International Journal of Innovation, Creativity and Change. www.ijicc.net
Volume 15, Issue 5, 2021

Constructivism in Numeracy: Impact Of Inventive Measures on Grade I Students

Sara Sehar [a], Dr. S Khurram Khan Alwi[b]*, Dr. Zobia Zaman[c], [a]PhD Schlor Greenwich University, Karachi, [b]Associate Professor, Greenwich University, Karachi, [c]Trainer at IQCS INNOVATIVE SOLUTIONS PTY LTD 7 Korana Street Plympton, South Australia, Email: [a]seharsara6@gmail.com, [b]drkhurramkhan@outlook.com, [c]zobiazaman@yahoo.com

Constructivist core belief relies on one principle and that is: learning should be built on the existing knowledge of the learner.In constructivists' view teachers are not the only source of knowledge, rather students construct their own understanding in an environment which is conducive to learning. Mathematic teachers need to adapt transformative roles of facilitators to encourage students in order to develop them into a self-assured learner. 120 students and 10 teachers participated in the study in which 60 students of an experimental group were vigorously involved in meaningful activities. Teachers played roles of facilitators in a student centred environment. An independent sample t-test was applied to test the research hypothesis. The significant 2 tailed value of the post-test was .000 < .05 which evidenced that the research hypothesis is accepted signifying the impact of material activities on students mathematical learning.

Key words: *Constructivism, Numeracy, Experimental Research*

1. Introduction

Early years' education is considered to be the foundation of later academic performance of students. Mathematic remains the subject of interest for the students till the primary level; however this interest starts fading in the later years and students start lacking interest in the subject once they reach their middle school level. Subsequently, when they reach the secondary level, the further decline is seen in their academic performance. There are several factors behind the students behaviour towards the subject. Singh, Granville & Dika (2002) elaborated on many variables which effect students' performance in these subjects .These variables include interrelated variables, socio economic and school related variables. In their

discussion they summarised that home and family related variables are beyond teachers control; however, through interventions educators can control the school related variables like academic engagement, students' attitude towards the subject; further, they can provide knowledge about the importance of the subject in their future career. Singh et al. (2002) concluded that career choices for Mathematics , Science and Engineering depend on the initial attitude and interest of the students towards learning these subjects. This research advocates the effective use of materials to make Mathematics learning exciting for the young learners and kindle their interest. Teachers should apply strategies to engage students in mathematic activities, to ignite their curiosity and provide conceptual understanding by using manipulatives as these are fun elements and tools which make the abstract ideas concrete for the learner.

1.1. Problem Statement

Mostly students find Mathematics difficult from the early years .Research has concluded that at the primary level students feel forced to learn Mathematics whether they like or not; they attend the Mathematics class with learning anxiety since it is a compulsion to study this subect in the yearly years but emotionally they remain disconnected with Mathematics. (Ojose & Sexton, 2009)

If the teaching strategies are made conducive to Mathematics learning from an early age where students are taken from concrete to abstract concepts, their later results will be encouraging. Ojose (2008) highlighted the need of concrete experiences and considers classroom activities as avenues for enabling students getting to the abstract concept through material activities.

Curriculum should support and guide teachers for delivering the content with an applicative approach rather teaching bookish content. The conventional teaching , chalk and board method is still being given importance by the teachers because it is less challenging, less demanding and easily executable. The aim of the study is to analyse how constructivism encourages and influences students' proficiency in learning Mathematics which results in better understanding of the concept.

1.2. Scope of the Study

Diaz (2017) argued that it is the responsibility of the education system to make children competent in different fields of knowledge, and particularly for Mathematical competence, it is necessary to provide assimilated concepts, procedures and attitudes to make the curriculum elements applicable in real life situations.

It is believed that the findings of this research would benefit Mathematics teachers and curriculum developers to plan topics in an interactive way to make our learners independent and confident.

Ampadu & Danso (2018) has suggested several strategies of improving teaching through the constructivism approach such as applying different methods to engage students, formation of a wealthy environment to discover, create coherent issues and set of challenges which require attention on creating models and making effort, and interact with the perception of students and making interpretations.

