

THE EFFECT OF TEACHING AND LEARNING ON LEARNER'S ATTITUDE AND PERFORMANCE OF GRADE 11 PUPILS IN CHEMISTRY AT SELECTED SECONDARY SCHOOLS IN CHIPATA DISTRICT

BARRACK CHAMA

Copperbelt University, School of mathematics and natural sciences
Department of chemistry education, Kitwe, Zambia
Email: chamab2012@gmail.com

PROF K. MASEKA

Copperbelt University, School of mathematics and natural sciences
Department of chemistry education, Kitwe, Zambia
Email: kkmaseka@gmail.com

MUSONDA MOSES

Copperbelt University, School of mathematics and natural sciences
Department of chemistry education, Kitwe, Zambia
Email: moosesmuzo2@yahoo.com

ABSTRACT:

The main objective of this research was to establish the effect that teaching and learning methods have on the attitude and performance of the learners of chemistry in grade 11 in selected schools of Chipata district.

The research method employed was survey in which questionnaires were used to obtain information on the various methods that teachers use in the teaching and learning and how it impacts on the attitudes and performance of learners in chemistry. A positive correlation ($r=0.057$) ($p<0.05$) exist between the teaching and learning and the attitudes and performance of grade 11 learners of chemistry.

Therefore, teaching and learning of chemistry has an impact on the attitude and performance for grade 11 learners in Chipata district.

KEYWORDS: Teaching, Learning, Attitudes, Performance, Chemistry, Chipata District.

To help students acquire chemical knowledge so that they understand their physical environment, become aware of chemical knowledge to help acquire problem-solving skills, and the responsibility of a chemist to society and prepare them for further education in related areas that prepare students for the world of science and technology. The problem is that most pupils in secondary schools of Chipata district are currently performing poorly in science, especially chemistry [2]

INTRODUCTION:

Chemistry plays a crucial role in maintaining human health, and its importance for a country's scientific and technological development has been widely reported. According to [1], effective chemistry lessons continue to achieve scientific and technological greatness. Chemistry as a subject has an important role in our daily life and in society in general. Everything on earth is made of chemicals. (Chemistry helps us understand the changes around us,) because such changes are caused by chemistry, such as changes in leaf colour. Chemistry also helps students develop research, problem-solving, and analytical skills. Knowledge of chemistry is not only important for careers, but also plays an important role in people's daily lives in places such as food production, better health, industrial growth and the improvement of social life, for example in the cosmetics industry. According to the chemistry curriculum, studying chemistry in Zambian secondary schools is designed [3]

Poor performance has contributed to poor chemistry scores for most candidates taking 12th grade exams. At national level, lackluster performances have prompted a low take-up of vocations in science and innovation, which affects the nation's vision for 2030 to progress in science and innovation [4,5,6]. To accomplish this vision and alter the course, the legislature has taken various measures focused on understudies, educators and the whole instructing and learning condition.

Regardless of these mediations, the perceptions of the [7] show that poor science execution in auxiliary schools in the Chipata region proceeds with a mean lower than national average estimated a seemingly endless amount of time after year. The main objectives of this research is to investigate the attitudes of students

The research design employed survey method. The survey had both organized and four unstructured inquiries. Every single possible component of data significant to tending to the examination issue under investigation have been arranged and incorporated with the consideration of essential inquiries to help get the vital data.

2.1 Analysis of responses from teachers:

The table below shows the demographic information for respondents. The demographic information considered included sex, age, education, and institution in which a particular respondent was present

1.0: The Demographic Information for Respondents

Variable	Frequency	Percentage
1. Gender		
Male	23	71
Female	9	29
Total	32	100.0
2. Age		
<30 years	3	9
31-40 years	26	81
41-50 years	2	6
<50	1	3
Total	32	100.0
3. Education		
Form 6	2	6
Diploma	15	46
Bachelor	15	46
Degree	32	100.0
Total		
4. Duration as a chemistry teacher	12	37
1-5 years	8	25
6-10 years	10	31
11-15 years	2	6
16-20 years		
Total	32	100.0

The first demographic data considered was the gender of respondents to teachers. According to the information in Table 5.1, 23 (71%) of the respondents were male while 9 (29%) were female. This means that both males and females were taken into account for the study.

towards the learning of chemistry in selected schools and to establish the teaching and learning methods used by chemistry teachers when teaching the subject

RESEARCH METHODOLOGY:

In terms of age, 3 (9%) of the respondents were less than 30 years and 26 years (81%) in the range of 31 and 40 years. Additionally, 2 (6%) of the respondents stated that they were between 41 to 50 years old and that the remaining (3%) was over 50 years old. This means that the respondents who were sampled were old enough to provide accurate study information.

