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Fun and Amusement in Teaching: Exploring Various Aspects of Teaching of Mathematics at Elementary Level

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Abstract

Mathematics as a subject is considered difficult as well as interesting and enjoyable. children like its challenge, its clarity, and the fact that you know when you are right. The solution to a problem makes a feeling of excitement and satisfaction. The objectives of the study were (i) to explore the fun and amusement in teaching mathematics at the elementary level (ii) to review the existing and required facilities at the elementary level (iii) to find out how students take fun in learning mathematics at the elementary level. Four elementary schools were taken as a sample of the study. The questionnaires were used with the teachers and students separately n the themes related to the fun, amusement, and effectiveness in teaching Mathematics. On the basis of analysis, it was found that the majority of the teachers were teaching the out-dated curriculum which does not satisfy the socio-economic needs of students. Although teachers s and students had fun in their teaching and learning process. It is found that the elementary teachers and students were not up to the mark because they were less equipped as compared to the physical and other basic facilities which should be available in the schools. It is proposed that all schools, including the English medium schools, must follow the education policy in the teaching of mathematics and curriculum. Furthermore, the trained and qualified teachers should be appointed on merit both in the government and private schools.

Keywords: Effectiveness, Fun and Amusement, Teaching Mathematics, Elementary Level

Introduction

In countries throughout the world, mathematics is taught in most schools' systems at most levels of education. It is considered that the skills developed are of sufficient importance that mathematics m as a separate discipline, must play a significant role in most curricular structures. At secondary stages, mathematics is usually taught by those qualified specifically in mathematics. At primary and elementary stages, mathematics is often taught by those qualified as teachers but the teachers are not specialist mathematicians in the sense that they hold a university degree in mathematics.

There are some who see mathematics from a utilitarian viewpoint: mathematics is taught because it is needed in wider life. However, any analysis of daily living for the majority of the population shows that the amount of mathematics needed by most is minimal. Others (e.g. Battista, 1999) see mathematics as a way to develop mental skills in order to solve problems: mathematics is seen as a form of reasoning. The idea that such generic skills exist or are transferable in any way is not supported by the evidence. There are many who see the role of school mathematics as an essential underpinning for many other subjects' areas - anything from accountancy and economics right across to physics, chemistry and engineering (Scheme of studies for HSSC, p. 8). Indeed, all these subject areas depend heavily on high level skills in mathematics. However, large numbers of school students do not move on into careers in any of these areas. Overall, none of these supposed justifications for the inclusion of mathematics at school level stand up to much scrutiny.

Ali and Reid (2012) considered the nature of mathematics thinking. This leads to a key question: what are the aspects of mathematical thinking that make it unique, and thus different from other areas of thinking? Alzahrani (2014) took this further when he touched upon the issue of the nature of mathematics as an area of human enquiry and this does offer a sound basis for its inclusion

