Comparative Analysis of Multi and Mono Grades Teaching On the Performance of Students at Elementary Level

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Abstract: The aim of this study was to compare the multi-grade teaching with mono-grade teaching at primary Level. The objectives of the study were: (1) to compare the effects of multi grade teaching on students' performance in the subject of General science of grade V, (2) to compare the effects of multi-grade and mono-grade teaching strategy on the performance of the low achievers in the subject of General science at grade V and (3) to compare the effects of Multi grade and Mono grade teaching on the performance of the high achievers in the subject of General science at grade V. The study design was experimental (pretest, posttest equivalent group design). All the 13487 male students of grade V were the population of this study. Random samples of 50 students of grade V were selected as a sample for this study from Government Primary School Palosa Jadeed. The sample of 50 students was divided equally into Multi- grade and Mono- grade groups on the score of teacher- made pretest. Both the test was same, consisting of 60 multiple choice questions. The items were selected from the Textbook of General Science of grade V (Khyber Pakhtunkhwa Textbook Board). The test items were selected from the three chapters taken from three sections i-e Biology, Chemistry and Physics. The experimental group was treated by multi-grade approach and control group was treated by conventional way for six weeks. When the experiment was over the posttest was given to both group. To find the difference between the groups mean score t-test were apply at 0.05 level of significance. Hence it was concluded from the analysis that mono-grade teaching approach was more effective. Hence the analysis of data revealed that mono-grade teaching was more effective than multi-grade teaching. It is recommended on the basis of conclusions that the surplus teachers should be transferred to those schools where multi-grade teaching is prevalent.

Keywords: multi-grade teaching, mono-grade teaching, general science, performance

1. Introduction

The method of teaching adopted by a teacher in a single classroom to more than one grade at a time is known as Multi-grade class teaching while on the other hand a mono grade teaching is that where a single teacher can teach to only one grade [1]. The term multi-grade show a condition in which different grades having different curriculum are Combined together due to shortage of the teachers for the guiding and educating purposes. This situation were applied when there are less teachers than grade . The aims of such situation adopt to educate more students in an area where the enrollment of the students are low [2].

A teacher play most pivotal role in the improvement of primary education. At every level and particularly at primary level the training arrange for teachers for a single grade teacher [3]. Theses single grade teaching produce fruitful result, but most of the country including Pakistan not providing training for the Multi-grade teachers. The multi grade teaching means that a class organization that only a single teacher are responsible for two or more grade at a time in a single room in a single period. The Multi grade class has a poor result and also show deprived image because there are lack of different resources in the many grade classroom [4]. This due to the fact that the need of such schools are not under consideration, and there is no proper attention towards the multi-grade situation and the curriculum taught in institutions are for single grade only[5].

The teachers of Multi grade show negative perception towards the multi-grade teaching practice and facing difficulty while teaching in such situations [6, 5, and 7]. Subsequently the instructors struggle to teach in the gap between their own many-grade reality and universal single-grade standard and the teachers not know what to do, and they plan their multi-grade teaching with their own ways [8].

All around the world there are many schools which is functional as a Multi-grade classes, while there are some schools in which some of the classes are Multi-grade class setting called :fully Many grade schools: and partially Many grade schools respectively. In some other schools the Multi-grade is common, Multi-grade teaching refers to those schools in which the pupils are in different classes are sitting in a single room under the control of a single teacher at a time, this situations is best adopted by closing grades as 1 and 2, 2 and 3, 4 and 5 this approach is more common in the Australia and Pakistan. It involves groups up to six grades in Primary schools of a country [6].

1.1 Statement of the Problem

Multi-grade practice is more prevalent in the rural school of Pakistan, However this teaching is no longer exist to a country but all over the world. This teaching is now the need of the day so need to work on the this approach on the remote and sparsely populated areas of the country and therefore the researcher obvious to conduct a study to find that there is any difference between the multi and single grades teaching practice at Primary level.

1.2 Objectives of Research

(1) to compare the effects of multi grade teaching on students' performance in the subject of General science of grade V. (2) to compare the effects of multi-grade and mono-grade teaching strategy on the performance of the low achievers in the subject of General science at grade V. (3) to compare the effects of Multi grade and Mono grade teaching on the performance of the high achievers in the subject of General science at grade V.

