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"Effect of Teaching Styles of Teachers on Academic Achievement of Students Learning in General Science Subject at Elementary level in District Astore"

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ABSTRACT

The major object of the study was to investigate the effect of teaching styles of teachers on academic achievement of students learning in a General Science subject at the elementary level. The population of this study contained the 52 elementary school teachers who were taught General Science the subject in 8th class and 818 students enrolled in different schools on session 2018-2019 in district Astore. For the selection of a sample (277) from population simple random sampling technique was applied particularly on student's selection. Casual comparative the research design was adopted as it is defined by variables nature itself. Inferential and descriptive statistics applied to measure the teaching styles and the academic achievement. Grasha's Teaching Style questionnaire adopted in order to measure the teaching styles of teachers. The results of Tukey test reveled that there was a highly significant difference found among the expert, facilitator and delegator teaching styles with academic achievement on students learning on Science subjects that is (P=0.00) P<0.005. It means students get the highest marks if the teachers are employed the facilitators and delegators teaching styles and get low marks when teachers employed expert and formal authority on the General Science the subject in 8th grade. Hence it is suggested that elementary school teachers may use a facilitator and delegators types of teaching styles during the teaching of General Science content in class 8th for achieving more academic success.

Introduction

The learner's behavioral changes and academic achievement of students are possible through effective teaching that the teachers adopt different teaching styles during presenting a lesson in the classroom. Student's mental level and nature of content compel to teachers to select an appropriate or effective teaching style during delivering knowledge and content in the classroom. Effective teaching is possible when the teachers select appropriate teaching styles that fulfill the student's level and demand of a lesson. Learner oriented teaching is extremely possible to enhance students understating power and creating scientific environment which are considered preferable for the learners. Delivering for physics content by teachers is practiced teacher oriented style such as lecture and problems solving style are considered ineffective and also failed to promote pupils learning in physics subject (Ganyaupfu, 2013). Different teaching styles are adopted by the teachers during presenting content in the classroom but the most effective method may possible when teachers select according to need, level of learners and nature of content. The low level of academic achievement of students in learning is due to ineffective teaching styles are adopted by the teachers during transmitting knowledge and skills in the classroom. Hence teachers need to employ the diverse types of styles in order to meet the overall goals. Teaching style shows teachers own formal behavior that are used consistently to covey, transmit knowledge and skills into students. Further, it is described in precise form that a person his/her own traits, way of communication and collaboration with students during delivering content in the classroom. Teaching styles are made according to manners and behavior simulated by instructor-pupil interaction, that be able to follow as of position to position, as an instructors are applied different kinds of teaching styles, to achieve their own teaching and instructional goals (Hein, 2012).

The teaching style is defined as "a teacher's behaviors and media are merely used to transmit data or receive it from the learner" (Kaplan and Kies 1995). Teacher's behavior is simulated by the pupil-instructor communication and interaction during a teaching in the classroom but sometimes it also needs to adopt the different teaching styles to achieve instructional goals (Hein et al. 2012). Jarvis (2004), teaching style "includes the implementation of philosophy; it contains evidence of beliefs about values related to and attitudes toward all the elements of the teaching-learning exchange" (p. 40). Bibace et al. (1981) teaching styles in "a continuum where the most student-centered (facilitative) styles lie at one end, and the most teacher-centered style (assertive) lies at the other end". It has been described by Hoyt and Lee's (2002) that no single teaching style is considered to be effective

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for entire subjects and instructional goals. Different teaching styles are existed in literature such as Grashs (2002) classify five styles, expert, formal authority, personal model, facilitator and delegator. Effective teaching may possible if teacher consistently consider students interest and level by applying student centered approaches. The low academic achievement in different subjects is due to ineffective and irrelevant teaching styles are employed by the teacher in order to transmit knowledge into students, in which teachers feel more confident and pleasure. Student centered and progressivism approaches are forced to keep the interest of students and also providing foredoom as well as proper participation of students during delivering content by the teachers.