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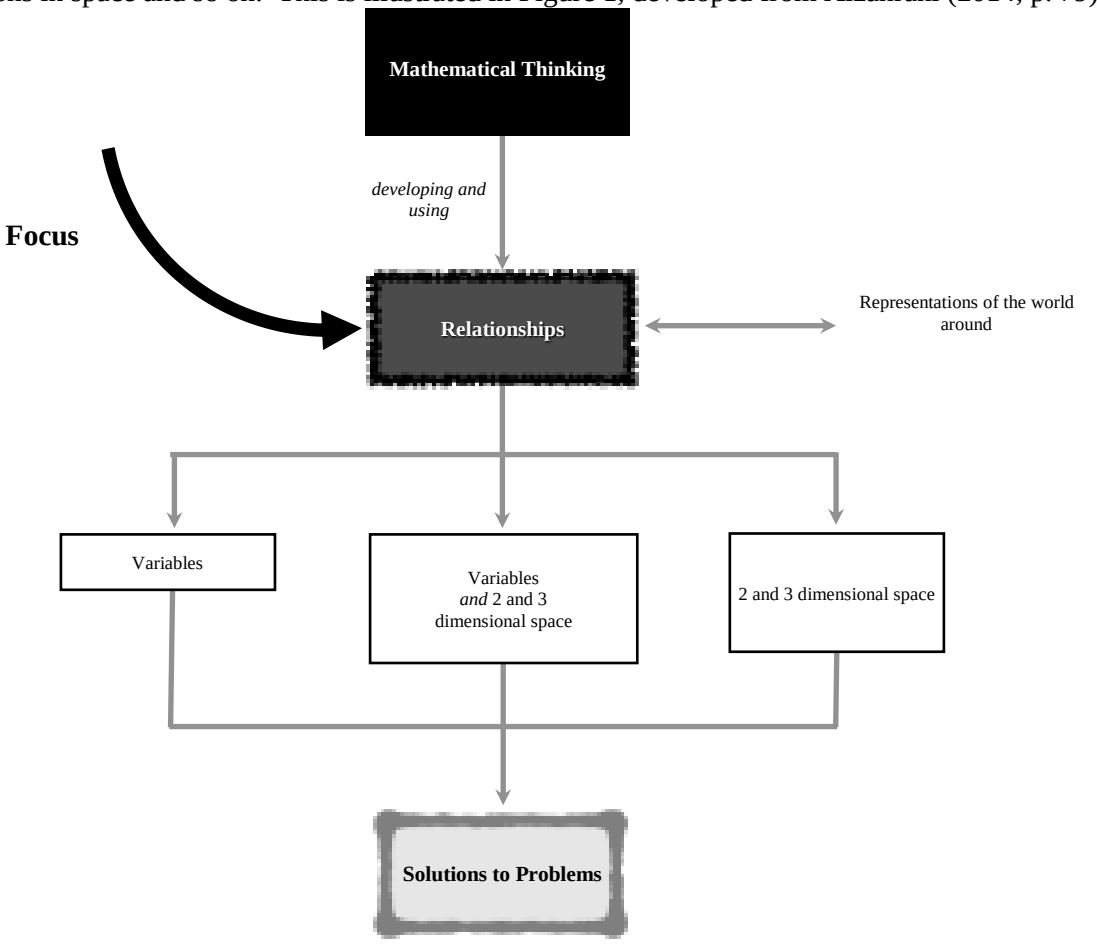
at school level, for all students. He noted that the central feature of mathematical thinking lay in the way mathematics involves the study of relationships - relationships between variables, constants, positions in space and so on. This is illustrated in Figure 1, developed from Alzahrani (2014, p. 79).



To explore the extent of enjoyment experiences by lear

Figure 1 The nature of mathematical thinking

Mathematics offers one very powerful way to describe the world. It is all set in terms of relationships. These may be spatial, numerical or both. However, mathematics not only describes. It allows humans to interpret the world and then move on to predict. It is then easy to see that all school students need to understand something of the power of mathematics to describe and interpret. Here is a much sounder basis for the incorporation of mathematics in school curricula.

Statement of the Problem

Given that the study of mathematics offers a powerful way to describe and understand the world around as well as solve problems related to that world, it is important that school learners understand mathematics and enjoy that process. Are enjoyment and understanding apparent at elementary stages of learning?

Objectives of the Study

The main objectives of the study were as follows.

(1) To explore the understanding of mathematics among learners.

(2) To consider the resources and facilities available to assist understanding and enjoyment

These issues were considered from both the teacher and learner perspectives. The goal is to gain insights that might point to ways forward to enhance the mathematical experiences of learners at elementary levels.

Review of the Related Literature

Mathematics has a long history in the story of human endeavours. For example, Euclid was a Greek Mathematician who lived in the 4th to 3rd centuries BC. He laid many foundations especially in the areas of planar geometry. Archimedes was a 3rd century BC Greek mathematician, physicist, engineer, inventor, and astronomer. He saw the value of mathematics in solving problems. Some of

the early mathematics was essentially an intellectual exercise as mathematical methods were used to describe the world around. In due time, the outcomes started to make an impact on measurement related to astronomy.

There is no doubt that mathematics is a remarkable human intellectual achievement. There is also no doubt that mathematics has played an essential role in the development of many other subject disciplines throughout history. However, the greatest strength of mathematics lies in the way it allows humans to describe the world around in terms of relationships, including measurement and spatial relationships.

It is often thought that education underpins the economic development of a country. In fact, the evidence does not support this. In her careful review of much evidence, Wolf (2002) shows that other factors influence economic development much more powerfully and, in fact, the evidence suggest that economic development *encourages* education rather than the reverse. Pakistan is seeking economic development. If the political and social will of the nation moves economic development forward, this will lead to a need for education. Specifically, in many industries and economic activities, mathematics has a major part to play.

This can be seen at a practical level in the basic numerical and geometrical skills needed by all right across to the mathematical needs for developments in areas of the sciences, technologies and medicine. Thus, while education does not lead necessarily to economic development, economic development will generate needs that must be met by increased education (Wolf, 2002). Mathematics must play a vital role in that education.

