THE ROLE OF USAGE OF DIFFERENT INSTRUCTIONAL LANGUAGES IN TEACHING OF MATHEMATICS AT PRIMARY LEVEL IN SINDH, PAKISTAN

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ABSTRACT

The study focused at" The role of usage of different instructional languages in teaching of mathematics at primary level in Sindh". Academic achievement of the students in Mathematics at primary level was analyzed and compared. Furthermore, the relationship between the contextual languages Urdu and Sindhi in mathematics at primary level was evaluated. There were two null hypotheses which were tested to compare the role of usage of different instructional languages Urdu and mother tongue on students' academic achievement in mathematics. The relationship between these two variables was also determined.

The study was experimental in nature. The analysis was conducted by SPSS virgin 22. The population of the study was 50 students 4th grade of the Laboratory high school PITE Sindh District Shaheed Benazir Abad. The selected numbers of students were divided into two groups' i.e. high and low achiever. The 20 students from the each group of high achievers and 20 from the low achievers were randomly selected and assigned as experimental and control group.

The researcher used two languages Urdu and Sindhi. The achievement test in Mathematics for 4th class was developed as pre-test and post-test. The tests were validated through peer review, expert opinion and pilot testing. The simple t-test was applied and their effect size was also calculated to draw findings and conclusions. It is observed that the students taught through mother tongue performed better than the students taught through other language. The reasoning ability of the students was also compared and found that the students of experimental group showed better reasoning ability than the students of control group. The Comparison of reasoning ability within the experimental group reflects that high achiever students of experimental group were better than the low achiever students on mother tongue tests. A strong positive relationship exists between the academic achievements of mother tongue test. Similarly, there is also strong positive relationship between reasoning ability and academic achievement of the students.

Keywords: Instructional language, Academic Achievement, Teaching mathematics

INTRODUCTION

Mathematics subject is a difficult to understand for the learners, so for this purpose teacher use different methods and techniques that learners can take interest in learning. Mathematics is at the spirit of many successful careers and successful lives for societal improvement, mostly in the unusual and accelerating change situation. However, in realism, most people in commonly and students in particular dislike mathematics. Because of its teaching method and techniques used by the teachers were absurd. Mathematics is a type of interpretation. Philosophy of accurately consists of idea into a reasonable way, planning and testing guess,

making logic of things into practice. According to (Battista, 1999), mathematical performance when learner identify and describe sorts, erect physical and conceptual models of phenomena, make symbol systems to help it symbolize, manipulate, and reveal on ideas, and discover process to resolve mistakes. This subject is the only way to use it as practical and a not assumption. The method of teaching this subject are to concrete and logical manner, nevertheless it is the ability of the teachers to make it easy and understandable. According to (Accosta, F. J. 1994), mathematics starts with subsequent and counting. It's without sensible, however to guide the learners to that initially counting was Mathematics. Logically, including of a normally technique, planning and trying guesses, creation feeling of objects, and making legitimizing judgment, inductions, deduction and conclusions. The demonstrate in mathematical conduct as to distinguish and also to expose patterns , erect substantial as well as theoretical models of phenomena, make new image frameworks to enable us to speak, to work and consider thoughts, and make new techniques in the direction of take care of problems (Battista, 1999). It is said that learners be provided advanced education perusing and composing. Still, the root line of mathematics exit rear and available more than 5,000 years. Assume that when some record of the counting was kept and accordingly, some symbol of numbers occurred in mathematics then this subject be said cumulative property of mathematics and it is a kind of opinion.

According to (Fraser,W. G. & Gilan, J.N. 1992) Mathematics is the basis for all development of the technology in the world. Mathematics is key of instrument in collections of ideas, thoughts and calculations in the polite variety of fields, for example, medicine, engineering, regular science, sociology, physical mathematics, business and compacts. Because of its central position, the majority of the learners are persuading to achievement in mathematics more than in some other subject.

There are various approaches that teacher use in this field, the grip of the teacher must assurance most extreme support of the alternate, continue from cement to deliberation and give learning at the perceptive level (trader, 2010).

RESEARCH OBJECTIVES

i. To analysis the usage of different languages in teaching of mathematics on the students' learning at primary level.
ii. To explore the impact of using different languages in teaching of mathematics on the students' learning at primary level.
iii. To find out difficulties faced by the students' in usage of different languages in teaching of mathematics on students' learning at primary level.