The study has examined strategies and tool through which Mathematical knowledge was created in a constructive classroom.This research has the scope of convincing the educational managers, school leaders and curriculum developers to apply participative mathematics lessons in classroom to bridge the gap between the concrete to abstract concepts.

1.3. Objectives of the study

Following are the objectives of the study:

- To understand the role of constructivism in education and to analyse how constructivism is applied in classroom.
- To explain the instructional material and invest the impact of material learning in Mathematics.
- To compare and examine the differences between a traditional Mathematics classroom and a constructive classroom.

1.4. Research Questions

The following research questions guided the study:

- What are the learning outcomes in a constructive classroom as compared to a traditional classroom?
- What is the contribution of material activities in developing independent learners?
- What is the role of a teacher in a constructive classroom?

1.5. Hypotheses of the Study

H-There is a positive impact of material activities on student's Mathematics understanding and academic performance.

2. Literature Review

2.1. Historical Perspectives of the Constructivist Theory

The scientific study of human learning is referred as theory of constructivism; this theory states that humans learn through experiencing different circumstances and they construct their own knowledge through self-reflection. In a new situation the human mind compares it with previous experience of a similar .nature; the mind accepts the new information and changes its previous belief or discards the new information if it does not make sense. During this whole exercise we create our own understanding by exploring the new situations, self-analysing and comparing and assessing what we already know. The theory of constructivism has its roots from 18th century starting from Piaget's cognitive constructivism, going to Vygotsky' social constructivism and reaching at Bruner's discovery learning. Piaget elaborated two processes;assimilation and accommodation as a source of cognition.According to Piaget a human uses both these processes simultaneously throughout his life for developing understanding of his environment. Vygotsky's concept of constructivism considered the human culture as a determining factor for cognition. He believed that knowledge is influenced by societal and cultural interactions. Person's cognitive ability entrenches in his context.

Kalina & Powell (2009) summarised the concepts of Piaget and Vygotsky by concluding that "In cognitive constructivism, ideas are constructed in individuals through a personal process, as opposed to social constructivism where ideas are constructed through interaction with the teacher and other students" (pg.241). Furthermore, Mogashoa (2014) observed constructivism as an epistemology which believes that knowledge is generated with human interaction between their notions and experiences. Traditional Mathematics teaching and curriculum depends on transmission of topics. In such cases, students inactively absorb Mathematics rules, facts and equations which are developed or readily available in their text books. However, several researchers have presented different perceptions about the Mathematics learning such as, Clements & Battista (1990) believed that children develop the latest knowledge of Mathematics through reflecting on their physical as well as psychological activities. Ideas can be created or developed meaningfully whenever children incorporate them in their current framework of knowledge. On the other hand, Perkins (1992) argued that constructivism has its roots both in psychology and philosophy which covers the developmental view of Piaget and the cognitive thinking of Bruner. Furthermore, Steffe (2016) discussed that the constructivist approach being used as a model for teaching Mathematics to develop the cognition, has its roots from the philosophical theory known as constructivism. Moreover, Smith (2017) concluded that learners construct their knowledge by interaction and their language which is broadly considered to be their culture.

According to Manen (2016) culture influences the overall mechanism of teaching and learning since the teachers and students both remain under the influence of their social environment and traditions which they are part of. Moreover Leonard (2017) emphasised on cultural orientation

and concluded that it cannot be ignored in the classrooms of any country, as they are reflected in classroom processes for both teaching and learning .When the curriculum is aligned with the cultural setting it facilitates the students in developing conceptual understanding with the aid of social interactions (Entwistle & Ramsden, 2015). Mathematics and its social contribution can be understood by the students once they are able to develop a positive relationship between Mathematics concepts and their own context (Inglis & Foster, 2018). Pijls, Dekker and Wolters (2007) found it difficult to observe the students collaborative work once the tasks were not aligned with their cultural practices.

