The Effectiveness of Teaching Strategy: A Comparative Analysis of Multi-grade teaching and Traditional Method of Teaching

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Abstract

The objective of the study was to determine whether the multi-grade teaching is effective or traditional method of teaching in the academic achievement of students at primary level in English subject. For experiment, thirty students from class IV and thirty students from class V of Army Public School, Nowshera (KPK, Pakistan) were selected and divided/equated into two groups (Experimental group that was taught by multi grade teaching strategy and Control group that was taught by traditional method of teaching) on the basis of pre-test through pair random sampling method. After 6 weeks experiment post-test was taken. In the light of data analysis and findings the results showed that performance of traditional method of teaching was significantly better than that of multi grade teaching

Keywords: Comparison; students, achievement; multi-grade teaching.

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1. Introduction

Multi-grade teaching is common in schools especially in remote and rural areas of Pakistan; however, this is adopted as necessity. There was a dire need of research in the area of multi-grade teaching in context of Pakistan. Multi-grade teaching is a circumstance where single teacher is incharge of more than one grade level at once in one classroom. Multi-grade teaching can be compared with its counterpart mono-grade teaching which is also called traditional method of teaching. Multi-grade and mono-grade terms are needed to use with precision because the conflation of studies from different context has possibly led to misleading claims being made for the cognitive effects of multi grade settings. It is particularly important to distinguish between terms referring to mixed age classes formed by administrative necessity and those formed by choice [1].

The term multi-grade is developed to distinguish any class in which students of many grade levels are situated together for guiding reasons. This comprises multi-grade classes in both multi-grade schools, where multi-evaluating is a response to the way that there are less teachers than grade levels, and bigger schools, where multi-reviewing is a reaction to uneven student consumption. Rare different terms might be used as a part of writing to mean to a multi-grade classroom. These include mix class, vertically collected class, mixed age class, split-grade class, and double grade class. It is similarly significant to distinct between multi-grade classes to which students can't be called on the principle of such things as capacity or mentality (non-deliberately doled out) and multi-grade classes to which students can be selected (intentionally assigned). Brown presented these two terms to explain why many investigations of multi-grade settings discover no change in psychological accomplishment when contrasted and mono-grade settings. Students are dependably non-intentionally doled out to multi-grade classes in multi-grade schools. Investigations of the things of multi-grade classroom association have not generally made this difference obvious [2].

Kyne says that to overcome the challenges of multi-grade teaching, it is important to create common understanding about the phenomenon. Others terms like 'multi-level' 'multiple class' 'family class' and 'unitary school' are also used for multi-grade teaching which further complicates the common understanding. Kyne also explains that multi-grade teaching is understood in the first sense; it is referred to the teaching setting where a single teacher in the same room teaches students of different grades [3].

2. Materials and methods

The initiative of this research work was to investigate the effectiveness of teaching strategy with a comparative analysis of multi-grade teaching and traditional method of teaching by applying experimental method of research.The objective of the study was to determine whether the multi-grade

teaching is effective or traditional method of teaching in the academic achievement of students at primary level in English subject. To achieve the objective, following null hypotheses were tested: (1) No significant difference is there between the mean scores of the experimental and control groups on Pre-test. (2) No significant difference is there between the mean scores of the experimental and control groups on post-test.

The population of the study included all 17,037,700 students studying in primary classes in Pakistan. Thirty students of grade-IV and thirty students of grade-V of Army Public School Nowshera were included in the sample for this study. These students were divided into two groups, i.e. the experimental group (Multi-grade teaching) and control group (Traditional method of teaching/mono-grade teaching). Both groups were equated on the basis of pre-tests (separate for class IV and V) scores. The distribution of students was made by applying pair random sampling technique. Teacher made two pre-tests (one each for class IV and V) and teacher made two post-tests (one each for class IV and V) were used as instruments of this research work.

To meet the prerequisite of the selected research design and to compare the multi-grade teaching group with mono-grade teaching group on the variable of their earlier understanding in English teacher-made pre-tests were developed. The purpose of pre-tests was to find out the level of previous knowledge. The pre-tests were based on class IV and V textbooks of English. The pre-tests consisted of more than 75% of contents already taught in IV and V class.

The post-tests consisted of 100 % from the components of units taught during the experiment. The pre-tests and the post-tests were prepared by the researcher after an intensive audit of the methods of test construction and related units of English for fourth and fifth classes. The tests were approved by the supervisory committee in consultation with subject experts. All items included in the tests were on the basis of text of the units taught to the students of class IV and V. The pre-tests and post-tests were approved by doctoral research committee. The reliability of the tests was found to be 0.85 and 0.85. The reliability was determined by applying split half method. As it was experimental research and the purpose of the study was to compare the multi-grade teaching with mono-grade teaching at primary level, it was necessary to look into numerous designs frequently embraced in experimental studies.

