Abstract
This study examined three student attributes namely; level of mathematics anxiety, learning style, and attitude toward Chemistry that generated information on their effect on student achievement in Chemistry. The study employed the causal-comparative descriptive research method. Instruments used included an achievement test to measure performance involving mathematical concepts in Chemistry, level of mathematics anxiety scale to measure anxiety levels, attitude toward Chemistry scale, and learning style reference. A total of 108 Grade 9 and 10 students from the Institute of Teaching and Learning (ITL) at the Philippine Normal University were involved as respondents. The result of the study revealed that the respondents taken as a whole, performed fairly in the achievement test in Chemistry particularly in the multiple choice and poorly in the open-ended part of the achievement test. Their anxiety in mathematics was positively correlated with their performance in Chemistry involving mathematics. The respondents, taken separately by grade level showed that grade 9 performed better than grade 10 in multiple choice and open ended tests. Both groups have favourable attitude toward chemistry. Grade 9 has less anxiety level than grade 10 respondents. The study recommends that teachers should employ an effective approach on how to lessen the students’ level of anxiety in mathematics for them to improve their performance in Chemistry. Further, the study recommends teachers to find best ways to get their students interested in Chemistry topics which involve mathematics.

Keywords: Student Attitude, Mathematics Anxiety, Academic Achievement, Learning Style, Chemistry
Introduction

Basic mathematical skills are important in everyday life, yet many students feel anxious when they are faced with the prospect of solving mathematical problems. Students recall having traumatic experience involving mathematics, such as being ridiculed by their classmates if they did not solve a problem correctly or belittled by the teacher.

More than just memorizing formulas and concepts, Mathematics requires high-ordered thinking skills such as analytical reasoning, problem solving, and critical thinking because mathematics are abstract and spiral in nature. Similarly, learning Chemistry is also a challenge because students are not only introduced to science concepts but also required to apply skills in mathematics. Students tend to have a negative attitude toward learning Chemistry, as both require similar skills and a thorough understanding of problems that they have to solve. Mathematical anxiety, characterized by feelings of tension, apprehension, and fear about performing math, hinders the students’ progress and competence in learning and understanding the concepts of mathematics, more so when mathematics skills are needed in learning Chemistry concepts. In effect, students’ uneasiness of the discipline affects how they take the examination, their attitude toward the subject, and their behavior in the classroom, hindering their capacity to learn not only courses in Mathematics but also scientific in disciplines like Chemistry.

Mathematics is used as the language of science especially Chemistry. Mathematics difficulty is associated with disinterest in learning chemistry, understanding, and solving problems. Student’s fear in mathematics affects their ability to endure and perceive concepts encountered in studying chemistry. It has been observed that so many students fear chemistry and such fear is characterized by mass disenchantment among the students toward the subject. The relationship of the student’s mathematics anxiety and their attitude toward chemistry greatly affects their performance in the subject.

The increasing learners’ individual interest has led to the shifting of traditional to progressive mode of education, showing a new paradigm as a student-centered learning. The individuals’ interaction process is very important to determine their method of learning that is most effective to take place in terms of their learning styles (Zywno, 2002). The study of Ikitde and Edet (2013) indicated that students’ attention is being focused on how they can meet challenges in an increased diversity inside the classroom. It is their interest how they demonstrate mastery in the completion of a subject that depends on their way in absorbing the lessons and the teaching methods. Pashler, McDaniel, Rohrer and Bjork (2008) conclude that learning styles can have little evidence with the students’ learning style on how they match instructions to produce superior learning.

Students’ attitude can be influenced by their achievement which gives an important role in selecting their professional carriers. According to Bennet, Lubben, and Hogarth (2003), students’ understanding of science ideas is helpful in science education. These science ideas are referred to the student’s views in developing science as the result of experiences in different environments in the field of Science education.
Restrepo and Villaveces (2012) noted that Mathematics and Chemistry are closely related. The close relationship was evidently observed in the emerging subdiscipline known as mathematical chemistry.

Mathematics has an essential use in chemistry. Basic knowledge of mathematics can be used in chemistry to deal with concepts and theories. Mathematical skills are extremely necessary to explore chemistry in its most important concept using some basic mathematics skills and with these calculations, chemistry itself will be extremely difficult (Shodor, 2008).

This study sought to determine and correlate the students’ mathematics anxiety, students’ learning style, and attitude toward chemistry to their achievement in chemistry.

Conclusions

In light of the findings, the following conclusions on mathematics anxiety, learning style, achievement and attitude of students toward chemistry were made:

1. Students today are very anxious to learn topics involving mathematics. The respondents are visual learners therefore the students are achieved by using visual stimuli rather than auditory and kinaesthetic. The students have a positive attitude toward chemistry thus their performance is not affected towards the subject and the students still has a mastery in the topics of chemistry.
2. It shows that anxiety in mathematics has a marked effect in their learning chemistry than learning style and attitude in chemistry.
3. From the grades 9 and 10 students, Grade 9 students still has a retention of the topics in chemistry because they are currently taking the subject while the Grade 10 students are currently taking different branch of science therefore some of the topics are forgotten.
4. Students’ attitude toward chemistry and learning style doesn’t affect their achievement in dealing with chemistry concepts involving math skills.

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