Rationale of the Study

Many teachers follow the traditional types of teaching styles in which student's active participation, conducting activities in classroom and engagement opportunities are not given to students during presenting a lesson, therefore they do not give importance in practical and activity methods just focuses on theoretical aspects and creating memorization habits (Tebabal & Kahssay, 2011). The students have practiced the memorization and rectification methods that are enforced by the traditional style-oriented teachers in the classroom as well as self-study. Activity and practical based methods provide opportunities for students to get proper physically and mentally involvement during teaching lesson in the classroom. In biology subject teachers who teach to students with learner-centered teaching styles or methods get a higher score as compared to those teachers who employ teacher-centered teaching styles (Audu, 2018). Developing a discovery environment of students is only possible by adopting learner-centered teaching styles. The low level of academic achievement of students learning at a higher level in kinematical motion physics is directly responsible by the employment of teachers' irrelevant and infective teaching styles such as lecture style (Sogoni, 2017). In mathematics subject student's performance is much satisfactory when teachers believe and practices the delegator type of teaching style (Canto-Herrera, & Salazar-Carballo, 2010). Mathematics teachers give importance to delegator teaching style in which students have given positive feedback, encouragement, and freedom so that students can handle task independently assigned by the teachers. In science subject, many teachers do not give the importance in activity, practical, delegator, facilitator and experimental teaching methods which may causes fail to create a scientific attitude of students. The General Science subject is the combinations of three major parts that contains physics, chemistry and biology. In a science subject, students are not given importance due to the lack of fruitful scientific environments created by teachers. There is little research base

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evidence regarding the effect of teaching styles and academic achievement of students in science subject 8th grade. To fulfill the gap hence, it is dire need to investigate the study "Effect of Teaching Styles of Teachers and Academic Achievement of Students Learning in General Science Subject at Elementary level in District Astore".

Statement of the Problem

The performance and academic achievements of students are depended upon the effective teaching styles which are applied by the teachers during presenting a lesson in the classroom. Teachers use different types of teaching styles for delivering content and sharing knowledge that is based upon teacher's nature and philosophy. Student's academic achievement may possible when teachers adopt teaching styles on the basis of content demand and student's level. Many teachers are adopted irrelevant and ineffective teaching styles which cause to create negative and poor academic performance of students. In general science subject, some teachers apply lecture and teachers centered styles which are failed to give clear concepts and thoughts into students. Developing scientific attitude and critical thoughts of students are possible if the teacher adopts the new, innovative, and practical and projects based teaching styles particularly focusing on the nature and demand of content or lesson. Adversity, the teaching of science subject in district Astore is mostly theory based, hypothetical, lecture, reading content and traditional teaching styles that refer to give less importance in developing students thinking power, scientific attitude and solving problems independently. Hence, the aim of this study was investigate to "Effect of Teaching Styles of Teachers and Academic Achievement of Students Learning in General Science Subject at Elementary level in District Astore".

Literature Review

Teaching Styles

Teaching styles of teachers are represented the teachers behavior and attitude that shows during delivering a lesson and interaction with pupils in classroom (Grasha, 2003). In previous studies it is shown that teaching styles are correlated with pupil's academic score (Huang, 2009) and it also be able to students for learning with interesting (Lockette, 2006). Teaching styles are categorized into five types such as expert, formal authority, personal model, facilitator and delegators by the Grasha (2002) that the teachers practice during a teaching in the classroom. In literature, numerous types of teaching style categorized by researchers and scholars with different terminologies, for instance, direct teaching style (based on teacher-centered) and indirect style (learners centered) by (Flanders, 1970), formal and informal dived by the (Bennett, Jordan, Long, & Wade, 1976), open and traditional presented by (Solomon & Kendall, 1979),

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intellectual excitement interpersonal rapport by given (Lowman, 1984), and expert, formal authority, personal model, facilitators and delegators classified by (Grasha, 1996). The teaching styles in which are given by Grasha, (1996) in his model as it covers to maximum aspects in which teachers have followed one or more teaching styles which are included in Grasah model. It has found validity in literature as 92% of respondents are agreed on the Grasha classification of teaching style Grasha & Yangarber-hicks (2000). Therefore the study leads to Grasha's Model.

Teaching styles are categorized into five types such as expert, formal authority, personal model, facilitator and delegators by the Grasha (2002) that the teachers practice during teaching in the classroom.

Expert Teaching Style: Expert teaching style focuses the content, transmitting of knowledge, and less importance is given to students. It is also based on traditional approach in which a major role is played by teacher. Student's experiences and others resources are ignored by the teacher which shows negative effects in teaching. Such kinds of teachers are tried to maintain their status among students by sharing knowledge and expertise (Grasha, 2002). This method is only focusing to transmit knowledge into students so that it can be possible to prepare students by valid information and knowledge. In this method it is believed that the teachers requires expertise in his/her subject and also consider to dire need for pupils.