Tabassam describes numeral issues that interrupt the internal and external validity of experimental designs. Relevant to internal validity, there are such problems (as history, maturing, testing, instrumentation, statistical regression, differential selection, experimental mortality and selection maturation interaction) [4]. If these issues are not measured in the design, they may make contrasting effects, which complicate the effect of the independent variables as exposed by the last scores on dependent variables. “The pre-test post-test equivalent group design” was considered to be the greatest valued design for this research. One group takes a new or unusual treatment and both groups are post-

tested. Post-test scores are matched to define the usefulness of the treatment. This design controls all-out sources of internal and external validity as compare to other designs [5].

To deliver suitable training about teaching approaches to be used during the experiment, the researcher had three meetings with both teachers of control group (grade-IV and grade-V) on three nonstop days and made them familiar with the method to be followed during the treatment. The teacher who was deputed to teach experimental group was familiarized with different techniques to be utilized during teaching to multi-grade teaching group, i.e. experimental group.

The data was collected in two ways. Teacher-made pre-tests were administered to the sample of 60 students before the treatment was started. On the basis of achievement scores of pre-tests, students were distributed into multi-grade teaching group and mono-grade teaching group. Each group comprised 30 students (class iv =15; class v = 15). After six weeks on the termination of treatment the post-tests were administered on both experimental and control groups to collect data for achievement scores of students for comparing both groups on the basis of achievement scores on teacher-made post-tests.

Scores obtained through pre-tests and post-tests were tabulated, analyzed and interpreted by applying *t*-test. Results obtained by statistical analysis were tested on 0.05 level of significance.

Independent samples "*t-test*" means that there are two sections, and we are comparing the means of the sections. The pooled (i.e., "equal variances") method was used because the standard deviations were found similar (the larger sample standard deviation is not more than twice of the smaller standard deviation). Two independent samples are extracted from population with similar population differences (variances), the test statistic *t* was computed as:

H0: $\mu 1 - \mu 2 = 0$ → No difference between groups.

HA: $\mu 1 - \mu 2 \neq 0$ → Difference between groups.

$$t = \frac{(\overline{x_1} - \overline{x_2}) - (\mu_1 - \mu_2)}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

With ($df = n_1 + n_2 - 2$) Here $\bar{x}1 - \bar{x}2$ sample mean difference

$\mu 1 - \mu 2$ population means difference.

With

$$s_p = \sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}}$$

3. Results and discussion

According to Farooq, teacher should be able to plan, prepare and present the lesson to his/her class effectively. Teacher should apply and practice teaching skills according to the principles of education [6]. He or she has learned and employed various forms of communication effectively to motivate students to learn. The researcher found that in multi-grade teaching there was difficulty/deficiency to organize the lesson plans in logical manners by giving daily life examples. In mono-grade, teaching teachers demonstrated and presented subject matter attractively and effectively. Researcher observed that control group teachers' presence in classroom was satisfactory and teachers came to the class and left the class well in time. Teachers were friendly in the classroom.

Tillema proposes that in a program of teachers' education, teachers thinking have more importance as teachers view new concepts by their obtainable thinking and they only activate those concepts that are matching with their thinking. In this study, it was observed that teachers had command over their subject in mono-grade teaching group; they provided sufficient time to the students for discussion; they respected opposing viewpoints of students; they used appropriate teaching aids effectively [7].

Under the present circumstances, it can fully be apprehend that there was a dire need to target the multi-grade teaching and the teachers of mono-grade, teaching group monitored the performance of the students regularly. Weekly tests were regularly managed. The study reflected that assessment system in both the groups was satisfactory. The results of mono-grade teaching were better than the multi-grade teaching. Teachers covered courses in time in both set up. Teachers assessed student's level of understanding and re-taught if needed. It was also observed that students of the mono-grade teaching competed well with the students of multi-grade teaching.

Siddiquiexplained that so far we have looked at the visible aspect of the quality, e.g., number of schools, physical facilities, and number of teachers present in a school. The key factor that contributes to second factor of quality of education, i.e. what goes on in classroom, include curriculum, textbooks, assessment system and teaching in the classroom [8]. There is a dire need to prepare a separate syllabus for multi-grade classes, which should be interesting / sufficient, and the syllabus should be properly distributed to the teachers for completion well in time. During the experiment the student assessment

procedure was found to be fair. Merit was strictly followed in all matters. During the discussion conducted with the management of the educational institution it was pointed out that separate class room would be required for multi-grade teaching to maintain the quality of education and to apply the multi-grade teaching techniques properly [8].

The researcher observed that teachers of the Mono-grade group prepared their lesson plan before taking classes. They were satisfied with the content and subject taught in the classrooms. They used A.V aids in the classrooms and teaching learning process was better in mono-grade teaching as compared to multi-grade teaching. Teachers of mono-grade teaching were found more aware of the content/course/subject being taught in the classrooms and were more aware of the factors that make learning effective in the classroom. They were sensitive to the student's emotions, thoughts and attitudes as they affect their learning. They were able to present and create situations for the effective learning. They were able to identify one's own areas of weakness in the teaching situation and they think critically and creatively about one's own lessons. Talyzina observes that theory is not connected with the practice. Due to this reason, fresh teacher did not understand the importance of the theory [9].