With regard to education, 6 (6.0%) of the respondents claimed that they obtained education up to the sixth grade, 15 (46.0%) of the respondents claimed that they obtained education up to diploma levels while 15 (46.0%) obtained the first degree. Statistics show that most of the respondents received sufficient education to provide the information necessary for the study.

Finally, in terms of duration that the teachers of chemistry have been teaching chemistry, it was observed that 12 (37.0%) of the respondents indicated that they have been teaching the subject for a period of 1-5 years. Another 8(25.0%) indicated that they have been teaching chemistry for a period between 6-10 years. A further 10 (31%) indicated having taught between 11-years whereas only 2 (6.0)% had taught for a period 16-20 years. The results are a clear demonstration that the respondents had enough experience to determine the factors affecting students' performance in chemistry.

Table 2.0: Teaching and learning method used:

Statement	Mean	Std. Deviation
Lecture methods	1.94	0.920
Discussion method	3.05	1.731
Project method	2.12	1.263
Class demonstration	4.95	0.164
Laboratory demonstration	3.60	0.365
Observation	1.51	0.501
Valid N (listwise)		

The data on the teaching and learning methods used in chemistry was collected using a questionnaire. The study sought to determine the methods used by teachers in the teaching of chemistry in order to determine whether or not it has any effect on students' performance. The questionnaires were administered to 32 teachers and responses to the questions were chosen by ticking.

The study sought to determine the methods used by teachers in the teaching of chemistry in order to determine whether or not it has any effect on students' performance. The table below shows the results that were obtained:

Table 3.0: Teaching method

Variables		Students attitudes towards chemistry	Teaching and learning methods
Students attitudes towards chemistry	Correlation	1.000	0.057
	Significance (2-tailed)	.	0.00
	Df	0	309
Teaching and learning methods	Correlation	0.057	1.000
	Significance (2-tailed)	0.00	.
	Df	309	0

According to the results obtained and as depicted in the Table 1.0, the majority of the teacher respondents indicated that the method commonly used to teach chemistry was lecture method (Mean=1.94, SD=0.920). With regards to discussion method, respondents expressed mixed reaction with some agreeing that they use the technique and others disagreeing (Mean=3.05, SD=1.731). On the other hand,

The study sought to determine the factors that contribute to the poor performance of students in chemistry at public secondary schools in Chipata. According to the results obtained, the two independent variables students attitude towards chemistry, the teaching and learning methods. The findings correlates with those by [8, 9] who identified that lack of instructional materials is also a bane. He explained that due to lack of instructional materials, teachers only carry out experiments while students watch and take notes [10, 11]. The study sought to determine the methods used by teachers in the teaching of chemistry in order to determine whether or not it has any effect on students' attitude towards chemistry. According to the results obtained, the majority of the teacher response indicated that the method commonly used to teach chemistry was lecture method (Mean=1.94, SD=0.920). With regards to discussion method, respondents expressed mixed reaction with some agreeing that they use the technique and others disagreeing (Mean=3.05, SD=1.731). On the other hand, respondents also agreed that project methods are used to deliver the course to learner (Mean=2.12, SD=1.263). However, majority of the respondents disagreed that class demonstrations are used (Mean=4.95, SD=.164). The teacher respondents also disagreed about using laboratory demonstration (Mean=.3.60, SD=.365). In addition, the observation

respondents also agreed that project methods are used to deliver the course to learner (Mean = 2.12, SD=1.263). However, majority of the respondents disagreed that class demonstrations are used (Mean=4.95, SD=0.164). The teacher respondents also disagreed about using laboratory demonstration (Mean=3.60, SD=0.365). In addition, the observation results revealed that mostly observation are conducted in classes as a means to teach chemistry.

2.4 Analysis of the correlation:

In order to determine the possible relationships between variables, correlation analysis was performed. According to the correlation matrix, it can be indicated that there is a positive relationship between students' attitudes towards chemistry and to improve their performance on the subject ($p < 0.05$). Likewise, with regard to the link between teaching and learning methods and the student attitude the results show a positive correlation ($r = 0.057$) This means that the independent variables (teaching and learning methods) discussed in the study influences positively on the dependent variable (the student attitude).

DISCUSSION:

results revealed that mostly observation are conducted in classes as a means to teach chemistry.

The researcher sought to establish whether the schools often sensitize students to take up sciences as a way of creating positive attitudes. According to the results obtained and as reflected in the table above, most administrators expressed mixed reactions towards this item with others agreeing and others disagreeing (Mean=3.03, SD=1.118). This implies that the administrators do not sensitize students about the importance of chemistry to create a positive attitude towards the subject.

CONCLUSION:

The researcher drew inferences based on the research questions and objectives. The results indicates that teaching and learning have a positive impact on the attitudes of the learners of chemistry for grade 11 pupils at selected schools in Chipata district.

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