RESEARCH QUESTIONS

i. What is the usage of different languages in teaching of mathematics on the students' learning at primary level?
ii. What is the impact of using different languages in teaching of mathematics on the students' at primary level?
iii. What are the difficulties faced by the students in usage of different languages in teaching of mathematics on students' performance at primary level?

REVIEW OF RELATED LITERATURE

For the current research study the researcher collected conceptual as well as theoretical framework to a topic on the instructional languages on teaching mathematics at primary level.

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The link that related to the particular research was collected in order to create streamline for this topic which reviews on the current knowledge in substantive findings for this experimental research study. The study reviewed literature relevant to the role of usage of different instructional languages on students learning during teaching of mathematics at primary level in Sindh in District Shaheed Benazir Abad, Sindh and other parts of the world under the following objectives: to analysis the usage of different languages in teaching of mathematics on the students' learning at primary level; According to (Giammatteo, M. 1967), it is secondary sources don't new report of original experimental work. to explore the impact of using different languages in teaching of mathematics on the students' learning at primary level; to explore the weaknesses of instructional languages of teaching in mathematics at the primary level; to find out difficulties faced by the students' in usage of different languages in teaching of mathematics to the students' learning at primary level. The learners feel easy to understand and comfortable in their local language, so it would be better that the instructional language should be adopted and applied at primary level. This research study is consisted to evaluate the existing instructional languages in teaching of mathematics which are used in primary level at District Shaheed Benazir Abad, Sindh.

Role of different languages teaching in Mathematics

Role of the Teacher

In any educating learning circumstance, the part of the educator in the classroom is to transfer knowledge, skills and attitudes to the learners, the eternal method for teaching mathematics is vital role of a teacher in which way to make the classroom condition conducive. As indicated by (Berlin, L. (1978) in addition to this, the part received by the student in the classroom additionally rotate the part embraced by the instructor. Along these lines, educators must be clear about their part in the classroom so that there should left no gap between their ideas of the facilitator and what the learner really practice in the classroom. Obviously, when the discussion of the classroom as part of teacher is conducted, it has taken a controlled perspective of the part (s) of an instructor by concentrating on what the learner do or ought to do inside the classroom just, letting alone for thought the instructional or group had have a role in the classroom.

Role of Teacher Teaching Mathematics in different languages

The modern concept of mathematics perceived that in the inevitably innovative and globalized world, with specialist change in populace demography and an adjustment in the status of languages and multilingualism in classroom has ran to some degree than a need. As indicated by (Beauvais, M. H.1995) moves in context likewise observe language not just as an instrument for comprehension with all students prepared with this instrument in administration of learning, although plainly in the classroom that the significance of the remaining parts. Otherwise maybe, it is currently furthermore being recognized, as it has been in different ranges of social contraction, that language utilized has naturally influenced.

RESEARCH DESIGN

This study was experimental in nature. The design gives the confidence to author in the importance of results of the research because it safeguards the situation besides equally pressures of inner and outer authority. The general process is one or more autonomous variables are influenced to decide its outcome on a dependent variable. Solomon Two-Group facilitates a author to make a more multifaceted evaluation of the reason of modification in the dependent variable furthermore still inform whether modification in the dependent variable are regarding to a number of interface result among the pre-test, post-

test and the behavior of the learners. The design allows two significant associations on a meticulous dependent variable. The design contest a lot of inner strength matters that can be outbreak study with randomization so that the experimental outcome on the dependent variable could be accredited exclusively to the conduct.

The population of this study was primary schools of Sindh Therefore, the population of current study consisted to learners studying mathematics at primary school of Sindh at grade four level.

Sample of this study was Laboratory school of provincial institute of teacher education (PITE) Nawab Shah, Sindh. The researcher selected 50 students of grade four for experiment. They were randomly separated in two groups of 20, first group was control as well as other was experimental.

DATA ANALYSIS

The data was interpreted through statically package for social sciences (SPSS). The researcher applied simple T-Test to interpret the findings and results.

The findings of the data of the both languages Urdu and Sindhi were compared and analyzed in this chapter. There are two sections of this chapter. The Section one is consists of analyzing the results as well as sections two is included testing of hypothesis and also analyzing the bar-graphs.