2.2. Mathematics Curriculum in Pakistan

In 1980, the USA brought several changes in the methods of Mathematics learning and teaching for the purpose of helping students to develop their concepts and principles of Mathematics. The Pakistani Mathematics curriculum, like most nations around the globe, has been restructured from 1976. The first National Curriculum was introduced in 1976 that was then reviewed in 1985 and further in 1995 and then in 2006. The new 2006 curriculum for Mathematics was believed to be more vibrant as well as reactive toward the current, socio economic, technological aspects and it is considered to be proficient to cater to the market needs of Pakistan (Govt. of Pakistan, 2006).

The outcome of learning suggests what students have to know and what understanding they should develop with every topic at each stage of development (Jamil, 2009).
The National Curriculum for Mathematics permeates the themes as follows:

- The curriculum was designed to assist students to develop the powerful concepts and basics in Mathematics which can help them to implement their knowledge with skills and advances their learning effectively.
- The curriculum focused on geometrical framework which help the students to sense logically and methodically as well as conjecture wisely.
- The curriculum focuses on the graphics which allow the students to imagine and interpret the terminology of Mathematics in more proper way than to control them blindly.
- The curriculum identifies the advantages which modern technologies provide toward Mathematical learning.

The national curriculum incorporates the execution of proper technologies to improve the learning environment. The role of Mathematics teachers in the national curriculum have been re-routed and moved from providing information to planning analytical responsibilities, handling a supportive learning world and encouraging the creativity of students in creating a rational perspective of Mathematical ideas.

The national curriculum for Mathematics transparently advocates the constructive approach which develops logical understanding, critical thinking, and analytical skills; the same are recommended in the curriculum planning; however, it needs to be enhanced and strengthened to make it more equivalent with global standards.

2.3. The role of a teacher in a constructive classroom

Constructivist teachers believe that students learn by doing rather by observing others and they apply previous knowledge into a new situation and reach to a conclusion. The whole process of trial and error enables them to learn.When teachers become facilitators of learning they apply strategies to foster those inner resources of students by adopting autonomy and encouraging activities. (Tudor,1993) Constructivist teachers allow questioning, encourage reasoning, let the children apply their mind and introduce elements of food for their thought process. The student centred classroom puts additional responsibilities which are not found in a traditional class; these responsibilities include channelling students' potential and improving human capacity. Teachers who envision the learner-centred approach need to be very careful while choosing any approach as it involves extra time and effort. In a constructive classroom the teachers have multiple roles to perform and the learning is a two way process; to summarise the obtained research material related to the differences in roles of a traditional teacher and a facilitator, the following table is developed by the researcher.

Table 1. Teacher vs Facilitator

Traditional Teacher	Facilitator
Teacher covers subject matter through didactic lectures	Facilitator enables a student to reach to his own understanding of the content
Students are passive learners	Students are active participants
Emphasis is restricted to the instructor and the subject matter.	Emphasis is shifted from the subject matter to the learner
Teacher tells answers for a prescribed curriculum and lectures from the front.	Facilitator asks questions, creates the stage for learning and supports from the back.
Learner is expected to reach the set outcome.	Learner drives his own conclusions

2.4. Traditional Vs Constructive Classroom

Prideaux (2007) summarised the power of constructive classroom in the statement, "The essence of constructivism has been captured through the development of active learning, also known as learning by doing, learning by experience, learning through action, student-centered learning, peer collaboration and cooperative learning."(pg.7). Traditional teachers criticise the constructivist belief of teaching. According to them the teachers' role cannot be dismissed; moreover the position of expert knowledge should not be ignored. Pijls et al. (2007) concluded that the majority of teachers find it complicated while observing the learning procedures of students who are working collectively, particularly when there are different cultural and educational practices.

On the contrary, the constructivist teacher performs the role of a facilitator who acts as a guide, trainer and a couch in the classrooms and the classroom is like a lab where testing and re-testing is a continuous process. The teacher applies strategies like problem solving, risk taking and trial an error .They adapt activities to cater to inquiry based learning through which students test their ideas, predict the process, find results and discuss their experience in a conducive environment.The child becomes an active learner in a constructive classroom, whereas he/she remains a passive learner in a traditional setup where the student is expected to intake whatever the teacher or book is offering. Anwar & Rahmawati (2017) conducted research for assessing the learning of Mathematics; they concluded that Mathematical learning is related to the theory of constructivism which believes that student's mind should not be considered as a warehouse where knowledge is merely collected. Constructive environment of the classroom activates the inbuilt capabilities of students about the world around them; students attempt to understand the mechanism of how things work by self-hypothesis, inference, application of ideas and eventually testing their self–concepts and getting results.

