

THE IMPACT OF PROFESSOR'S PERSONALITY ON TEACHING MATHEMATICS

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Abstract

Teaching is a dynamic process of interaction in which individuals constantly work together according to the situations and objectives that must be fulfilled. Methodologies that a professor uses, moreover the personality traits, self-efficacy, and attitude towards teaching directly contribute to the fulfillment of educational purposes. This research paper aims to put forward the impact that the personality of a Mathematics professor has on delivering the subject to the students. It focuses on some important character traits such as the willingness for mutual cooperation, sense of humor, empathy, motivation in learning, discipline strategies, objectivity, effectiveness, and efficacy. Due to the pandemic situation that we were facing while conducting this research an online questionnaire was used to get us to the findings. This research was conducted on a group of 220 university students from different faculties and different study years in North Macedonia. The focus is more on the students from the University of Tetova and the South East European University. In the questionnaire, students were asked to express their experiences related to Mathematics professors starting from elementary school to university. Statistical processing of data enables us to conclude that professors of Mathematics are motivational, a trait which is in correlation with creativity, variety of approaches during the teaching process, respect of thoughts and ideas of the students, and the willingness of professors to clarify the uncertainties encountered by students (Pearson correlation coefficient). The most important results of the survey proved that pedeutology is seen as a crucial factor when learning Mathematics.

Keywords: professor, personality traits, effective learning, mathematics, pedeutology.

1. Introduction

The most important factor in education and teaching activities is the professor. A professor, in the most general terms, is a person working in educational institutes who enables students to reach cognitive, sensory, and behavioral aim and gains within the range determined by the educational system (Gundogdu, Silman, 2007: 259). A professor with his teaching methods and furthermore with his attitudes and behaviors, provides his students to gain a mentally healthy personality and to have a new clear world view by leaving unforgettable traces on them (Ulug, M., Ozden, M. S., & Eryilmaz, A. 2011). This puts a high responsibility on the professor to always be well prepared while delivering the lessons to the students as well as to be aware of the methodologies used and attitudes that they have during classes since it has a high impact on the further development of students. According to (Gundogdu, Silman, 2007: 264) "teaching is much more than saying and explaining."

This proves the importance that the personality of the professor has not only on explaining a lesson, but also on forming the personality of the students.

The student's performance is not completely the result of their work; performance is affected by many factors and the first one is the attitude of the professor. A positive attitude from the professor

affects the students' motivation, attitude towards school and schoolwork, the student's self-confidence and as a result personality development (Ulug, M., Ozden, M. S., & Eryilmaz, A. 2011). Personality describes the unique psychological qualities that influence individuals' behaviors, thoughts, and feelings across situations and times (Roberts, B. W., & DelVecchio, W. F. 2000). According to (Rosić, V., 2011) "In the educational disciplines, there are relatively distinct research fields that focus on investigating different aspects of the teaching profession and professors' personalities. For example, within pedagogy, deontology focuses on the responsibilities and rights of professors about their students, whereas pedeutology involves the features of professors as determined by their roles." Personality plays an important role in an individual's personal, educational, and vocational adjustment and success. The success in the vocational area is determined to a large extent by personality factors (Alufa, K. Krishnamoorthy, 2019). One of the methods that can be applied in shaping the attitudes and behaviors of students in school is by exemplifying high standard of personality (Kaplan, L., & Owings, W. 2013). The effects of a high personality can also give students a deep understanding of what is being taught and it can attract students and professors to interact easily with each other (Ahmad, N., Kamarudin, M. K., & Jasmi, K. A. 2017). This enables us to understand that the educational process is not only delivering lessons to the students but by our methods creating responsible citizens of a country. Firstly, the professor must have high personality traits before trying to improve their students' personality (Tamuri, A. H., Ismail, M. F., & Jasmi, K. A. 2012). "Other studies have evaluated professor's personality on a global scale, such as by asking How do you feel about the instructor as a person on a Likert scale from Doesn't appeal to me at all, to terrific, a great person" (Jones, J. 1989). The emotional characteristics of professors are very important as well, especially in creating a classroom climate that could enable students learning capacities (Djigić & Stojiljković, 2011). In this whole process, the effect of the professor on the personality development and success of students is a fact that cannot be overlooked. The professor, through either positive or negative attitude in communication with students and in how he/she reflects this, directs the shape of their lives, has a positive or negative effect on the attitude shown toward themselves or the public in general, affecting the development of the ability to communicate, research and be creative (Ataunal. A, 2003). Proper student-professor interactions stimulate learners to participate in class activities as they foster an emotionally favorable and supportive classroom environment (Ruzek. E.A & Hafen. C.A & Allen, J.P, et al...2016). The trust between professor and student is vital if the professor wants to have a class where all students improve on the same biases. Professors' interactions with students vary in quality and have appreciable effects on Math achievement outcomes (Martin. A.J & Anderson. J & Bobis. J, et al...2012). Professor-student interactions are malleable features of classroom environments and have been the focus of national efforts to raise Mathematics achievement (Pianta. R.C & Hamre. B.K, 2009). To prevent disaffection in Math classes, professors, and professor candidates (before and during service) can be taught effective learning methods and techniques that will allow students to experience positive achievement experiences and feelings. In addition, it would be effective to provide professors and professor candidates with information on the effects of self-efficacy beliefs on engagement (Ozkal. N 2019). A professor helps students improve academically and emotionally by initiating programs that cultivate how to make good decisions, handle emotions appropriately, curb negative behaviors, understand fellow students, practice empathy, relax, and focus on learning. By contrast, negative feelings, such as anger, anxiety, and frustration, hinder learning and worsen school performance (Ruzek.E. A &Hafen.C.A&Allen.J. P, et al...2016). In addition, "an effective professor should have interventions aligned to the level of child's functioning and be aware of individual

