

WOMEN AT THE TECHNOLOGICAL UNIVERSITY IN RUSSIA

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ABSTRACT

This article analyzes the modern situation with the gender problem at one of the Russian technological universities - "MATI- Russian State Technological University named after K.E.Tsiolkovsky" and discusses the reasons of imbalance between women and men in student, postgraduate and teacher population.

Keywords: Technological university, gender problem analysis, women.

INTRODUCTION

It is well known that relationship between women and science and technology has always been rather difficult (Sheypak and all, 2003, pp.561-564). This becomes evident when we think that during the last century there were just sixteen female Nobel winners in science and technology. To understand the causes leading to this situation, we have to take into consideration different aspects causing women exclusion such as social, historical background, and even didactic obstacles (Pellizzari, 2004, pp. 270-275).

In Russia women broke the gender barrier of technology over 50 years ago. Nowadays there is no problem to recruit women into engineering education. We needn't inform schoolgirls about the advantages of technical studies. They make a rational choice by themselves. Girls, who choose engineering education, often do so because of their interest in technology. But it is a well known fact in Russia that later when girls become undergraduates and obtain a university degree and engineering qualification they realize that they will have to face a job in which they have to work harder than their male colleagues in order to prove their skills, even those who were brilliant students.

According to psychologists at the beginning school girls and boys are capable to carry out similar intellectual tasks, then why are there majority of men at technical departments? Some technical departments in Russian universities have female number lower than 5% of the total student population. The problem why only few women start and continue a career in engineering (the so-called women problem in technology) is being discussed (Wolffram, 2004, pp.281-286).

DATA DESCRIPTION

"MATI – Russian State Technological University named after K.E.Tsiolkovsky" was founded in 1932. It is a highly developed centre of education, science and culture where every year more than 1,000 specialists for aviation and space industry graduate from traditional technical departments or economical and humanities departments. MATI comprises seven faculties. They are: Aviation Technology; Aerocosmic Constructions and Technologies;

Information Systems and Technologies; Material Science and Material Technologies; Applied Mathematics, Mechanics and Information Technology; Engineering and Economics; Youth Policy and Social Technologies. There are 29 specialities at the university and they can be combined into 10 major groups (Table 1.).

Table 1.
Student population

		1995/1996			2000/2001			2005/2006			2010/2011
		total	female	%	total	female	%	total	female	%	total
	All specialities	6087	1661	27,3	7650	2752	36	8591	2685	31,3	7604
N	Major groups of specialities										
1	Applied mathematics	83	35	42,2	35	12	36,3	88	33	37,5	64
2	Physics	157	34	21,7	143	44	30,8	104	27	26	54
3	Metallurgical engineering	216	49	22,7	178	64	36	390	54	13,8	974
4	Aircraft engineering	397	45	11,3	254	55	21,6	1115	156	14	875
5	IT-technologies	173	55	31,8	245	57	23,3	47	15	31,9	123
6	Environment protection	142	79	56,4	227	132	58,1	98	48	49	273
7	Economics and Management	834	507	60,8	1438	911	63,4	1391	840	60,4	1711
8	TQM and Innovation management							102	25	24,5	407
9	Social technologies							49	32	65	137
10	Youth policy							15	6	40	45

We see that girl population leads in some groups of specialities. The number of girls is higher than 50% of student population. It is no wonder, because traditionally these specialities are more popular among girls, than boys, especially "Social Technologies" where percentage of girls is often more than 70%.

It is interesting to notice that percentage of girls eager to obtain degree in the field of applied mathematics, economics and management, environment protection and youth policy is constantly rather high (40-50%). Statistics show that these women find well-paid jobs in engineering offices easily and the majority of them are as successful as men.

As far as so-called "hard specialities" concerned we see incredibly low number of girls during the last fifteen years (13-23%). The decrease of interest of women in metallurgical engineering, aircraft engineering and more rarely in physics can be explained by the following reason. Real statistical data and the forecasts based on it show that young women with engineering education are not adopted to work at heavy industry factories, (even those who were excellent at the technical university) and this situation is unlikely to be changed in the nearest future in Russia.

We can also notice that the specialities "Total Quality Management" and "Innovation management" are rather young. Training of specialists in these fields began in Russia ten years ago. The interest of girls in these specialities is higher than in the case of "hard specialities", but not so high as in the case of economic specialties (~ 30%).

It is not a mystery that the most female as well as male students are trying to enter postgraduate courses to continue their scientific research. But as statistics show the majority of postgraduates at the technical university are still boys – 90%, and this number is always stable (Fig.1)

There is no fundamental background explaining the cause of imbalance in gender population within postgraduates in MATI. The only reason is rather vital and it is a specific social problem arisen only in Russia.