2.5. Material learning in mathematics

Manipulatives are the material or objects which are used as teaching aids for engaging students and allowing them the experience of handling those teaching tools. It may be as simple as a coin or as refined as a model of a circulatory system. They can be readily available or designed as per requirement mostly prepared or collected from the extra material of a stores' junk. The teacher designs activities with the support of the manipulative and sets tasks for the students following the guidelines as per the curriculum.

Maloney, Lawler, Reichl and Whitehead (2016) believe it to be the core responsibility of teachers to evaluate the resources and apply the most appropriate material for their students. The teacher is the right person to decide and select the classroom tasks, activities and their implementation strategies as well; however, the learning outcomes of material usage depend on the application of the learning tool. It is a witnessed reality that educators use material as a

demonstration tool rather than a material at hand. Marshall & Swan (2008) termed the ineffective utilisation of manipulative as a demonstration tool in a mathematic classroom.

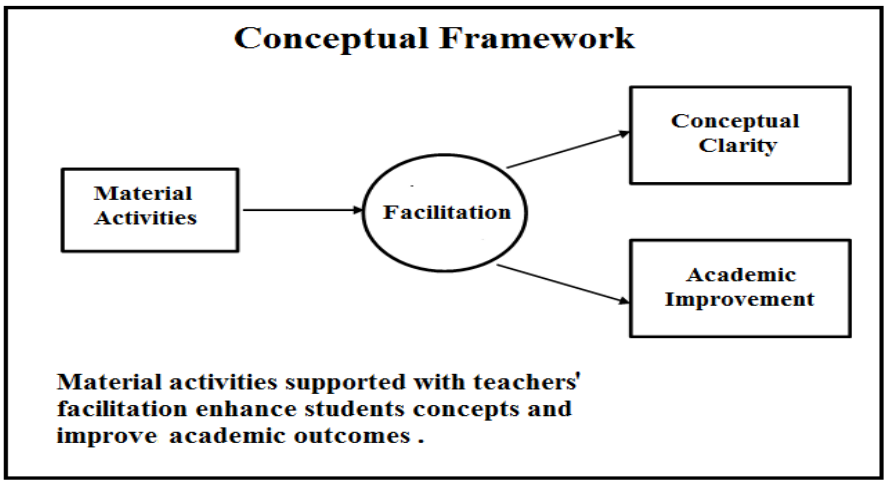
The whole cycle of classroom practices is termed as the implemented curriculum (Clarke, 2008). Young minds are ultimately shaped by the kind of learning which they experience at every level (Sentence & Csizmadia, 2017). Previous literature on the use of manipulative has submitted ambivalent responses since they failed to present prominent advantages or disadvantages of manipulatives as compared to traditional teaching methods. When teachers gave their feedbacks regarding the utilisation of manipulatives they came up with mixed opinions; those who found it effective, reported it as a helpful tool to introduce the concept and considered the manipulatives as an aid for the children to grasp an abstract concept as a concreate reality through the material so it is easier for the students to understand.Teachers further elaborated the advantages of using manipulative like: their students improved their motor skills by handling material , they learnt to collaborate with other students ,and manipulatives catered to all learning abilities and multiple intelligences of students. On the other hand, teachers who struggled with the use of material in their classrooms showed their concerns that the quantity of material to cater for a number of students was mostly insufficient; secondly students involved with material tend to get out of control and classroom management was a problem during the material activities and finally they came up with the concern of shortage of time for such activities.

