

PERSONAL AND PROFESSIONAL ATTRIBUTES OF TEACHERS IN RELATION TO STUDENTS' ACADEMIC PERFORMANCE IN MATHEMATICS

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ABSTRACT: *Teacher attributes are viewed to be essential determinants of academic performance, yet there is little agreement as to what specific attributes make an effective teacher in Mathematics. This study has the main purpose of determining the personal and professional attributes of teachers in relation to students' academic performance in Mathematics. The study used a descriptive-correlational research design. The survey questionnaire is researcher-made and generated from the interview conducted by the researcher. These statements were subjected to Exploratory Factor Analysis (EFA). The results showed that the teachers' personal attributes did not influence the student's performance in Mathematics. A total of 169 first-year students of Bachelor of Science in Information Technology participated in the study. Mean, Standard Deviation, and Pearson Product Moment Correlation Coefficient were used as statistical tools for treating the data gathered. Results revealed that the personal and professional attributes in terms of implementing instruction, organizing instruction, motivating and monitoring students' progress were very good. The performance of the students in the Mathematics subject was poor. The results showed that the teachers' personal attributes did not influence the student's performance in Mathematics. The professional attributes of teachers in terms of implementing instruction, organizing instruction, motivating and monitoring students' progress have greatly influenced the academic performance of students in their Mathematics subject. Teachers' personal attributes are non-indicators of students' performance in Mathematics while professional attributes of teachers play a role in the performance of students in the subject.*

Keywords: Attributes, Performance, Personal, Professional, Teachers

1. INTRODUCTION

Teachers have a powerful, long-lasting influence on their students. They directly affect how students learn, what they learn, how much they learn, and the ways in which they interact with one another and the world around them. Considering the degree of the teacher's influence, it is important to understand what teachers should do to promote positive results in the lives of students and school in general, that is, with regard to school achievement, positive attitudes toward school, interest in learning, and another desirable outcome. This understanding should base on what experts and stakeholders think teachers should do and on what educational research has been studied that showed significance in the preparation and practice of effective teachers. Teachers are tasked not only to be competent in teaching methods and techniques but also to know learners' psychological readiness and needs to improve teaching [26]. Maintaining the focused attention of the children in the school is considered an important factor for successful learning [13]. In a study on learners' attitudes towards Mathematics, the results indicate that students' attitudes were greatly improved when they were exposed to the teaching strategies of framing and team-assisted individualization when compared with the traditional method [2]. Researchers have developed lists, models, and taxonomies that identify both personal traits and pedagogical skills that contribute to effective teaching and distinguish good teachers. Findings support that good teachers have engaging personalities, knowledge, and pedagogical skills that are demonstrated with passion and enthusiasm. Soft skills are personal attributes that enhance an individual's interactions, job performance and career prospects and hard skills tend to be specific to a certain type of task or activity. We could say that soft skills refer to personality traits, social gracefulness, fluency in the language, personal habits, friendliness and

optimism that mark to varying degrees. A qualitative research approach using semi-structured in-depth interviews emerged four themes related to personal factors: (a) personality traits; (b) motivation; (c) attitude; and (d) sense of purpose. In addition, there were two themes related to environmental factors: (a) school and (b) community. In Australia, education authorities are calling for appropriate and valid tools to help assess prospective teachers' non-academic attributes, with a particular need for identifying those attributes necessary for effective teaching in specific contexts adapted items targeting four clusters of attributes: empathy and communication, resilience and adaptability, organization and planning, and culture and context. Most students described memorable teachers as having a combination of instructional and interpersonal skills, possessing positive attributes (e.g. compassion, sense of humor), and leaving a personal or academic impact. Out of the coding categories, students were least likely to discuss specific positive attributes of the teacher compared to teacher skills/actions and impact. [17]. Academic performance also known as academic achievement/academic attainment is the outcome of education; it constitutes the extent to which a student, teacher or institution has achieved their educational goals. It is commonly measured by examinations or continuous. In educational institutions, success is measured by academic performance, or how well a student meets standards set out by the local government and the institution itself [21]. It can be defined as standardized test scores, students' grades, overall academic ability and achievement outcomes [11]. Academic motivational construct is a strong predictor of students' self-regulation in learning and academic performance. Self-regulation mediates the relationship between students' academic motivation and students' academic performance. Moreover, there is a great impact of academic performance on students' motivation and determination. Students with poor academic performance fail to seek

admission to higher-level institutions. Furthermore, academic performance depends on many different factors including student's cognitive abilities, emotional intelligence, socio-economic status, school environments, home environments, curriculum, instructional materials etc. [1]. Moreover, cognitive ability, affective attributes, and resilient behaviors predicted student's academic performance [10]. Many students are considered underachievers in Mathematics. They are average or above average in their intelligence but their actual achievement in Mathematics did not coincide with their intellectual capabilities. The dimension of a negative relationship with the teacher was negatively associated with the desired behavior, behavioral problems and academic achievements through the eight years of students' schooling. If teachers are not motivated, the pupils cannot learn effectively, thus affecting their academic performance [20]. A study systematically analyzed the research exploring two psychological characteristics (self-efficacy and personality) and measures of teaching effectiveness (evaluated teaching performance and student achievement). Analysis reveals a significant but small effect between overall psychological characteristics and teaching effectiveness. The strongest effect found was for self-efficacy on evaluated teaching performance. Teacher self-efficacy also showed a positive link with students' academic adjustment, patterns of teacher behavior and practices related to classroom quality, and factors underlying teachers' psychological well-being, including personal accomplishment, job satisfaction, and commitment.