differences. He or she also must be able to externalize its own thinking ability and to insist on the dialogue between professor and student and the students themselves. These personality characteristics are included in the theories and models of personality that were mentioned in this review. A theory that would include all these matters might develop over time into the psychology of professors within educational psychology and the psychology of the pedagogical profession within school psychology” (Göncz, L. 2017).

It is important to be mentioned that a positive attitude from the professor affects the student’s motivation, attitude towards school and schoolwork, the student’s self-confidence and as a result personality development.

2. Research Methodology and Results

The methodology used to conduct this research related to the effect of the personality that the mathematics professors have in teaching. 220 students have been part of this survey. From the total number of participants, 182 were females which form 83% of the total number of the participants. Students who have been part of this research were students of the 2019/2020 academic year, which means that this research has been realized during 2020 and has been conducted online. From the total number of participants, 129 are from villages and the rest are from cities.

Tab.1 shows the places where the students come from. From the first table, we can see that Tetovo has the highest number of participants with 148 students or 67.3%, 33 students are from Gostivar, 10 from Struga, 3 from Skopje and Kumanovo, 5 from Kichevo, and 18 from other cities.

		Frequency	Percentage	Valid Percent	Cumulative Percent
City	Tetovo	148	67.3	67.3	67.3
	Gostivar	33	15.0	15.0	82.3
	Skopje	3	1.4	1.4	83.6
	Struga	10	4.5	4.5	88.2
	Kumanovo	3	1.4	1.4	89.5
	Kichevo	5	2.3	2.3	91.8
	Other	18	8.2	8.2	100.0
	Total	220	100.0	100.0	

Tab.1 Students reside.

Students who were part of the survey are students from the University of Tetovo, South East European University, Ss. *Cyril and Methodius University*, and one student who is from another university. Data related to the universities is shown in the second table Tab.2. As it can be seen from the table, 198 students are from the University of Tetova, 15 are from SEEU, 6 students are from Ss. *Cyril and Methodius University*.

		UT	SEEU	C.METHODIUS	Other	Total
Qyteti	Tetovo	136	11	0	1	148
	Gostivar	28	3	2	0	33
	Skopje	1	0	2	0	3
	Struga	9	1	0	0	10

Kumanovo	1	0	2	0	3
Kichevo	5	0	0	0	5
Other	18	0	0	0	18
Total	198	15	6	1	220

Table 2- The number of students according to their reside and their university.