2.7. Conceptual framework

A report published in 2010 with the title “Powering Pakistan for 21st Century” highlighted the poor condition of Mathematicss and Science education of Pakistan and concluded that according to the National Education Assessment System examination, the average Mathematic score of grade 4 students was 433/1000 which is quite pitiful as students struggle in computing Mathematics. It is an alarming situation for the country which shows that our educational policy makers and educators do not stress on learning outcomes.

Low quality curriculum content and traditional teaching strategies have deteriorated the overall Mathematics achievements. Students are unable to develop link between the Mathematical equations and the life experiences; hence this research developed a framework of integrating material in a Mathematics classroom , providing a hands on experience opportunity to the learner and evaluating the overall benefits of the process.

Figure 1 – Conceptual Frame work



3. Research Methodology

3.1. Research Participants

As per the requirement of this study, students of class 1 were selected from a primary school of Karachi, Pakistan .One hundred twenty (120) students were chosen in which half remained in the controlled group whereas half were in the experimental group, subsequently there were 60 students in each group. The age of students were ranging from six to seven years. 47 boys and 13 girls were in the controlled group whereas the experimental group comprised of 40 boys and 20 girls. Participants in both the groups were mixed ability students belonging to different socio-economic backgrounds.

3.2. Sampling Technique

Convenience sampling method was applied in this research as the participants and the teachers were readily available in the school and the consent of the management was obtained by the researcher.

3.3. Data Collection

The data for this research was collected by administering a pre and post-test before and after the intervention for the selected concepts of **money** and **weight** at the level of class 1. Specific worksheets were designed for the pre-test which were given to both the groups and the results were obtained and recorded. Two months intervention was applied to the experimental group and the post test was administered to both the groups. Worksheets were designed to assess the concept, scores of both the tests were collected by the teachers. Pre and the post test data was analysed through SPSS.

3.4. Sample Size

A total of 120 students and 10 teachers participated in this study; 5 teachers were for the controlled group who continued their normal teaching practices whereas 5 teachers were with the experimental group who altered the teaching practices with the additional input of material activities for the concepts of money and weight.

3.5. Procedure of Experimental Study

Students getting promoted from nursery to class I, have to deal with concepts like money, weight and length .The course books of Mathematics in the context of the research participants had the topic of money with foreign currency images of pounds and dollars which was an additional challenge for a 6 to 7 year old child to relate to . Based on the previous results of the students and teachers' feedback related to the above mentioned topics, it was observed that students struggle to grasp the concept of money and the most prominent reason was the missing link between the contextual utilisation of the currency and the content that was given in the books; it failed to make sense to the students. Similary the concept of weight was very vague to the students;,they could only differenciate between heavy and light, whereas they lacked the skills of comparing weight between objects. Hence the researcher intended to work on these topics during the period of intervention with the experimental group.

Pre and post-test design was administered to the experimental group and was compared with the controlled group.The pre-test was done at the beginning of the topics to measure prior understanding of the students whereas the post- test was executed after two months intervention of material activities for the concept of weight and money.

3.5.1 Concept of Money

First the concept was introduced to both the groups in a traditional teaching manner; with the board explanation and book exercises and the data for both the groups was collected and recorded. Then the intervention was applied and the experimental group was explained the concept of money with (self-designed) plastic coins and paper currency of Pakistan, whereas the controlled group continued with their regular board explanation and the book exercises. The control group had the repetitive exercises on the board for reinforcement, while the researcher applied three phased intervention for the concept on money to the experimental group. In the first phase, children used paper money to solve the sums of the worksheet and multiple practice was given; in the second phase students were asked to bring Rupee 50 /= for their Lunch break and students were taken to the school canteen to use the real money.

In the final phase a toy shop was setup for the experimental group and students did the activity of purchasing toys with Pakistani currency notes and coins. During all the phases the teachers maximised the availibity of material e.g. rupee (printouts) and plastic coins. The purchasing

activity taught them number combinations, enhanced their decision making and gave them confidence of making choices for e.g. to buy a ball of Rs .45 children made the combinations like

Rs.45= Rs. 20 +Rs. 20+Rs 5
Rs 20 + Rs 10 + Rs10 +Rs 5
Rs.10 + Rs 10 + Rs.10 + Rs 10 +Rs.5

At the end of 2 months inventive exercises students' responses were collected in a post-test worksheet. Both the groups were given the same exercises and the results were compiled by the researcher.