1.3 Hypotheses

1. There is no significance effect of multi grade teaching on students performance in the subject of General science at grade V.

2 There is no significant effect of multi grade and mono grade teaching on the performance of the low achievers in the subject of General Science at grade V.

3. There is no significant effect to compare the effects of multi grade and mono grade teaching on the performance of the high achievers in the subject of General Science at grade V.

1.4 Significance of the Study

The study is very important and meaningful both for educationist and Government because it aimed to fill the gaps related to both the approaches and practices of teaching and added valuable contribution. The findings of this study addressed factsof Multi-grade teaching and have tried to improve management proficiency which is vital to the effective implementation of a Many-grade teaching programmed in a sustainable manner. It also made a rich contribution to the teachers teaching to multi grade level in general and more importantly to the entire teaching lot of Pakistan in particular. The study also provided a sense of empowerment and a sense of pride to the many-graded teachers.

1.5 Delimitation of the Study

The study was delimited to only Male Elementary Schools because it was easily, accessible to the researcher to search the basic problems related to multi-grade teaching. For the researcher it was difficult to get the data from female school due to our close Pashtun society and culture. Furthermore, the study was limited only to the subject of general science because it was more convenient for the true experiment.

2 LITERATURE REVIEW

Little et al. (2007)[5] states that multi-grade teaching in which many classes are combined in a single classroom and this approach is now introduce all over the world in develop and under develop countries. The education is occur in developed countries as a mono-grade classroom, the children of same age students need similar learning opportunities to get the skills and positive behavior according to the age. By doing so the same age children in the multi-grade teaching programmed not show so much productive results and it show "poor relationship" [9](Beukes,

2006). Mostly, under developed countries, where the schools of rural areas have low enrollment of students and the students get education in multi-grade schools [10].

Farooq [11] states that the concept of many-graded teaching is present very early in Islam, in which one person Imam (Khatib) teaches the values of Islam, Quran Majeed to many people at a time of different age. The Muslim learn the value of Islam and Quran by heart and they are devoted to their true religion of Islam the conventionalized graph of the rural areas of Pakistan have many barriers in the path to promoting and universalized their elementary education to achieve the goal of primary education universalization the educationists think to promote the education system by involving the mosque, madras's so a scheme was started for this purpose and this scheme get popularity and is known as Maktab scheme in Bahawalpur .These religious places are consider the start of multi-grade teaching in Pakistan.

Kyne [12] states that for a quality instructions in multi-age practice need proper methodologies and instruction in many-graded practice increase the learning level of the learner. Similarly for single-graded teaching the instruction materials also tend to be designed and then need to deliver to the learner. The sparsely and low population areas where the teachers serving in many-graded schools developed worst attitudes related to multi-age practice. There is a variety of way to utilize the multi-grade training which is also needed for our examination system. There must be acknowledgement and appreciation. While many words are used for such type of teaching but the most widely one is multi-grade teaching [13].

Tasadmer [14] says that the low enrollment schools teachers can teach and practiced in the classes where many classes combined together in a single class. The teachers in such classes facing many problems. Stone [15] states that the Many-grade teaching practiced is really a learner based approach its means in such approach the focus point is the individuals needs and the needs of learners. In this methods of teaching focus only on the individuals and have no concern on to cover the course of study. In multi-grade teaching practice one teacher can give instructions to more than one classes at the same time [16].

The learning in multi-grade teaching develop the learning level of an individual also other development level, school interaction and responsibility .The institute mainly concentrate on individuals thought rather than multi-graded teaching. In many-graded teaching in progress of individuals judge from their learning, reading and writing skills. In multi-graded teaching gathered many classes in one class and are instructed jointly and everyone want to get benefit from their education programmed [17]. According to Shayi [18] that good and fruitful result is obtained from the multi-grade school by keeping the regular visit of the multi-grade schools. Taole and Mncube [19] said that by not supporting the multi-grade school teachers is also the main obstacle to achieve the desired goals and results. They further argue that the Government need to support and provide the necessary aid and support to the multi-grade schools and give the relevant education to the teachers. In other words by not doing so that parents must send their children to other better result school and as a result a few students were left in the school and as a result low

enrollment. The many-graded school were mostly found in remote areas, in other words in the sparsely populated rural areas where the number of enrolled students are less and it is unjustifiable to appoint single teacher for a single grade. So more than one class can be taught by one teacher in a single classroom.