136 students who study at the University of Tetovo are from Tetovo, 28 students are from Gostivar, and 9 students are from Struga. Students who have participated from the SEE University, 11 are from Tetovo, 3 students are from Gostivar. Part of the students who have participated from the university C. Methodius 2 students are from Gostivar, 2 students are from Skopje, and 2 students are from Kumanovo.

The third table gives information related to the faculties that students belong. The total number of students from the Faculty of Pedagogy at the University of Tetova is 108, and 5 are from the Faculty of Pedagogy at the Ss. *Cyril and Methodius University*. 13 students of Faculty of Philosophy continuing their studies at the University of Tetova and one is from SEEU. The number of students from the Faculty of Philology is 16 from the University of Tetova and 4 from SEEU. This survey has been fulfilled by 23 students of the Faculty of Medical Sciences at the University of Tetova and 3 from Ss. *Cyril and Methodius University*. And there are 11 students from Faculty of Applied Sciences.

		Faculty of Pedagogy	Faculty of Philosophy	Faculty of Philology	Faculty of Economics	Faculty of Law	Faculty of Applied Sciences	Faculty of Medical Sciences	Other	Total
Universities	UT	108	13	16	18	5	11	23	4	198
	SEEU	1	1	4	4	1	1	3	0	15
	C. Meto	5	0	0	0	0	1	0	0	6
	Other	0	0	0	0	0	0	0	1	1
Total		114	14	20	22	6	13	26	5	220

Table 3 - The number of students according to the university and the faculty of their studies.

Students who have filled the survey have different successes in their studies. Their achievement in their studies is shown on the fourth table Tab.4. where the data is given by the year of their studies. In total there are 11 first-year students, 3 of them have a GPA between 9 or 10, also 3 are with a GPA between 8-9. Four students have a GPA between 6-7. 23 students are from the second year of studies, 10 of them have a GPA between 6-7, 9 students have a GPA between 7-8, 3 students have a GPA of 8-9 and one students has a GPA higher than 9. Students enrolled in their third year of studies have this GPA: 13 students have a GPA between 6-7, 32 students have a GPA between 7-8. In total there are 78 students in the third year of their studies and from them, 20 have a GPA between 8-9, and 13 students have a GPA between 9-10. In this survey, there are 100 students enrolled in the fourth year of their studies and their GPA is as follows: 15 students in their fourth year of studies have a GPA between 6-7, 38 have a GPA between 7-8, also 38 have a GPA between 8-9. 17 students have the highest GPA which is between 9-10.

		6-7	7-8	8-9	9-10	Total
Year of study	First - I	4	1	3	3	11
	Second - II	10	9	3	1	23
	Third - III	13	32	20	13	78
	Fourth - IV	15	38	38	17	108
Total		42	80	64	34	220

Tab.4. The table of students according to their year of studies and their GPA.

Table 5 is related to the second part of the survey, where answers start from 1 strongly disagree, 2 somewhat disagree, 3 neither agree nor disagree, 4 agree, 5 strongly agree. From the table, we can see that around 42% of the surveyed students neither agree nor disagree and 24.5% agree with the answer to the question related to motivation. 38% of the students neither agree nor disagree when they are asked if the mathematic professors collaborate, and 27% agree that their professors collaborate. When asking about the creativity that Mathematic professors have, we received these answers, 11.4% strongly disagree and 16.4% say that they disagree. It is important to state that 32.7% of the students say that they neither agree nor disagree, this answer is the most used in our questionnaire because other answers appear with a smaller percentage. When asked if the mathematic professors respect the rules 40% have agreed, and 38.6% have strongly agreed. From the results of this question, we understand that students think that Mathematic professors respect rules. When asked for the trait of a Mathematics professor as a person of principles 41.8% agree and 34.5% strongly agree. 64.6% of the surveyed students share the same idea that professors of Mathematics are always ready to explain the material.