3.5.2. Concept of Weight

Traditionally, these concepts are taught with some pictures on the boards, and exercises in the text book that show light or heavy objects for students to tick or circle.The same was done for the pre-test.Although students attempted these exercises on paper, the students remained deprived from experiencing the weight of material and feeling the weight. During the experimental period students practised weighing objects initially with their hands and estimated the weight to be heavier or lighter; later they were given exercises to weigh the quantity with the help of physical balance and they experienced that the heavier side bends down; next there was an additional activity of weighing objects and making both sides of the balance equal by adding or removing objects from either side.

The control group did all the exercises with focus on their book work and worksheets whereas the experimental group was exposed to material to feel the heaviness and lightness of material. The experimental group used manipulatives for the concept of money and weight. Pre and post-result data was examined and descriptive statistics was applied to summarise the result by calculating the mean, median and mode. Inferential statistics was also calculated to compare the difference in outcome.

4. Results

To analyse the impact of material activities on students' Mathematical understanding and for the level of independence, the researcher conducted an independent sample t test with SPSS; the analysis provided significant difference in means of the pre and the post-test and the researcher noted difference in academic achievement as the result of intervention.

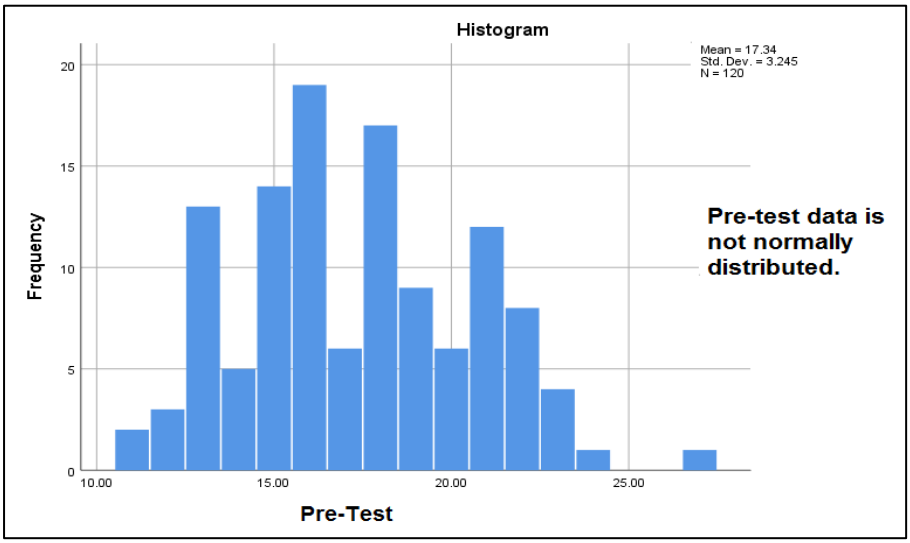
Table 2

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-Test	.127	120	.000	.972	120	.012
Post-Test	.102	120	.004	.986	120	.230
a. Lilliefors Significance Correction						

Test of Normality

The Shapiro–Wilk test actually tests whether the pre-test and the post-test values are statistically significantly different from normal distribution and according to the value the pre-test scores are not statistically significantly different from normal distribution since the value is .012 which is less than common alpha value .05 (.012 <.05). Hence the study concludes that there is a statistically significant difference between the pre-test and normal distribution, in other words pretest values are not normally distributed. For the post-test Shapiro Wilt value .230 is greater than .05 which indicates that there is no statistically significant difference between the post-test and normal distribution and the researcher presumes that post-test is normally distributed.