TESTING OF HYPOTHESIS

H01: There is no significant difference between the mean scores of academic achievements of Students in mathematics taught through two languages Urdu and Mother Tongue. The hypothesis was rejected on the basis of analysis given in the following:

Table 1. One-Sample Statistics

Urdu	N	Mean	Std. Deviation	Std. Error Mean
Pre U	20	8.1000	4.74508	1.06103
Post U	20	35.5500	3.05175	.68239

One-Sample Test

Urdu	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pre U	7.634	19	.000	8.10000	5.8792	10.3208
Post U	52.096	19	.000	35.55000	34.1217	36.9783

An autonomous t-test was administered to contrast the mean scores of the control and test bunches on the post-test. As showed in Table 4.1, the mean score for the control group is 8.1000, with a standard deviation of 4.74508. The mean score and the standard deviation for the exploratory group are 35.5500 and 3.05175, individually. The outcomes indicate contrasts between the control and exploratory groups' mean scores on the post-test.

MOTHER TONGUE

H02: There is no significant difference between the mean scores of academic achievements of Students in the subject of mathematics taught through two languages Urdu and Mother Tongue. modern teaching technique and taught through Traditional teaching methods. The hypothesis was rejected on the basis of analysis given in the following Table 2.

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Table 2. One-Sample Statistics

Sindhi	N	Mean	Std. Deviation	Std. Error Mean
PreS	20	13.5500	3.95335	.88400
PostS	20	56.6000	2.90915	.65051

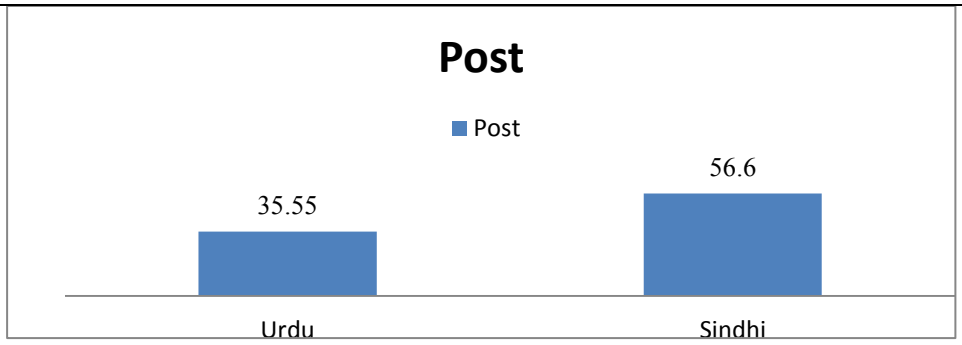
One-Sample Test

Sindhi	Test Value = 0					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
PreS	15.328	19	.000	13.55000	11.6998	15.4002
PostS	87.009	19	.000	56.60000	55.2385	57.9615

An self-determining t-test was run to compare the mean scores of the control and experimental groups on the post-test. As displayed in Table 2, the mean score for the control group is 13.5500, with a standard deviation of 3.95335. The mean score and the standard deviation for the experimental group are 56.6000 and 2.90915, respectively. The results show differences between the control and experimental groups' mean scores on the post-test.

Table 4

Groups	Mean
Post Urdu	35.55
Post Sindhi	56.6



Description of the bar Chart

The bar chart shows that the mean score of Urdu language in teaching in mathematics are 35.55 and the mean score of Sindhi language teaching in mathematics are 56.6. So, the bar chart shows that marks of Sindhi language in mathematics were better than Urdu language in mathematics subject.

FINDINGS

There was significant difference between the mean gain scores of academic achievements of high achiever learners in Mathematics taught through Sindhi language and Urdu language. The t-test value was 8.100 with df = 4.74508 at a 0.000 level, and the mean gain scores were 35.5500 and 3.05175 correspondingly. (Table1).

There was significant difference between the mean gain scores of academic achievements of high achiever learners in Mathematics taught through two languages Urdu and Sindhi. As the

t-test value was 13.5500 with df3.95335 at a 0.000 level, and the mean gain scores were 56000.and 2.90915 respectively (Table 2).