Traits	Strongly Disagree	Somewhat Disagree	Neither agree nor disagree	Agree	Strongly Agree	Total
Motivate	9 (4.1%)	28 (12.7%)	92 (41.8%)	54 (24.5%)	37 (16.8%)	220(100%)
Collaborate	10 (4.5%)	31 (14.1%)	83(37.7%)	59(26.8%)	37 (16.8%)	220(100%)
Creativity	25(11.4%)	36(16.4%)	72(32.7%)	51(23.2%)	36(16.4%)	220(100%)
Respect the Rules	0(0%)	11(5%)	36(16.4%)	88(40%)	85(38.6%)	220(100%)
Principled	3(1.4%)	13(5.9%)	36(16.4%)	92(41.8%)	76(34.5%)	220(100%)
Ready to explain	6(2.7%)	13(5.9%)	59(26.8%)	73(33.2%)	69(31.4%)	220(100%)
Sense of humor	30(13.6%)	60(27.3%)	73(33.2%)	47(21.4%)	10(4.5%)	220(100%)
Objective	8(3.6%)	20(9.1%)	69(31.4%)	99(45%)	24(10.9%)	220(100%)
Pedantic	4(1.8%)	13(5.9%)	45(20.5%)	102(46.4%)	56(25.5%)	220(100%)
Treat the students the same.	25(11.4%)	44(20%)	55(25%)	70(31.8%)	26(11.8%)	220(100%)

Tab.5 The table of answers related to the personality of Mathematics professors.

From the 5th table, we can understand that 33.2% of students agree that the sense of humor is present in Mathematics professors, and 27.3% disagree. 45% of students agreed on the question that Mathematics professors are objective and precise. 31.8% of the surveyed students agree that Mathematics professors treat the students the same and don't divide them.

This research has proven the hypothesis:

H1: Students motivation during the learning process of Mathematics is in correlation with respecting students' ideas and thoughts (Pearson correlation coefficient $\rho = 0.652$; $p < 0.01$).

H2: The motivation of students during Mathematics classes is in correlation with the creativity of the professor and the diverse teaching methods (Pearson correlation coefficient $\rho = 0.605$; $p < 0.01$).

H3: The motivation of students during Mathematics classes is in correlation with the readiness of the professor to explain uncertainties (Pearson correlation coefficient $\rho = 0.572$; $p < 0.01$).

3. Conclusions and recommendations

From the results obtained after processing the questionnaires we have reached these conclusions:

- Most of the students surveyed agree and neither agree nor disagree that their Mathematics professors are motivating when teaching Mathematics.
- Most students surveyed neither agree nor disagree that their Mathematics professors are cooperative and creative.
- Most of the students surveyed agree, and strongly agree that their Mathematics professor is principled, follows the rules, and always clarifies when the need arises.
- Most students surveyed partially agree (neither agree nor disagree that their Mathematics professors have a sense of humor.
- Most students surveyed agree that their Mathematics professors are objective, pedantic and do not discriminate between students.
- Motivating students during the process of teaching Mathematics is correlated with respecting the thoughts and ideas of students.
- The motivation of students during the teaching process of the subject of Mathematics is correlated with the creativity of the professor and the variety of approaches in the teaching process.
- The motivation of students during the process of teaching Mathematics is correlated with the willingness of professors to clarify the uncertainties encountered by students.

- Mathematics professors motivate their students and suggest developing creativity, variety of approaches and are even more willing to give explanations to students, which in this way will fade the saying that only students who have talent understand Mathematics.
- We as authors suggest that competent institutions should use a variety of ways to motivate Mathematics professors in different aspects that will contribute to the improvement of their lesson delivery as well as in creating stronger professor-student relations which will result in a boost of confidence in the students. When students are confident that they can achieve higher results in Mathematics they will show a willingness to deal with more complex tasks. Students don't like the feeling when they cannot solve a Mathematics problem therefore professors should provide support and use encouraging words that will make the students believe that after the effort, they can achieve the desired results.
- Mathematics as an abstract subject need's concretization, visualization, and integration in solving daily problems. As such it needs learning tools that can be digital or non-digital. The professor by applying these tools in teaching will achieve the main goal to make mathematics closer and concrete for students. The professor will be clearer, creative, critical, and closer to the students. This way it will be easier to overcome the problems that arise from the prejudices for the subject of mathematics. Therefore, the schools should work in this aspect of providing adequate and necessary teaching tools.

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