Formal Authority Teaching Style: The formal authority style is also based on traditional approach of teaching in which students are provided to opportunities in order to develop thinking creatively and flexibility under enough limitations. Both types of feedback are given to student by teachers in order to improve the students learning. It is also focused on content and books by the teachers which must be given to students in valid and reliable knowledge. Strict rules and standards are made by the teacher in order to control the classroom discipline (Grasha, 2002). Student should be taught only core and valid books so that wrong knowledge may not be transferred to students.

Personal Model Teaching Style: The personal model method refers to providing some related examples during teaching and also treated as per students thinking in order to encourage students. It also focuses how to react. This method also focuses on examples which are linked with students how to react and how to behave. It also gives importance in direct observation. When the students do not meet the teachers made standard and expectations they feel incompetent.

Facilitator Teaching Style: The facilitator style of teaching is flexible, give importance to student's experiences, and promote interaction with students (Grasha,

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2002). Students are played active role during teaching, give responsibility and also providing cooperative environment in the classroom. Facilitators give prominence to student-teacher interaction. Teachers of this characteristic support and encourage their students and they work on projects for which they are counselors. By adopting this method student are faced difficulties and problems when they do work only positive instructions

Delegator Teaching Style: The delegator teaching style of a teacher creates learner centered environment, fulltime independence is given into learner in order to students physically and mentally participation are possible. It also gives much importance in students in order give responsibilities and duties so that pleasure environment with proper participation is ensured. In this method teachers role is much flexible and teach to students in their own way and choice (Grasha, 2002). Learner centered teaching styles provide opportunities to students in order to give attention providing encouragement and developing thinking abilities as well as creating pleasure environment (Hesson & Shad, 2007).

Objectives

The objectives of the study were developed which are as below:

1. To investigate the teaching styles of elementary school teachers employing in General Science subject.
2. To find out the effect of different teaching styles of teachers on academic achievement of students learning taught by teachers in General Science subject at elementary level.

Significance of the Study

Teaching styles of teachers are playing a significant role to promote quality, effective teaching and to achieve the high academic achievement of student's learning. The findings of this study gives appropriate knowledge for teachers, policymakers and stakeholders regarding which kinds of teaching styles are considered more significant for teaching General Science the subject at the elementary level and also make possible for maximum academic achievement of students learning in the classroom. It also provides opportunities for the student to make ensure students actively participation, think critically and creatively, to make scientific attitude and learner-centered environment during delivering general science content in 8th class by the teachers in the classroom. Furthermore, it also adds the updated knowledge in literature which particular methods are considered more significant for the teaching of General Science subject by the elementary school teachers. In the end it gives some important directions that will much beneficial to researchers for conducting future essential studies.

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Hypotheses

Keeping view the objectives of the study the null hypotheses formulated which are mentioned as below:

I. There is no significant difference of different teaching styles and academic achievement of students learning in General Science subjects in District Astore.

Delimitation

Due to different constraints such as time and resources researcher was delimited to:

1. Only elementary school teachers in District Astore
2. General Science subject in 8th grade was selected.
3. Only focused on Grashia,s Teaching Styles as it is comprehensive and cover the whole teaching styles which are followed by the teachers during delivering content in the classroom.

Methodology

The key object of the study was to investigate the effect of teaching styles of teachers on student's academic achievement in Science subject at elementary level in District Astore. The research design was based on casual comparative as it is shown the nature of variables by the study. Data was analyzed by applying both statistics such as descriptive and inferential. Questionnaire was used to measure teaching styles of teachers and academic achievement of students learning measured by taking final term results under session (2018-2019) used in order to collect data. Survey used as technique in order to get valid and reliable data from the respondents. Quantitative paradigm was used as it is verified by the nature of variables. The teaching style of teacher is independent variable and academic achievement of students learning is dependent variable in this study.

Population

The target population of this study was contained 8th class students and the elementary school teachers who worked in government sector schools in district Astore taught to only General Science subject of 8th class. There were 818 students in 8th class and 52 elementary school teachers worked in 52 different schools such as, middle and secondary schools. They were taught to General Science subject of 8th class in academic session 2018-2019.Response rate was remained 100% from the respondents. Hence total participant of teachers was 52 and 818 students considered as a population. For the selection of students a simple random sampling technique was applied in order to give equal chance for the participants. No separate schools for elementary level teachers were existed in district Astore, therefore teachers were taught in all schools on the basis of their own abilities and skills. Data related to teachers strength and number of schools and students academic result session (2018-2019) were taken from DDE office after formal approval from high authority.