The mathematical foundations will be laid at elementary school level. It is here that enjoyment is so important. However, young learners need a sense of achievement, an experience of success as well as an awareness of meaning. In simple terms, learners need to know why they are doing what they are asked to do as well as being able to find some meaningful success in doing it. Indeed, in a very different setting, Oraif (2007) demonstrated that the key to academic confidence at the start of university studies lies almost entirely in *past successes* at school level.

There is no evidence that studying mathematics develops logical thought although those who possess latent skills in logical thought often excel in subjects like mathematics (as well as some languages and philosophy). There is value in studying mathematics in that many skills are essential for careers in the sciences and related areas.

Studies (e.g. Reid and Skryabina, 2002) have shown that three factors seem to be dominant in developing positive attitudes towards study:

Teacher quality:	has the teacher relevant subject expertise as well as human empathy for the learner?
Curriculum quality:	is the curriculum built around the reality of life for the learners?
Perceived career potential:	does what is being studied hold potential for future career opportunities?

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Overall, in looking at the place of mathematics in elementary education, two key aspects stand out. The first is that a central goal is understanding, while the second nigh be described in terms of enjoyment. Understanding brings its own satisfaction and seeking to make sense of the world around is the natural way of learning. This stems from the work Piaget (Wadsworth, 2004). However, that satisfaction will be undermined by constant failure. This is not an argument simply to make things easy, to trivialise what is taught. Studies have shown that enjoyment is unrelated to perceived difficulty (Johnstone, 1993; Reid and Yang, 2002): learners enjoy a challenge but the challenge must not lead to impossibility. In this, instruction must always take account of the limiting effect of working memory capacity (Johnstone, 1991; Kirschner, et al., 2006; Mayer, 2011).

Research Methodology

Twenty teachers and forty students were randomly selected from eight elementary schools. Two questionnaires were prepared: one for elementary students and one for teachers. These are shown in the appendix. The questionnaires were administered personally. The data collected was tabulated, analysed and interpreted by using frequency and percentage methods.

Findings

Table 1 Teacher qualifications

Academic Qualification	Teachers	Professional Qualification	Teachers
FA/FSc	**2**	C.T	**1**
B.A/B.Sc	**4**	B.Ed.	**10**
M.A/MSc	**10**	M.Ed.	**5**

The teachers were, overall, well qualified.

Table 2. The interest of teachers in teaching mathematics

N = 16	Yes	No	NR
Teacher's interest in teaching mathematics	**13**	**2**	1
Having fun in teaching	**13**	**2**	1
Feeling happy in the classroom	**13**	**2**	1
Enjoying the lessons	**13**	**2**	1
Engaging students in the activities	**13**	**2**	1

In every area, the teachers were positively disposed to the teaching of mathematics, finding the teaching enjoyable, interesting, with the students engaged. There is, indeed, an intrinsic satisfaction in teaching and learning in mathematics where there is a product that is '*right*' or '*wrong*'.

Seven items look at the availability of physical facilities. Only one teacher indicated that these were satisfactory. Here is a fundamental problem that needs addressed urgently.

Table 3 summarizes how teachers see their own difficulties.

Table 3. Causes Of Failure

Description	Items. No	Yes
Misunderstanding of subject	13	**11**
Misuse of methodology	13	**1**
Improper teaching	13	**2**

Teachers see the difficulties resting in areas of misunderstanding. Indeed, this is a very real problem in a subject like mathematics where success as learners can often be achieved by the correct conduct of procedures with minimal understanding of what the procedures mean. The teachers may well have enjoyed successful school careers themselves in this way but, faced with teaching mathematics, appreciate that they do to really understand what they are doing.

Table 4 Problems Faced By Students

Description	Items. No	No of Teachers
Lack of understanding	14	**3**
Lack of interest in the subject	14	**7**
Vision problems	14	**1**
Voice of teachers	14	**1**
Previous knowledge	14	**4**

The most common reason identified by the teachers is lack of student interest. It is important that learns see the pint of what they are asked to do. Mathematics can become abstract, a set of procedures to be memorized and then applied.

Questionnaires For Students

In looking at student responses, the data are presented as percentages for clarity (N = 39).

Table 5 Usage Of Audio-visual Aids In Teaching

Description	Items. No	Yes	No	NR	Total
Availability	6	88	13	-	**16**
Have fun in activities of mathematics class	2	80	10	-	**39**(87.5%)
Use of A.V. Aids by teachers.	2	28	71	-	**39**(87.5%)
Feeling good in learning mathematics	2	30	8	-	**39**(87.5%)

While 14 of the 16 teachers indicated that they have adequate audio-visual resources available to them the students, the majority students out 39 respondents are favour in that Use of A.V. Aids by teachers. is make more interesting the mathematics subject.

