



RIGA TECHNICAL UNIVERSITY

Faculty of Engineering Economics and Management
and

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“Student’s gender and its impact on science related subject learning quality”

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Study design

Thesis: Student's gender considered being a significant factor that influences the successful acquisition of science-based subjects.

Object of the study: Students and teachers mutual interaction in teaching and learning process.

Research subject: The student's learning and teacher's teaching competences.

The study aims: Make teacher's - men and women, competency's model.

Methodology (1): Research guidelines

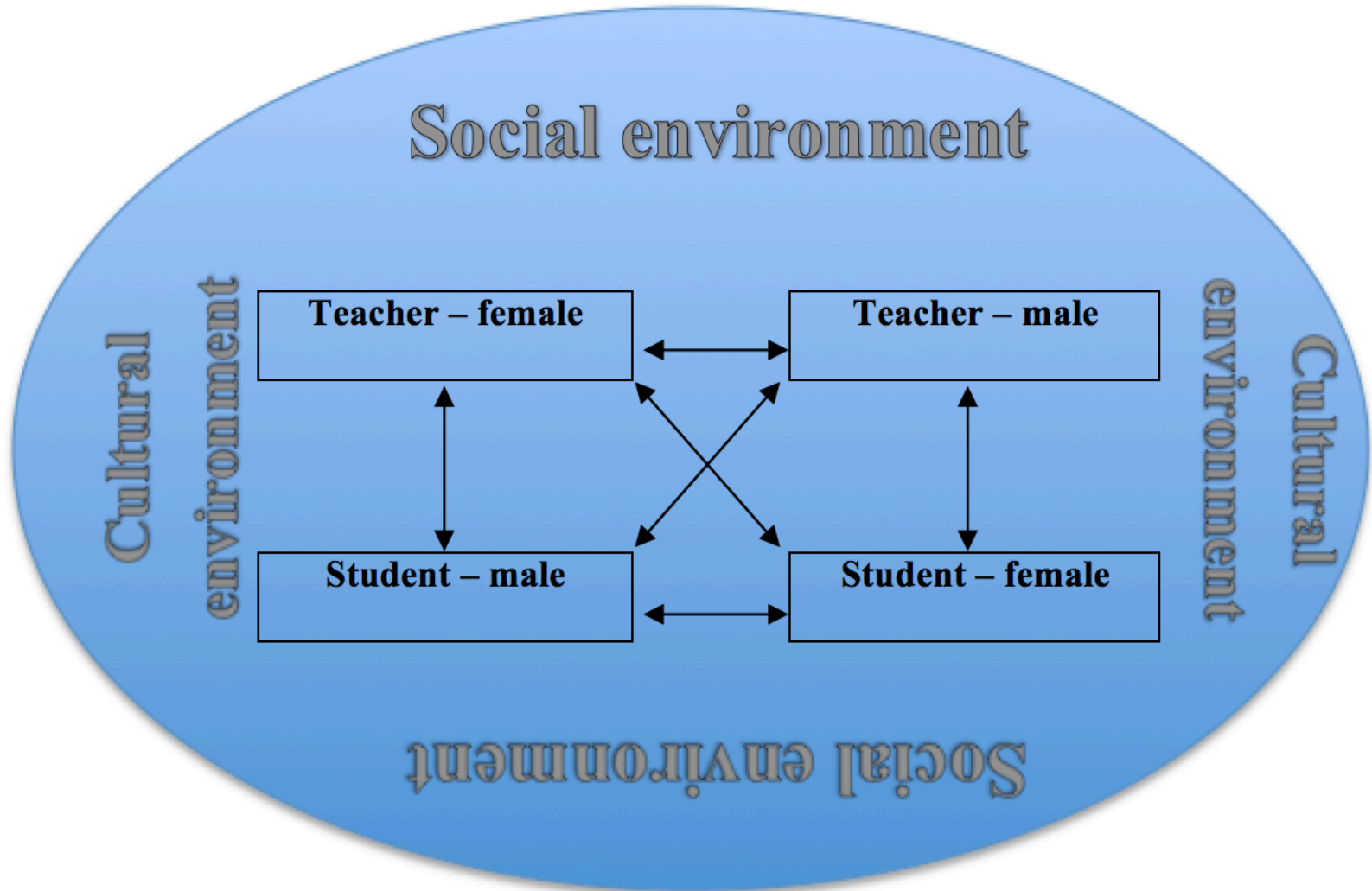
Research work first importance:

1. To identify all the interaction direction's during the learning period within the framework between students and teachers.
2. Get confirmation, that learning and teaching process result's depends / not depend's of:
 - Student's gender;
 - Teacher's gender;
 - Teaching and learning subject.

Research work second importance:

it is essential to identify the teacher and student core competencies that are necessary for high-quality curriculum implementation and acquiring.

Methodology(2): Teachers and students training process interaction model



Methodology(3): Teachers and students training process interaction model

Question / claim blocks:

1. justice;
2. management capabilities;
3. empathy;
4. communicability;
5. dynamics.