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Sample and Sampling Technique

Sample (277 students of 8th class) was selected by applying simple random sampling techniques in order to get generalization of outcomes and also possible to give equal chance for all respondents. Researcher took all those teachers who were taught to General Science subject of 8th class in academic session 2018-2019. 277 students final result on general science subject were taken from the directorate of education Diamer Astore region for measuring the academic achievement of students. There were 52 schools where elementary teachers performed taught to general science subject in district Astore. Student's strengths were different in each school so the researcher decided to select 06 students in each school by simple random technique, if below than six students taken to all.

Instruments for the Study

Teaching styles of teachers measured by using Grashas Teaching styles questionnaire which contained five constructs(expert, formal authority, personal model, facilitator and delegator) each refers to 08 items with 7-point Likert scale (1 for strongly agree to 7 for strongly disagree). This instrument was adopted by the researcher for measuring teaching styles of teachers. It was not needed to check validity and reliability as instrument has found acceptable reliability and validity in Grasha's own research. For measuring academic achievement of students learning in Science Subject the annual result of students enrolled under the session 2018-2019 were taken from the board of education directorate in district Astore.

Analysis and Interpretation of Data

Table 1

Teaching Styles of Teachers

	Frequency	Percent	Valid Percent	Cumulative Percent
Expert	27	51.9	51.9	51.9
Formal Authority	12	23.1	23.1	75.0
Personal Model	6	11.5	11.5	86.5
Facilitator	4	7.7	7.7	94.2
Delegator	3	5.8	5.8	100
Total	52	100	100	

The above table shows that there were 27 (51.9 percent) elementary school teachers practiced who used expert teaching style during presenting science subject in the classroom, twelve 12 teachers practiced formal authority, 6 six followed personal model, four (04) practiced facilitators and delegator teaching style practiced only 03 three teachers. It is concluded that elementary school teacher in district Astore followed expert and formal authority teaching styles that are based on teacher oriented. Hence the expert teaching style practiced by highest numbers of teacher in district that is based on teacher oriented style where as delegator teaching style is lest practiced by the teacher it means teachers do not give freedom into students and authority.

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Table 2

Effect of teaching styles of teachers on academic achievement of students learning in science subject

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	6914.141	4	1728.535	14.298	.000
Within Groups	5682.167	47	120.897		
Total	12596.308	51			

The table 2 depicts that there was highly significant difference between teaching styles and academic achievement of students learning in science subjects that is (F, (4, 47) = p<0.05. Hence it is concluded that teachers teaching styles of teachers are influenced on the academic achievement of students leaning in science subject.

Table 3

Tukey HSD post hoc tests on teaching styles and academic achievement

(I) Dominant Teaching Styles	(J) Dominant Teaching Styles	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Expert	Formal Authority	-7.38889	3.81477	.313	-18.2094	3.4316
	personal model	-4.38889	4.96258	.901	-18.4652	9.6874
	Facilitator	-34.05556*	5.89084	.000	-50.7648	-17.3463
	Delegator	-36.55556*	6.69154	.000	-55.5360	-17.5751
Formal Authority	Personal Model	3.00000	5.49766	.982	-12.5941	18.5941
	Facilitator	-26.66667*	6.34815	.001	-44.6731	-8.6602
	Delegator	-29.16667*	7.09745	.001	-49.2985	-9.0348
Personal model	Facilitator	-29.66667*	7.09745	.001	-49.7985	-9.5348
	Delegator	-32.16667*	7.77487	.001	-54.2200	-10.1133
Facilitator	Delegator	-2.50000	8.39782	.998	-26.3203	21.3203

*. The mean difference is significant at the 0.05 level.

The Tukey outcomes show that student's academic achievement on science subject with expert the teaching style and formal authority teaching style is not a significant variation found as it showed on the table (P= .313) whereas P>0.005. There are no significant differences found on teachers expert and personal model teaching style with academic achievement score of general science in 8thclass as per tables value P>0.005 whereas the P-value is .901. Significantly, the difference found among the expert, facilitator and delegator teaching styles with academic achievement on students learning on science subjects as per proved by table values i.e (P=0.00) P<0.005. It means students get the highest marks if the teachers are employed the facilitators and delegators teaching styles (student centered) on general science subject in 8th grade. Student's academic achievement is not found a significant difference in teachers employed formal authority and personal model teaching styles on the academic achievement score as a table value showed P>0.982. There is a significant variation found if teachers applied personal model then the student's performance differ as compare to teachers taught to students through facilitators and delegators teaching styles as it showed on table value P<0.005. It is also significant the difference found among the personal model, facilitator and delegator teaching styles with academic achievement of students learning in science subject as it is shown on table

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value (P=0.001) P<0.005. If the teachers are employed delegators and facilitators teaching styles during the teaching of General Science subjects, no significant difference are found as proved by the table value (P= .998) whereas P>0.05.