Taole [20] state that the Multi-grade teaching strategies is common in both the developed and developing countries around the world. this concept is no longer limited to the lower classes but it extended to the higher classes such as class ten; while secondary and higher secondary schools are limited in numbers and there is no shortage of the teachers not felt the Multi-grade classes at the secondary and higher secondary level. There is no proper attention giving to the Multi-grade schools because of this the quality of education is decreased and also the drop out ratio of the learners, the academic performance, the attendance of the learners become lower and lower, because only one or two teachers treat more than one grades at a time [21].

3 METHOD AND PROCEDURE

3.1 Population

All the13487 students of grade V in District Charsadda was the population of this study [22].

3.2 Sample

A sample is the subset of a population, which represented the whole population. The researcher had used the random sample technique, which was a sampling technique in which every member had almost equal chances to be selected from the targeted population, which was a true representative of the population (Borg & Gall, 1986). A random sample was taken of fifty students (50) from Government Primary school Palosa Jadeed. The students were divided into two equal groups each group was consistedof 25 students' i.e. Multi-grade (Experimental group) and Mono-grade (Control group).

3.2 Sampling Procedure

The true representative of population is called sample and the processes is called sampling procedure [23]. A sample of fifty students from Government Primary Schools PalosaJadeed was taken. Fifty students were selected from 5th class. Two groups were made of students on the basis of pretest score into experimental and control group, each group has 25 students. It was also anticipated that in both groups the ability of the students was almost the same. The low and higher achievers were equally divided into both groups.

3.3 Research Instrument

For the data collection the research instrument is an important tool. The researcher studied the achievements of grade V students in the textbook of General Science of KhyberPakhtunkhwa. For this purpose, the researcher used a

teacher made pre-test, post-test based on multiple choice question (MCQ's) from the text book of General Science of class 5th. The items of pre-test and post-test were the same. The test items were taken equally from the three sections, i.e:20 from each section from the textbook of General Science i.e. Biology, Chemistry and Physics. The total number of MCQ's in the test was 60. The following three chapters were taught to the students during six weeks which are as under:

1. Classification of Living Things.
2. Matter and changes in its states.
3. Force and Machine.

3.4   Validity

A test which shows acceptable result is said to be valid. Valid test is sound in its result in which that they claims. The items in the pre-test and post-test were taken from the Text book of General Science from the unit taught to the students of Grade V. The test items were approved by the subject experts and supervisory committee.

3.5   Reliability

The consistency in the results of a sample is its reliability. It is not necessary that a reliable test is valid also because it is concerned to consistency. The reliability of the test was found to be 0.81.

3.6   Procedure

The following procedure was adopted as:

The researcher visited the selected Government primary school Palosa jaded and meet with the Head master and the teachers of the school and explain the importance of the study, the importance of the experimental studies. The researcher developed a pretest, posttest for this study which was approved by supervisory committee. After the introduction the pretest were taken the sample of 50 students from grade V.The sample was divided equally, 25 each into Multi- grade and Mono- grade groups on the score of teacher- madepretest. Both the test were same, consisting of 60 multiple choice questions. The items were selected from the Textbook of General Science of grade V (Khyber Pakhtunkhwa Textbook Board). The test items were selected from the three chapters taken from three sections i-e Biology, Chemistry and Physics. The two teachers were hired both have master in the subject of Science and also have almost same teaching abilities and trained from DCTE Abbottabad KPK. One teacher teaches to experimental group and the other teacher to control group. The experimental group was treated by Multi grade approach while control group was treated by traditional way six weeks.After the end of the experiment a teacher-made posttest were taken from both the group.