Accordingly, to the data revealed through the teacher's questionnaire, 14 out of the total of 16 teachers say that they have sufficient amount of A.V. Aids available with them. As far as the use of this A.V. is concerned the teachers have not utilized them during their teaching in the class rooms, as 71.79% of 39 students say that there has not been any use of A.V. Aids in the classrooms during the teaching of mathematics.

Table 6 Curriculum Of Mathematics

N = 39	Yes	No	NR
Suitability of curriculum	23	17	-
Application of curriculum	52	48	-
Interest in curriculum	60	40	-

The data showed that students perceive well in mathematics curriculum and showed interest in learning with fun. Out of 39 students, 23 students (58.97%) think that curriculum of mathematics at Elementary level is suitable to their mental level. The applicability of curriculum in the daily life of the students is favored by 20 students (51.28%). They think it is being applicable to solve their day-to-day life problems.

Discussion

The main finds of the research were that majority of student enjoy mathematics a very engaging subject. They like learning mathematics and considered mathematics as fun and amusement. This also found widely in many other researches around the world (Brophy & Good, 1996; Floden, 2001). One of the main causes of the failure in the subject of mathematics at elementary school certificate is out dated curriculum, which does not satisfy the socio-economic needs of students and thus causes failure. It is found that the current curriculum is a burden on the mental level of students. It is a bookish knowledge preparing them for the University Education only.

The second principle issue is the absence of essential physical offices and without nuts and bolts offices like drinking water, working without rooftop and so forth great encouraging learning circumstance can't be normal and the equivalent have been talked about with the writing (Battista, 1999. In addition, the wrong methodology and strategies of educating don't fulfill understudy who loses enthusiasm for their investigations with subsequent disappointment in the Examination (Memon, 2009).

Political and other interference in administration disturb the merit system and policies. This not only discourages administration but also students as well, who give up interest in their studies. This uncongenial atmosphere has a devastating effect on the performance of students. It is likewise seen that our school needs A.V. Helps, which are basic for compelling educating. In certain schools, A.V. Helps is accessible however they are not utilized appropriately. Indeed, even urban schools need extremely basic A.V. Helps like maps, graphs, models, glebes, and glimmer cards. The unlucky deficiencies of these offices decay the comprehension of understudies and increment the odds of disappointment in like manner (Brophy and Good, 1996; Floden, 2001).

Majority of the teachers are well qualified and well experienced, they could take fun and interest in teaching and learning mathematics but there is a lack of interest in their work due to social and economic problems has an adverse effect on the performance of their students as the same problems mentioned as (Brophy & Good, 1996; Floden, 2001). There are many problems in

effectiveness of teaching practices as lack of good administration and supervision, Lack of training on modern techniques of teaching, lack of Instructional techniques, lack of consistency in the school curriculum and non-availability of instructional material and A.V. Aids. Therefore, these diverse problems offer hindrances in implementation of effective teaching of mathematics as discussed in the literature.

Conclusions

In the light of the findings, the majority of the teachers at Elementary level were in the habit of updating their knowledge by going through the different books using the Internet. The teachers and students perceive mathematic very well, take interest, have fun and enjoy learning and teaching. They both perceive that mathematics is enjoyable and interesting and highly engaging subject. The majority of students like the activities and get involves all reads of curriculum in mathematics and show a great deal of motivation towards their learning and do not think as a burden. Although, majority of the teachers followed out dated curriculum, which does not satisfy the socio-economic needs of students and out dated curriculum, which is one of the major thus, causes failure of students' achievement and interest. Also, majority of the teachers at the teachers of elementary level were less qualified as compare to the teachers of Secondary school and college level. Finally, it is concluded that the output of elementary teachers and students were not up to the mark because they were less equipped as compare to the physical and other allied facilities.

Recommendations

The following recommendations are made for better understanding, that indicates learning must be with fun. It is proposed that all schools should observe a single curriculum approved by the government. All schools, including the English medium schools must follow the education policy in true spirit. Also, professionally qualified teachers should be appointed on merit both in the government and private schools. Therefore, it is recommended that technical subject should be included in the elementary curriculum and made job oriented. Attractive co-curricular program should be started in schools and awards given to talented students on merit. Finally, the students at the elementary level should be offered subject according their interest and aptitude test should be administered at the time of admission.

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