movements required by the handling of the apparatus will be more precise and coordinated, and professional efforts will be easier to support or compensate. Some research undertaken to optimize the relationship between man and work reveals the existence of a similarity between different groups of physical and dynamic exercises with the driving activities imposed by the requirements of the profession.

The knowledge of these connections amplifies more strongly the contribution of physical education in solving professional education (Colibaba, 1987, p.5).

Conclusions

The conclusions drawn from the experiment are particularly related to the assumptions of the research and we present them in the following rows:

1. First of all, we need to highlight the findings we made on the occasion of the preliminary study, namely:

1.1. The study of the situational framework of teaching physical education in engineering faculties at Ovidius University in Constanta, with the help of: the protocols and documents presented in annexes A1, A2, A3, through the opinion poll for the students and graduates of the Faculty of Physical Education and Sport. (B1, B2) have allowed us to find that the process of teaching physical education in Engineering faculties is oriented towards the following directions:

- a greater share of the operational structures (exercises) and sports where the de-formed motor skills and skills as well as the accumulated factorial capacities contribute more to the underestimation or compensation of work efforts carried out in the workplace;

- the need to use predominantly the means of physical education, which by their end can constantly contribute to the optimization of the human / work relationship.

- introducing into the analytical program of F.I.M.I.M. of technical and applied sports, which through their effects and their content is positive, through specific and non-specific positive transfer of the profession. In this idea there are two orientations, namely:

a. practicing sporting means and branches that subsidize from the biological and psycho-social point of view the exercise of the profession. The choice of means (sports branches) to ensure the compensatory nature of professional demands and / or their free practice in their spare time.

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