Pre and Post test. Graphical Representation



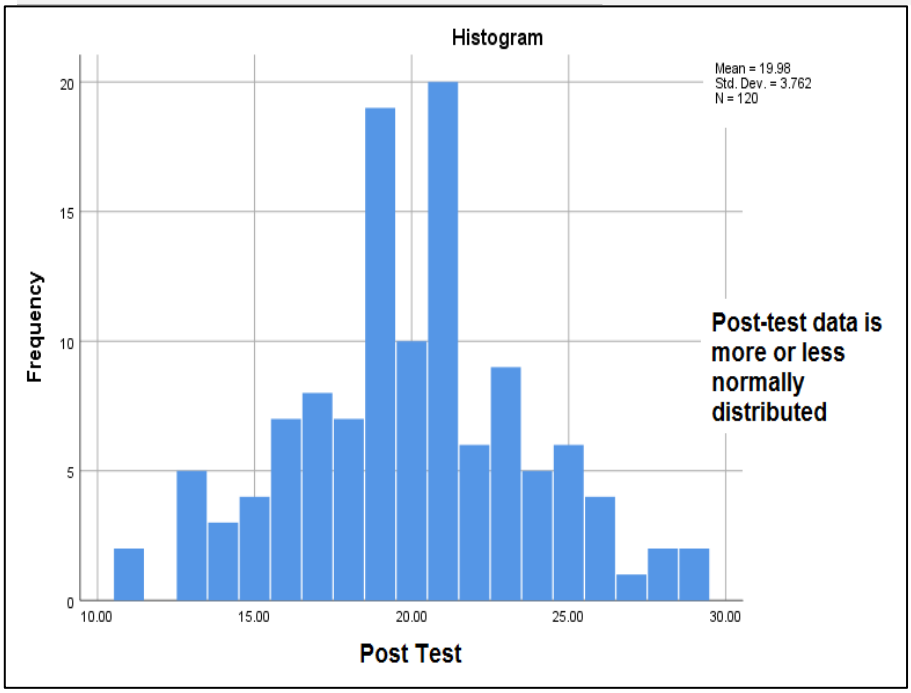


Table 3. Descriptive Analysis

Descriptive				
			Statistic	Std. Error
Pre Test Scores	Mean		17.3417	.29622
	95% Confidence Interval for Mean	Lower Bound	16.7551	
		Upper Bound	17.9282	
	5% Trimmed Mean		17.2870	
	Median		17.0000	
	Variance		10.529	
	Std. Deviation		3.24489	
	Minimum		11.00	
	Maximum		27.00	
	Range		16.00	
	Interquartile Range		5.00	
	Skewness		.258	.221
	Kurtosis		-.490	.438
Post Test Scores	Mean		19.9833	.34340
	95% Confidence Interval for Mean	Lower Bound	19.3034	
		Upper Bound	20.6633	
	5% Trimmed Mean		19.9722	
	Median		20.0000	
	Variance		14.151	

	Std. Deviation	3.76178	
	Minimum	11.00	
	Maximum	29.00	
	Range	18.00	
	Interquartile Range	4.00	
	Skewness	.015	.221
	Kurtosis	-.038	.438

Focusing on skewness and kurtosis, these values should ideally be close to zero and the Z value should be between -1.96 and + 1.96; however the data normally gets skewed or kurtoctic. For the above data the calculated Z values for the pre and post-test produced values less than +/- 1.96 which concluded that the data for both pre and post-test is little skewed and kurtotic.

4.1. Testing Hypothesis

H-There is a positive impact of material activities on student's mathematic learning.

Table 4. Independent Sample Test

Independent Samples Test										
		Levene's Test for Equality of Variances	t-test for Equality of Means							
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pre-Test	Equal variances assumed	.467	.495	1.827	118	.070	1.07224	.58678	-.08974	2.23422
	Equal variances not assumed			1.827	117.564	.070	1.07224	.58705	-.09031	2.23480
Post-Test	Equal variances assumed	.020	.889	-7.354	118	.000	-4.20061	.57122	-5.33179	-3.06944
	Equal variances not assumed			-7.353	117.829	.000	-4.20061	.57126	-5.33189	-3.06934

To measure the impact of manipulatives, with teachers facilitation being the independent variables on the conceptual clarity and academic improvement being the dependent variable, Levene's Test was administered for equality of variances whereas an independent sample was calculated for equality of means.