The students taught through Sindhi language of experimental group, performed better than the learners taught in Urdu language. Hsiao and Chang, (2003) and Tang & Huang (2006), found significant difference in the self-confidence on the attitude level. It was also found that the significant difference between the members of both groups regarding to the aspects of restore and substitution, analysis and assessing, and modern teaching strategies supports the learners in growing their approach and skill. Dyer and Osborn, (1996) highlighted the "impact of teaching approach of students of agricultural education with various learning methods". They found that "students in class rooms taught produced by significantly higher scores than did learners in class rooms taught through Subject Matter Approach".

The main cause is that Sindhi language give opportunity for the energetic participation of the learners in the process of teaching and learning as well as improves their capability of thinking although cross questioning and thinking to solve the issues. Regarding to the constructivists approach, in respect to vigorous involvements, the students developed their own knowledge by the disclosure to the conditions. This disclosure activates the cognitive characteristic of the brain and enhances the process of thinking process.

CONCLUSION

In the instructional languages, the learners involved in the prescribed functional proficiencies such as comparative analysis and reasonable- deductive thinking". Comparative reasoning, deductive method persuades the learner to make their own concept and clear understanding in mathematics. This methodology is more effective for educational accomplishment in Mathematics at primary level as in the experimental group taught through Sindhi by modern teaching strategy performed better in achievement test than the controlled group taught through Urdu language.

High achievers' students of experimental group taught through Sindhi language performed better in post-test than the high achiever students of controlled group taught through Urdu in mathematics, likewise, students of experimental group also performed better than the low achievers students of controlled group.

It was summarized that high and low achievers' students of experimental group performed better than the low achievers' students in post-test in mathematics. Whereas, the performance of high and low achievers' was equal in contextual post-test, the students of experimental group performed better than the students of control group taught through two languages.

High achievers' students of experimental group, taught through Sindhi performed better in mathematics in post test than the high achievers' students of controlled group taught through Urdu, likewise students of experimental group also performed better than the high and low achievers' students of controlled group.

It was observed that high achievers' students of experimental group performed better than low achiever students in post-test in mathematics. In Mathematics, the reasoning ability of the learners taught by two languages Urdu and Sindhi were better than the students of control group.

High achiever learners of experimental group, taught with Sindhi language showed better reasoning ability than the low achievers students of controlled group. Similarly, the low achievers' students of experimental group also showed better reasoning ability than that of the high achiever learners of controlled group.

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It was also summarized that high achiever learners of experimental group showed better reasoning ability than that of the low achiever students. Whereas, the low achiever students also showed better reasoning ability than that low achiever students. In Mathematics, there was found a strong positive relationship between the post-test and instructional languages in mathematics. In the same way, there was also strong positive relationship between reasoning ability of the learners in the post-test in mathematics.

RECOMMENDATIONS

On the basis of the result of the research study, the researcher has made following recommendations:

1. The instructional languages are more effective in improving as compared to Urdu and Sindhi languages. It is consequently, recommended that the teachers should opt and include these instructional languages in Mathematics in order to enhance the intrest of the learners at primary level.
2. This teaching technique verified effective not only in the improvement but also for the understanding of the learners in pre-test as well as post-test. Utilizing this technique, learners can gain good results in mathematics. Therefore, to make it the necessary element of teaching learning process, continuous professional development courses should be organized particularly for teachers of Mathematics.
3. The institutions of Pre-service teacher training should include this technique as a component of the training. Thus, they should train the teachers in using this methodology emphasizing to improve the instructional languages and reasoning ability among students in mathematics.
4. Mathematic teachers should improve lesson plans regarding to new methods in highlighting the improvement of the instructional languages and reasoning ability among the learners, in order to get good results.
5. Textbook boards should include innovative activities in textbooks to help the teaching process and supportive in instructional languages in mathematics.
6. The assessment organizations e.g. weekly tests, monthly test, terminal examinations, final examinational and test developers who would incorporate the new points according to the level of the learners in the tests of diverse subjects particularly in the subject of mathematics.
7. The applicability of the new methods of teaching in context of Pakistan, the current research needs to be replicated and applied on the students and schools on a larger scale/ context for the betterment and achievement of student learning outcomes.
8. More longitudinal and experimental studies on applicability of new methods might be devised, framed and conducted by the institutions such as National Institute of science and Technology, Pakistan which is working for promoting the education of Mathematics at national level.

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