Methodology(4): Respondent's

- The number of respondents was calculated using the formula:

$$n = \frac{P \times Q \times t_{\alpha}^2}{\Delta_{\alpha}^2 + \frac{P \times Q \times t_{\alpha}^2}{N}}$$

- Based on it and other necessary criteria, it was determined the minimum necessary number of respondents:

$$n = \frac{P \times Q \times t_{\alpha}^2}{\Delta_{\alpha}^2 + \frac{P \times Q \times t_{\alpha}^2}{N}} = \frac{0,5 \cdot 0,5 \cdot 1,96^2}{0,03^2 + \frac{0,5 \cdot 0,5 \cdot 1,96^2}{2138}} = 711,8 \approx 712$$

Methodology(5): Study subjects and research conditons

Study subjects:

- Mathematics, Physics, Chemistry, First Language, Literature, Nature Sciences, Computer Sciences and Economics.

In research was taken into account the following conditions:

- Over study should be choose subjects that run by the teachers of both genders;
- Those student's who acquire the chosen subject, should be numerically proportional by gender to each selected subject.

Methodology(6): Participants

- Respondent's breakdown by class and gender (M – male; F – female)

Class	5. grade		6. grade		7. grade		8. grade		9. grade		10. grade		11. grade		12. grade	
Student gender	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Number of students	67	54	66	51	72	49	74	31	65	42	45	27	42	18	47	12

Study results (1): Chi-square criterion analysis summary

Nr.	Question	Chi-square theoretic	Chi-square empiric
1.	In this subject boys receive better score than girls	9,487	61,652
2.	If needed, then I can correct a bad grade in this subject	9,487	21,421
3.	In this subject's lessons the atmosphere is efficient and constructive	9,487	97,076
4.	Usually teacher's grade is corresponding to my level of knowledge in this subject	9,487	63,235
5.	If I haven't studied and I'm not ready for the test then the teacher lets me write it another time	9,487	146,279
6.	If I haven't finished my homework, I can bring it some other day	9,487	70,224
7.	Usually I like lessons in this subject	9,487	89,158
8.	During lessons students aren't listening to the teacher, they are inattentive, etc.	9,487	39,284
9.	Lessons in this subject begins and ends according to the class schedule	9,487	16,050
10.	In this subject the scores for boys and girls are equal	9,487	37,198
11.	Teacher provides a good discipline throughout the lesson	9,487	128,351
12.	If needed, I can tell teacher my secret	9,487	93,754
13.	I can freely discuss the problems in my class (group) with the teacher	9,487	60,310
14.	If need, I can seek help from teacher to understand the study material	9,487	64,921
15.	If I have a wrong answer on the task, teacher allows me to correct it	9,487	47,278
16.	I can ask the teacher an advice that's not related to the lesson	9,487	83,699
17.	Usually I study the new study materials independently	9,487	7,032
18.	Teacher explains the new study material only verbally	9,487	39,028
19.	During the lesson teacher asks questions to students	9,487	29,949
20.	Usually I understand the new study material through teacher's handouts	9,487	41,606
21.	Teacher explanation of the study material is clear and understandable	9,487	75,576
22.	To acquire the study material, I only need the information given during lessons	9,487	36,235
23.	If someone offends me, teacher stands up for me	9,487	32,051
24.	Usually teacher is busy	9,487	30,758
25.	Teacher usually answers questions I ask	9,487	84,983
26.	In this subject girls receive better scores than boys	9,487	42,862
27.	Teacher uses technical support to explain study material	7,814	140,707
28.	Teacher's reaction and reaction to a student being late to a lesson	7,814	48,856
29.	Teacher's reaction to homework not being done	7,814	25,357
30.	Teacher's reaction to mistakes made during the lesson	7,814	36,028

Study results (2): Comparison of assessment breakdown by subjects and students gender

Student gender		Male	Female	Assessment comparison, Female / Male
Number of students		478	284	
Average score in the subject	Mathematics	5,57	6,04	0,47
	Physics	6,23	6,41	0,18
	Chemistry	6,32	6,71	0,39
	Visual Arts	5,77	7,42	1,65
	Economics	6,19	8,2	2,01
	First Language	5,38	6,44	1,06
	Literature	5,85	7,11	1,26
	Social Sciences	6,56	7,64	1,08
	Nature Sciences	5,84	6,25	0,41
	Comp. Sciences	7,1	7,3	0,2

Study results (3): Conclusions

From the chi-square criterion analysis follows:

- There is a strong difference between the respondents, broken down by the teachers and students gender.
- Assessing the respondent's responses to individual survey questions using chi-square criterion methods, there are distinct differences in the breakdown by the teacher's or the student's gender.
- The biggest difference to be determined by the teacher and the student's gender are seeing the respondents in their replies to discipline in the classes and learning and teaching work organization by teacher .
- The survey results showed that male teachers are more open to new technological developments. In their daily work they more likely than women teachers use computer projectors, overhead projectors and IT-related data processing devices.

Study results (4): Conclusions

From the learning performance analysis of students follows:

- Male students better learn on science-based subjects: Mathematics, Physics, Chemistry and so on.
- Female students learn better social and humanitarian subjects.



Thank you for your attention!