As per Levene's test for equality of variances for the pre-test the F= .467 and the P value is .495 which gave the evidence that variances are equal in the group making it non significant; the same is the result for the post-test for which F= .020 and P value = .889 which also is greater than .05 which means that variances are equal in population of the post-test as well.

With the impact of material activities, significant differences were found in students pre-test and post-test scores;as given in the table the mean score of the pre-test is .07 and of the post test is .000 .

The significant 2 tailed value of the post-test is less than .05 which proves that the research hypothesis is accepted stating that there is a significant impact of material activities on students Mathematic learning and there is an increased independence in a constructive classroom.

4.2. Major Findings

- The level of students confidence and knowledge of composing and decomposing numbers was greatly enhanced since they practised with Pakistani coins and currency which they were familiar with.
- Their conceptual understanding improved while comparing material and making inferences with their logical thinking.
- The whole experimental group benifited with the material activities without the discrimination of their sex, economic status and academic level.

4.3. Discussion and Suggestions

Global development has increased expectations from the whole school community to improve the methods of learning and teaching. The results indicated that the conventional teaching approach did not allow creativity as it restricted students to apply ideas. It appears to be a realistic approach to use constructive strategies in teaching Mathematics at primary level as constructivism is a more practical method meeting the current need of 21st century students.

Manipulative are the materials or objects which are used as teaching aids for engaging students and allowing them to experience reality.The teacher is an important player who designs activities with the support of the manipulative and chooses tasks for the students as per the curriculum.

The study suggested encouraging the understanding of students and their active engagement in the teaching and learning process as students develop Mathematical knowledge by the means of process. Additionally, the study suggests that the students should be actively involved in the teaching-learning process based on their groups, culture, and interests and work collectively to develop new Mathematical knowledge. Furthermore, school curriculums should be re-designed based on the constructivists approach to provide hands on experiences to the learners. It is recommended that current and up-to-date teaching methods and approaches should be used in the Mathematics classrooms at every level as the development and prosperity of a country is greatly based on its progress in Mathematics learning.

4.4. Conclusion

The aim of this study was to investigate the role of constructivism in the Mathematics classroom at the level of class 1. The study examined the different learning outcomes in a constructive classroom as compared to teacher centred classrooms and detailed the teaching strategies that are employed to develop independent learners. The study was supported by the objective that there is a significant impact of material activities on students' progress in Mathematics and work independence. Learning with a constructivist teaching approach discovered a mean of 4.20061 and standard deviation of .57122, which signified that the constructivist teaching approach can improve the Mathematics learning of students. The results concluded that there is a positive impact on students' Mathematics learning with a constructivist teaching approach and there is an increased independence for learning in a constructive classroom.

Faulkenberry & Faulkenberry (2006) found one common thing while assessing many varations of using constructivism in the Mathematics classroom and the common thing was the role of a student which was central in every constructive classroom; similarly this research proposes that teachers at all the levels need to provide experiential learning for which classrooms have to be resourceful.Instructions should be student-friendly to encourage active participation because meaniful learning contains the development of congition by accommodating new knowledge which the learner encounters.For this study the constructivist approach has been an evolutionary form of teaching and a dynamic form of learning for the young learners as it taught the students to reflect.Although it is difficult to apply constructive teaching methods in every classroom as it involves increased effort, added material, closed monitoring and accountability; however the benefit goes to the learner being the centre of the activity.

Acknowledgements

Firstly, for the completion of this study, I am very grateful to the Almighty who enabled me to do present my research on "**Constructivism in Numeracy; Inpact of inventive measures on Grade-I students".** Secondly, my special thanks to my supervisor Dr.S. Khurram Alwi as

he has guided me step by step in all areas and without his guidance this study could not have been completed.

I am grateful to the staff of GRDC, Greenwich University as it was their guidance and inspiration that helped me to go through with the procedure of the different research levels.
My parents and family members have offered continued support, encouragement and love as I progressed through this process.

After that, this study has been finalised through the efforts, motivations and inspirations of many and I am personally grateful to Dr. Zobia Zaman for her valuable input in proof reading which gave a professional essense to my manuscript.

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