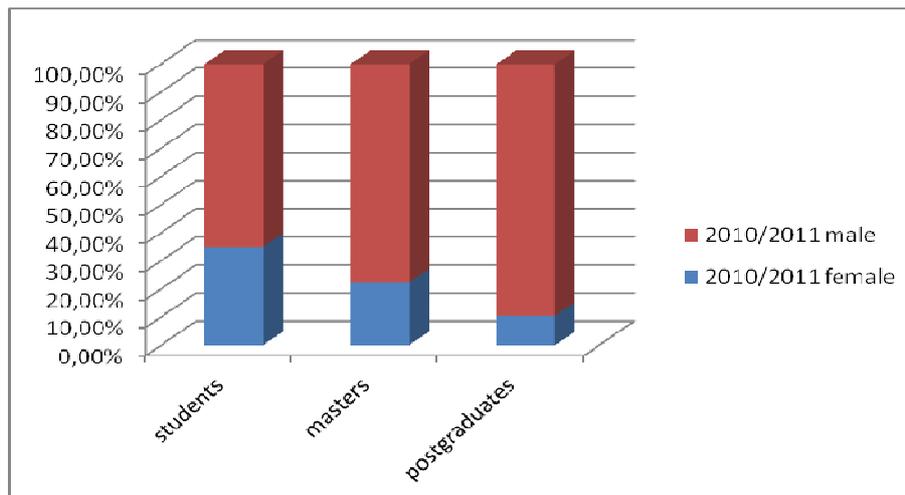


Figure 1.

Student, master and postgraduate population in 2010/2011 academic year

We can't deny the fact that in the beginning of 21st century there has been a growth of interest of women in scientific activity.

As a result the number of women teaching engineering has increased, too. During the last five years women-teachers showed persistence to obtain the highest scientific qualification both in the field of humanities as well as in natural sciences (Sazonova, 2005, pp. 422-423).

But statistical data show that men-teachers still outnumber women-teachers greatly and men-teachers with scientific degree predominate, too (Figure 2.).

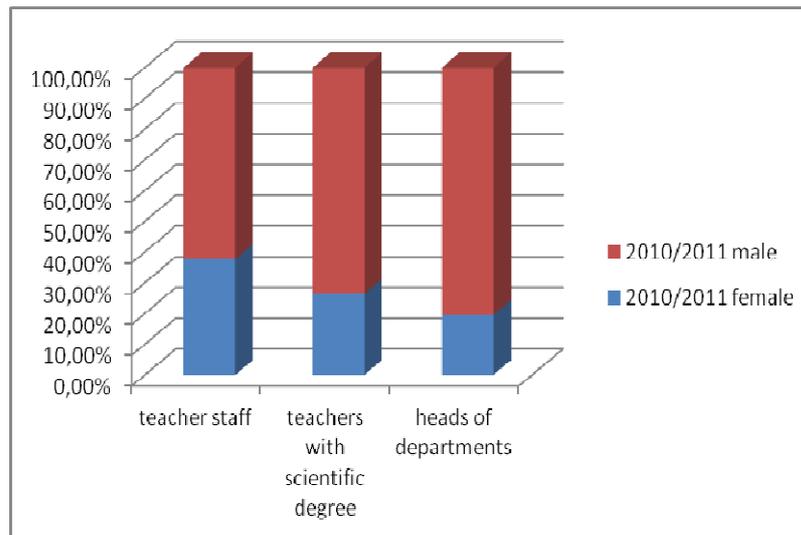


Figure 2.
Teacher population in 2010/2011 academic year

There are 50 departments in MATI: only eight (and not technical) of them are headed by women. Only three women of them are the doctors of science-the highest scientific qualification in Russia.

CONCLUSION

During the last fifteen years we have watched the growth of women population both among students and teachers at the technological university. But there are no forcible reasons to change the situation yet because of existing some psychological, social and economic peculiarities in Russia.

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REFERENCES

Pellizzari D. (2004). Women, information technologies and hard sciences in engineering education in Switzerland, *Local Identity-Global Awareness, 33rd International Symposium Engineering Education Today*, Fribourg, pp. 270-275.

Sazonova Z. S. (2005). The gender problem in the sphere of science and technology in Russia, *Design of Education in the 3rd Millenium, 34th International Engineering Education Symposium*, Istanbul, pp.422-423.

Sheypak A., Sheypak O., & Artyushina G. (2003). The benefit of outstanding women and inventions for development of creativity, *Referate des 32 Symposium der Internationalen Gesellschaft fur Ingenieurpädagogik, Karlsruhe*, pp. 561-564.

Wolfram A. (2004). Challenging gender stereotypes in engineering education, *Local Identity-Global Awareness, 33rd International Symposium Engineering Education Today*, Fribourg, pp. 281-286.