3.7 Data Collection

For data collection a pre-test before the start of experiment was taken for the allocation of equal ability of students to both groups. Then treatment were given to both groups for a period of six weeks and when the experiment was over a post-test was conducted in order to collect the data from both the experimental and control groups.

4 Analysis of Data

When the score obtained from both the groups from pretest and posttest were fed in SPSS, and interpreted, analyzed by applying t-test.

Ho1: There is no significant effects of Multi grade and mono grade teaching on the student's achievements in the subject of General Science at Grade V in pretest.

GROUP	N	Mean	SD	t-value		
				Table value	Calculated value	P-value
Control group	25	32.32	2.17	2.704	0.457	0.759
Experimental control group	25	31.88	2.574			

*Not Significant=0.759   d.f=48   significance level =0.05

The table 1 show that the result obtained is 0.457 and the table value is (2.704). The result is tested at 0.05 level of significance and the degree of freedom was 48. The table value (2.704) is greater than calculated value (0.457) therefore the Ho1 is accepted. That's why it was proved that there were no significant effects of Multi- grade and Mono- grade teaching on the achievements of the students in the subject of General Science at grade V in pretest.

Ho2: There is no significant effect of multi grade and Mono grade teaching on the performance of low achiever students in the subject of General science at Grade V in pretest.

GROUP	N	Mean	SD	t-value		
				Table value	Calculated value	P-value
Control group low achiever	10	29.90	0.567	2.878	2.021	0.12
Experimental group low achiever	10	29.30	1.09			

* Not significant=0.12 d.f =18   significance level=0.05

The table 2 shows that the table value is (2.878) and the calculated value is (2.021). The result was treated at 0.05 significance and the degree of freedom was found 18. The table value is (2.878) is greater than the calculated value (2.021) therefore the Ho2 is accepted. That is why there were no significant effects found.

Ho3: There are no significant effects of the Multi grade and Mono grade teaching of the performance of higher achiever students in the subject of general science at grade V in pretest.

GROUP	N	Mean	SD	t-value		
				Table value	**Calculated value**	**P-value**
Control higher achiever in pretest	15	33.93	2.682	2.771	1.832	0.118
Experimental higher achiever in pretest	15	33.66	1.593			

* Not significant = 0.118   d.f=28 significance level=0.05

The table 3 depict that the table value obtained is (2.682) and the calculated value obtained is (1.832).. The result is tested at 0.05 level of significance and the degree of freedom found is 28. Therefore the table value (2.682) greater than calculated value (1.832), therefore Ho3 is accepted. That's why there is no significant difference was found in the control group students and the experimental group students.

Ho4: There is no significant effect of multi grade and mono grade teaching on the student's achievements in the subject of general Science at Grade V in the posttest.

GROUP	N	Mean	SD	t-value		
				Table value	**Calculated value**	**P-value**
Control post test	25	44.12	2.706	2.021	5.092	0.000
Experimental post test	25	36.28	2.574			

Significant= 0.000   d.f= 48   significance level=0.05

The table 4 shows that the table value is (2.021) and the calculated value is (5.092). The results were treated at 0.05 level of significance and the degree of freedom obtained is 48. Hence, the table value (2.021) is less than calculated value (5.092) therefore the Ho4 is rejected. That's why there is significant effect was found in the means score of experimental and control group. The control group students means is higher than the experimental group in posttest. Hence mono grade teaching was more effective than multi grade teaching.

Ho5: There is no significant effect of multi grade and Mono grade teaching on the performance of low achiever in the subject of general science at grade V in the posttest

GROUP	N	Mean	SD	t-value		
				Table value	**Calculated value**	**P-value**
Control low achiever in post test	10	35.60	.632	2.878	5.280	0.000

Experimental low achiever in posttest	10	29.30	1.059			

Significant = 0.000   d.f=18   significance level=0.05

The table 5 indicated that the table value is (2.878) and the calculated value is (5.280). The result is tested at 0.05 level of significance and the degree of freedom is 18. Hence the table value (2.878) is less than calculated value (5.280), therefore the Ho5 is rejected. That's why there were Significant effects was found in the Multi grade and mono grade teaching on the performance of low achiever students in posttest. The result indicated that that the control group student performs better than experimental group. The control group low achievers performance is better than the experimental group low achievers. Hence, theperformance of the students show that the mono grade teaching was effective as compare to multi grade teaching.