Discussions

The teaching styles of teachers play a significant role to improve the academic performance of students learning in a science subject at the elementary level. The major purpose of this study investigates the effect of teaching styles of teachers on the academic achievement of students learning in a science subject. (51.9%) teachers practiced expert and (23.1%) formal authority teaching style that was highest as compared to others, hence it is concluded that the majority of teachers followed or practiced expert teaching style which is not considered appropriate in a science subject. The elementary school teachers in district Astore practices different teaching styles during delivering content into students but the most preferred or dominated teaching styles that are expert teaching style which is based on teacher-centered teaching. The reason behind employing the expert teaching style adopted by the teachers in district Astore for science content that may be the lack of awareness for the selection of appropriate teaching styles and also wanted to maintain their status among their pupils. There is a highly significant difference between teaching styles and academic achievement of students learning in science subject F, (4, 47) = p<0.05 where P= .000). The teachers who were practiced facilitator and delegators types of teaching styles (students centered teaching styles) during delivering content into students on general science subject, there performance and academic achievement was better as compare to others as the table results proved that facilitator and delegators teaching style P<0.05 where P=0.000 and teachers who practiced the expert, formal authority and personal model teaching styles their academic performance is low as proved Table 3 P>0.005. In biology subjects teachers who teach to students with learner-centered teaching styles or methods get a higher score as compared to those teachers who employ teacher-centered teaching styles (Audu, 2018). The findings of the study are also verified by the study conducted Isa, Mammam, Badar, and Bala, (2020) described that teachers who teach to students with learner-centered and teacher students interactive methods students performance is higher as compare to teacher-oriented teaching styles. Another study conducted by Ganyaupfu, (2013) related to teaching methods and academic achievement of undergraduate students, results show that teacher student's interactive styles were proved the most successful method as it is based on student-centered whereas teachers centered methods were not considered effective teaching method on students performance. In general science subject at

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elementary level students are required to use the student's centered styles as students academic performance was satisfactory. By applying facilitator and delegator teaching styles during delivering science content student's performance can be improved as both methods favor to give importance, freedom and active participation into students.

Conclusions

Different teaching styles are practiced by the teachers to transmit and transform knowledge into students during a teaching of General Science in the classroom but the way or styles is depended upon teachers own belief, attitude and content requirements. Teachers need to employ such kinds of teaching styles which are based on the nature of the content and also carry out the needs of learners. Effective teaching may possible when the teachers understand the student's level and select teaching methods or styles based on the nature of the content. Due to lack of awareness regarding the effective and appropriate teaching styles, majority of elementary school teachers in district Astore were practiced by the expert and formal authority teaching styles during delivering General Science subject into students which referred to get poor academic performance. Furthermore, the teachers who are adopted facilitator and delegators types of teaching styles during delivering Science content of elementary level students and their academic performance were remained highest as compared to those teachers who taught by the teacher-centered styles (expert and formal authority).

Recommendations

1. The most of the teachers employed the expert, and formal authority teaching style that were highest numbers as compare to others such as facilitators and delegators. It means elementary teachers are practiced teacher-oriented teaching styles during presenting a lesson in science subject which are not considered appropriate and useful. Student's academic performance is poor in science subject due to employing expert and formal authority teaching styles which are based on teacher-centered. Therefore teachers training regarding the selection of appropriate teaching on science subject should be given to all elementary school teachers in district Astore in order to give awareness what are the effective and useful teaching styles for the General Science subject in 8^{th} class.

2. There was a highly significant difference found between the facilitators and delegators teaching styles with academic achievement of students learning in science subject i.e facilitator $P=.000$ $P<0.05$ and delegators $P=000$ $P<0.05$. Hence it is recommended that elementary school teachers may use facilitator and delegators types of teaching styles to promote students academic performance in a science subject at the

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elementary level. The teacher who was practiced facilitator and delegator (students centered) teaching styles during delivering a lesson in a Science subject, their student's performance were good as compare to those teachers who used expert personal model and formal authority teaching styles.

3. This study is focused on only the General Science subject at the elementary level; in future, it may be conducted with different subjects such as physics, chemistry, mathematics and biology both higher secondary and university level.

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