This study determined the personal attributes of Mathematics teachers in relation to students' academic performance in Math at the University of Science and Technology of Southern Philippines (USTSP) in Mobod, Oroquieta City, for the School Year 2018-2019. The specific objectives were to:

1. Determine the personal attributes of Mathematics teachers;
2. Determine the student's academic performance in Mathematics subject; and
3. Explore a significant relationship between the personal attributes of teachers and students' academic performance in Mathematics.

2. METHODOLOGY

The research study used a descriptive-correlational research design to examine the personal attributes of Mathematics teachers and their relationship to students' academic performance in Mathematics. The study was conducted at the University of Science and Technology of Southern Philippines in Mobod, Oroquieta City, with 169 first-year students of Bachelor of Science in Information Technology as respondents. The research instruments included a researcher-made questionnaire to measure the Math teachers' personal attributes and a documentary analysis of students' final grades in Mathematics.

The questionnaire consisted of 18 indicators derived from interviews and subjected to Exploratory Factor Analysis (EFA) to determine the attributes of Mathematics teachers. The respondents rated these indicators on a scale from 1 (never) to 5 (always). The results of the questionnaire and the student's academic performance data were analyzed using mean, standard deviation, and Pearson Product

Moment Correlation Coefficient to establish any significant relationship.

The study found that the Mathematics teachers had very good personal attributes, including a sense of humor, pleasant personality, and enthusiasm for teaching. However, despite these positive attributes, the students' performance in Mathematics was poor. The study did not find a significant relationship between the teachers' personal attributes and the students' academic performance in Mathematics.

The research recommends that teachers continuously improve their pedagogical knowledge and passion for teaching to enhance students' academic performance. It suggests exploring other factors that may influence students' performance in Mathematics, such as their self-efficacy, interest, math anxiety, and socio-economic status. Ethical considerations were followed throughout the study to protect the respondents' privacy and ensure transparency in the research process.

3. RESULTS AND DISCUSSION

Personal Attributes of Mathematics Teachers

The personal attributes of Mathematics teachers (Table 1) are very good ($M = 4.32$, $SD = 0.14$). Mathematics teachers have commendable attributes which determine their thoughts, feelings, and actions in the classroom. They have a good sense of humor and pleasant, and well-balanced personalities. They set themselves as a good example for students' behavior in class. They show enthusiasm and vitality in teaching Mathematics.

Results revealed that the personal attributes were very good. The performance of the students in the Mathematics subject was poor. The personal attributes of Mathematics teachers did not influence the students' academic performance in Mathematics subject. The teachers' grooming, attitude, and other behavior do not relate to the grades of students in Mathematics. The finding of this study agrees with the study of Raza & Irfan (2018) which stated that teachers have overall high levels overall attributes among the five sub-scales. The teachers' personalities received the highest rating from students and were rated as the most preferred attribute of a teacher. Teachers should have personal traits as one of the characteristics of effective teachers. To have quality teaching, teachers need to have empathy and communication, resilience and adaptability, organization and planning, and culture and context in teaching. They are required to exhibit good attributes and accommodate the academic, social and emotional needs of the students. They need to set the tone of their classrooms, build a warm environment, mentor and nurture students, and become role models in all aspects. Teachers have to act as good role models to their students. They have to make sure that they all have the outstanding personal attributes of teachers. They can instantly affect students' moods and attitudes. Creating a non-threatening classroom atmosphere where students feel they are respected and accepted for who they are and for what they say and do is a conducive atmosphere for students' learning. Moreover, they seek to understand the students, expecting their students to behave well in class. They are clear about what they want their students to learn and they try to adjust their style or teaching strategies to the kind of learners they have.

Table 1: Personal Attributes of Math Teachers (n=169)

Construct	M	SD	Remarks
Personal Attributes	4.32	0.14	Very Good

Scale: 4.20-5.0(Very Good); 3.40-4.19(Good); 2.60-3.39(Fair); 1.80-2.59(Poor); 1.0-1.79(Very Poor)

Students' Academic Performance in Mathematics

The students' performance (Table 2) in Mathematics subject is poor (M = 2.92, SD = 0.89). Students have poor performance in Mathematics as revealed in their grades in the final. This means that students in math really had difficulty in learning the subject. There are factors that may have contributed to their poor performance based on the results revealed that the personal attributes were very good. However, the performance of the students in the Mathematics subject was poor. The personal attributes of Mathematics teachers did not influence the students' academic performance in Mathematics subject.