Ho6: There is no significant effect of the multi grade and Mono grade teaching on the performance of higher achiever students in the subject of General Science at Grade V in posttest

GROUP	**N**	**Mean**	**SD**	**t-value**		
				Table value	**Calculated value**	P value
Control higher achiever in posttest	15	42.533	1.64	2.771	7.652	0.000
Experimental higher achiever in posttest	15	33.60	1.59			

Significant=0.000   d.f=28   significance level=0.05.

The table 6 shows that the calculated value obtained is (7.652) and the table value t is (2.771). The result is treated at 0.05 significance level and the degree of freedom is 28. Hence the table value is (2.771) is less than calculated (7.652), therefore the Ho6 is rejected. There was a significant effects found in the experimental and control groups. That's the control group students outscored in the posttest, hence the mono-grade teaching is more effective than the multi-grade teaching.

5   DISCUSSION

Farooq [24] stated that in routine and conventional way of teaching the teachers may plan in advance and he/she can teach effectively to the class and he/she can teach effectively because he/she are mentally prepare for the single grade class teaching and used the situation better, and make the teaching learning process attractive. He/she has

learned and busyto usethe single grade class room competently and used the different kind of activities and communications proficiently and in this the learners learning abilities may speedy. The researcher also concluded from this study that when many classes are sitting in one room and one teacher can teach to different classes they cannot prepare the lesson plan for them and he/she can prepare then they cannot utilized proficiently. While in a single grade teachers demonstrated and present the subject matter effectively. The Researcher also found that the teacher of a single-grade is more satisfied than the teachers of many grade in term of discipline and teachers came to the class and left the class well in time and hence there is no issue for the teacher. Is good and friendly environment for both the teachers and students while on the other hand there is a lot problems in the multi grade teaching and there is less chances to utilize the current situation to solve the deficiency issue of teacher's shortage.

 Tillema [25] states that the teachers thinking is very important because he/she can think only to those matter which are related to their teaching programmed. The researcher found that in the multi grade class teaching the teachers thinking is limited to their concept because he/she can think with a better way into a single grade class room, that's why it is observe that the mono grade class students outscored in the posttest. The mono grade class teachers regularly monitor their students' performance as compare to the multi grade class students. Weekly tests were regularly arranged. Teachers covered courses in time in both set up. The researcher observed that teachers of the Mono-grade group prepared their lesson Plan regularly before taking classes, theyused Audio,Visual aids in a better way and plan their lesson in mono-grade teaching as compared to multi-grade teaching. Teachers of single grade are more aware from their subject content as compare to the multi grade teachers and the mono grade teachers make the teaching learning process more effective. They were well aware to the students teaching learning, attitude and emotions as they affect their learning process. They were capable to make and find out own weakness and they bring positive changes and think seriously about one's own lessons.

5.1   CONCLUSION

After data analysis the researcher noted some of the conclusion which is:

1. The result of this study showed that the overall achievements of the pupil in the control group are much better as compared to the experimental group. Its means that the Multi-grade practice of teaching is not good in Pakistan.

2. The pupil of the single grade class performance was more improved after the given period of time, while on the other hand the pupil of many grade class setting performance was not too much improve.

(3) The researcher also found that there is always discipline problem in the Multi-grade class room as compare to mono-grade class.

(4) The result of the study revealed that overall the students of mono-grade class outscored as compare to multi-grade class students.

(5) No proper outcomes have been attained in the multi-grade class because of the dearth of the teachers in such situations.

5.2   RECOMMENDATIONS

Based on conclusions following recommendations were suggested:

1. The first and important step to appoint the new teachers to minimize the multi grade teaching practice.

2. There is a prime need to encourage the multi grade teachers by providing them, teaching learning materials and special training to handle such situation.

3. Need to provide proper funds to provide the teachers training for the multi grade teachers.

4. If the multi-grade teaching is need of the day then the Government of Pakistan to give proper attention towards the multi grade teaching practice.

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