It was further explored that teachers of the multi-grade teaching and mono-grade teaching were experienced but there was a need to conduct training session for the teacher of multi-grade class. Therefore, it was optional that teachers of multi-grade group should be given chance of regular teachers training program so that they can minimize their weakness/problems. Misra has also describes problems of practice teaching similarly shortage of adequate theoretical comprehension and teaching materials related to imaginative training methods; lacking of faith in the usefulness and value of techniques of teaching; lack of self-assurance, inclination and capability among teacher educators to use particular teaching approach; lack of training programmers; deficiency of willingness on the part of teacher educators to experiment; lack of administrative support and exploited assignment; non enforcement of attendance rules and dishonest or prescribed acceptance of advanced training approaches [10]. The curriculum of teacher education should be improved from time to time and the outcome should remain positive. For utilization of existing teaching staff, a school may organize training activities/programmes to improve the professional skills/techniques on annual basis from the reputed training institutions.

Based on discussion it was concluded/emphasized that government should take initiative to minimize the deficiencies in multi-grade teaching. For that multi-grade teaching should be made essential programmes. It was identified that the performance of multi-grade teaching was not satisfactory, as revealed by the results of this research work.

$H_{0:}$ No significant difference is there between the mean score of experimental and control groups of grade-IV on pre-test.

Table 1: Significance of difference between the mean scores of experimental and control groups of grade-IV on pre-test

Group	N	Mean	S D	SE_D	t-value	d	Effect size
Experimental	15	33.33	3.69	1.23	0.54	0.22	Very Small
Control	15	34.00	3.09				

Table value of *t* at 0.05 = 2.145

Table1 show that the calculated value of *t* was found to be 0.54. Being below the table value at 0.05 level of significance, the null hypothesis is accepted. Hence, both the groups of grade IV were found equal in achievement level on pre-test.

H_0: significant difference is there between the mean scores of experimental group and control group of grade-IV on post-test.

Table 2: Significance of difference between the mean scores of experimental and control groups of grade-IV on post-test

Group	N	Mean	S D	SE_D	t-value	D	Effect size
Experimental	15	36.93	4.00	1.45	3.31	1.20	Very Large
Control	15	41.73	3.97				

Table value of *t* at 0.05 = 2.145

It appears from this table2 that the calculated value was found to be 3.31 which is greater than the table value at 0.05 level and is labeled as significant. Hence, null hypothesis is rejected. It is obvious from above table that significance of difference is found in favour of control (mono-grade) group. It means that the students of grade-IV taught by traditional method of teaching (control group) showed better achievement as compared to those in experimental group.

H_0: No significant difference is there between the mean score of experimental and control groups of grade-V on pre-test.

Table 3: Significance of difference between the mean scores of experimental and control groups of grade-V on pre-test

Group	N	Mean	S D	SE_D	t-value	D	Effect size
Experimental	15	33.60	3.43	1.32	0.26	0.093	Very Small
Control	15	33.26	3.84				

Table value of *t* at 0.05 = 2.145

It appears from the table3 that the *t* value (0.26), being less than table value (2.101), was found to be non-significant at 0.05. Hence, null hypothesis is accepted. Both the groups of grade-V were found equal in ability on pre-test.

H_0: No significant difference is there between the mean score of experimental and control groups of grade-V on post-test.

Table 4: Significance of difference between the mean score of experimental and control groups of grade-V on post-test

Group	N	Mean	S D	SE_D	t-value	D	Effect size
Experimental	15	37.60	3.94	1.41	2.82	1.02	Very Large
Control	15	41.60	3.84				

Table value of *t* at 0.05 = 2.145

Table 4 shows that the calculated t value was found to be 2.82 which is greater than the table value and the difference between the mean scores of experimental and control groups was found

significant at 0.05 level. Hence, null hypothesis is rejected. This significant difference was in favour of control group. It means that the students of control (Traditional method of teaching/mono-grade) group of grade-V demonstrated better than those of experimental (multi-grade) group of grade-V on post-test.

CONCLUSIONS

In the light of data analysis and findings, the researcher found that there was no difference in the division of class-IV and class-V students on pre-test equated division and the study results revealed that there was significant difference in favor of mono-grade teaching group on post-test scores. Overall, the traditional method of teaching (mono-grade teaching group) was much better in all categories. It means that there was much effective role of traditional method of teaching as compared to multi-grade teaching on students' achievement. It was also concluded that in a mono-grade teaching set up, organization of multi-grade class was more difficult for a teacher to teach more than one grade in the allotted time of period and complete the course in given time. In spite of lack of teachers training in multi-grade teaching, the teacher was making efforts to provide opportunity to students for individual learning, group learning and collaborative learning. The first and foremost step should be to minimize multi-grade teaching by provision of teachers for every class by selection of new teachers.

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