Many students are considered underachievers in Mathematics. They are average or above average in their intelligence but their actual achievement in Mathematics did not coincide with their intellectual capabilities [25]. The dimension of a negative relationship with the teacher was negatively associated with the desired behavior, behavioral problems and academic achievements through the eight years of students' schooling [15]. Students with Mathematics difficulty demonstrate growth on Mathematics measures, but this growth still leads to lower performance than that of students without Math difficulty. Students with Math difficulties continue to struggle with Mathematics in later grades (Nelson & Powell, 2018). Poor academic background caused the first-year students to have difficulty in learning academic subjects, particularly in Mathematics as shown in the study in MSU-General Santos City [12]. Mathematics teachers play an essential role to address the concern by providing the necessary academic support services for students who are considered academically underprepared for college-level Mathematics. They have to set first the learning environment ensuring that it is conducive to learning and make sure that the teacher-student relationship is maintained. Varied teaching strategies and interactive activities that cater to the learners' multiple intelligences and learning styles have to be employed by teachers in teaching Mathematics concepts.

In this context, teachers may explore ways by which they can consistently help their students to do the best they can. They can continue to be passionate and form warm and caring relationships with their students. They can, however, set high expectations and demand that their students meet their expectations.

Table 2: Students' Academic Performance in Mathematics (n=169)

Variable	M	SD	Minimum	Maximum
Performance	2.92	0.89	5.0	1.75

Scale: 1.0-1.25(Outstanding); 1.26-1.75(Very Satisfactory); 1.76-2.25(Satisfactory); 2.76-3.0(Poor); 3.01-5.0(Very Poor)

Significant Relationship between the Personal Attributes of Teachers and Students' Performance in Mathematics

Data revealed that the personal attributes of Mathematics teachers are not significantly related (r value= 0.11, p-value = 0.16) to the performance of students. There is no significant relationship between the teachers' personal attributes and the students' performance in Mathematics. It means that when the teachers' personal attributes increase by a unit, their students' performance will be the same, it does not increase nor decrease. The data imply that the teachers' grooming, attitude, and other personal behavior do not relate to the grades of students in Mathematics. The teachers become personally ready to teach; the students' performance in Mathematics would still be the same. There might be other factors that relate to the students' performance, but not the teachers' personality in teaching.

The finding of this study contradicts the finding of Leon, et al. (2017) which states that for educational aspirations, significant positive effects are seen and reported, particularly those students who are under teachers' care, treat students fairly, and encourage asking questions. They have a strong relationship and rapport with their group of learners. They conduct one-on-one conversations with students. They respond to students with respect, and to situations and students' needs. Teachers' attributes like teaching experience, being a woman, having short-term specific professional training, and having greater curriculum coverage have positive impacts on the performance of 4th-grade students. However, studies showed that it is not teachers' personality that relates students' performance, but pupils' gender. Previous knowledge and personality traits of students have direct and indirect impacts on their achievement. The students' socio-economic status like the number of books, the possession of computers, paternal, and maternal educational achievements were positively related to Japanese student Mathematics achievement.

Students' achievement was significantly positively predicted by their self-efficacy and interest, significantly negatively predicted by energy and procrastination [16], and positively predicted by their level of Math. Anger in test situations and hopelessness were also significant negative predictors of students' Mathematics achievement. These are all factors that formed a part of their performance in Mathematics.

Teachers have to trace other factors that relate to students' performance in Mathematics as their personal attributes do not relate to it. It might be that the teachers' pedagogical knowledge in teaching or even their commitment and passion for teaching contribute to the performance of students. Teachers may consider the students' personality traits and try to develop their motivational self-regulation or other students' factors like their multiple intelligences and learning styles.

Table 3: Significant Relationship between the Personal Attributes of Teachers and Students' Performance in Mathematics

Variables	r-value	p-value	Remarks
Personal Attributes and Performance	0.11	0.16 ^{ns}	Not Significant

Note: ^{ns} means p ≥ 0.05 – Not Significant

Thus, future researchers may conduct another study that

would identify the predictors of students' performance in Mathematics.

4. CONCLUSION

The very good personal attributes of the teachers determine their positive personal characteristics towards teaching Mathematics. Other factors may influence students' performance in Mathematics. This implies the idea that teachers should value having a high personal regard for teaching and a commitment to continuous improvement as teachers. They have to focus on how to improve the fair performance of the students in their Mathematics subject. If a teacher is bored with the material, then the students will also be bored and less likely to learn. Passion and enthusiasm draw students into learning. Based on the findings and conclusion, it is recommended that teachers attend seminars to update their knowledge of the subjects they are teaching. They understand the concepts in Mathematics thoroughly and be able to explain and articulate them in detail. They need to have thorough knowledge to engage students and to judge where and how to be of assistance to them. Teachers have to care about their students and be passionate about the material.

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