Evaluation of the Mathematical Skill among eight Standard Students: A case study of the pupils of the Town of Mbandaka, DR Congo

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ABSTRACT

Being teachers of mathematical and physical sciences in some secondary schools of the Town of Mbandaka, we always noted the difficulties which certain pupils have to solve or calculate some problems utilizing the decimal numbers.This study aims at detecting the kinds of difficulties which these pupils of 8th year of basic Education in the Town of Mbandaka have, level of study by which the concepts in connection with the decimal numbers are exploited much. The investigations carried out within the framework of this research, lead us to conclude that the majority of our pupils of 8th year of the basic Education of the town of Mbandaka in Democratic Republic of Congo have difficulties certainly to restore the definition of a decimal number and being able to handle it in the various situations utilizing it.What can undoubtedly have negative consequences in their courses..

Key words : Basic education, Number decimal, Town of Mbandaka.

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1. INTRODUCTION

The concepts of decimal numbers always pose problems at the majority of our pupils of humanities, in the town of Mbandaka, at the time of the various operations.In addition, at our meetings of teaching training of the courses of mathematics and the physical sciences, our pupils always present gaps to deal with problems having milked with the decimal numbers. [1]

Referring to the national program into force in Democratic Republic of Congo, the matters in connection with the decimal numbers are taught in detail in the classes of 7th and 8th year of basic Education. [2]

In the research of the level where the genesis of these gaps is, we could identify the final cycle of basic Education in accordance with the national program through which the notions of the decimal numbers are prescribed. [3]

Thus we formulated a survey questionnaire to be submitted to the pupils of 8th year of basic Education in the Town of Mbandaka in Democratic Republic of Congo, in the principal objective to discover what makes problem in the comprehension of the concepts on the decimal numbers. [4]

2. MATERIALS AND METHODOLOGY

2.1. Medium of study

Mbandaka is a harbour city of the Province of Ecuador in democratic Republic of Congo, from which it is the provincial capital. The city is a significant stage on the river between the towns of Kinshasa and Kisangani.

The city was known in the past under the name of Coquilhatville (according to Camille Coquilhat, until 1966. Two communes, that of Mbandaka and that of Wangata, make the city, having each one 10 districts.

A block of limonite with Wangata, suburb of Mbandaka, indicates the site of the line of the equator

The city lodges a true botanical richness in a park with the borders of the agglomeration says botanical garden of Eala founded by Léopold II in 1900.

2.2. Materials and Methodology

For that purpose, we undertook this study by the means of a survey questionnaire submitted to 250 pupils of eighth year of the basic Education of the Town of Mbandaka, divided in 5 different schools (because of 50 pupils per school).

The five schools targeted for our investigation are:

- Institute Mgr BOWANGA
- Institute BAKUSU
- Institute Brother ILOO
- College NSONG' ALIANJA
- College MPUTU BOKENGA

3. RESULTS AND INTERPRETATION

3.1. Presentation of the results

- Question n°1: To restore the definition of a decimal number.

Awaited answer: A decimal number is a number which is written with a number of figures finished after the comma.
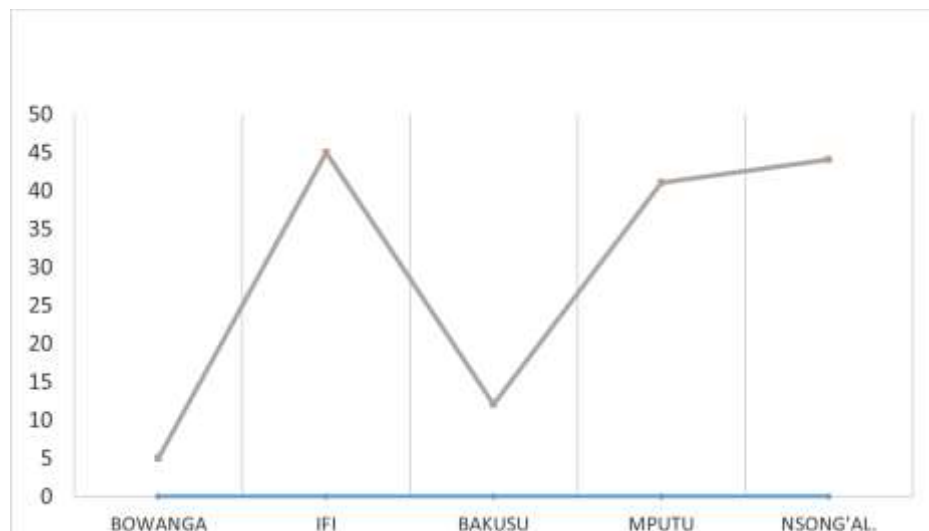

Figure 1: Results obtained with the n°1 question by school

On a sample of 250 pupils of 8th year of the basic education of the Town of Mbandaka subjected to the question "Of restoring the definition of a decimal number", we have:

- ✓ 147 pupils i.e. 58,8% define a decimal number partially.In other words, they partly give the definition of a decimal number;
- ✓ 103 pupils i.e. 41,2% do not know absolutely anything the definition of a decimal number.

➢ Question n°2: To calculate: 2,4 + 4,5 = ?

Awaited answer:6,9

Figure 2: Results obtained with the n°2 question by school

After correction, graphics Ci-high make us watch:

    ✓ On 250 pupils subjected to the test, 231 i.e. 92,4% carried out calculation correctly;

    ✓ For the total of 250 pupils, 19 is 7,6% failed.

➢ Question n°3: To calculate: 5,6 + 1,2 = ?

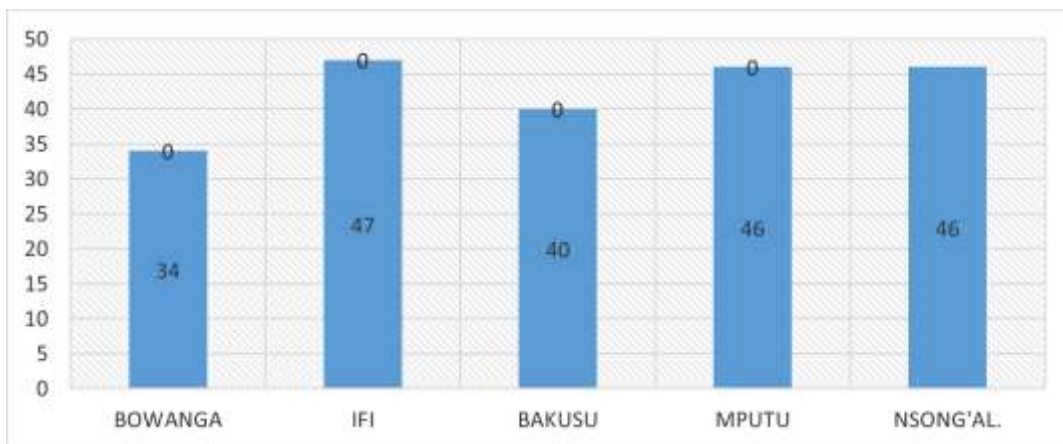   Awaited answer: 6,8

Figure 3: Numbers good answers to the n°3 question, by school

The table I shows the On 250 pupils tested:

    ✓ 213 i.e. 85,2% correctly calculated this sum;

    ✓ 37 i.e. 14,8% failed in the calculation of this sum.

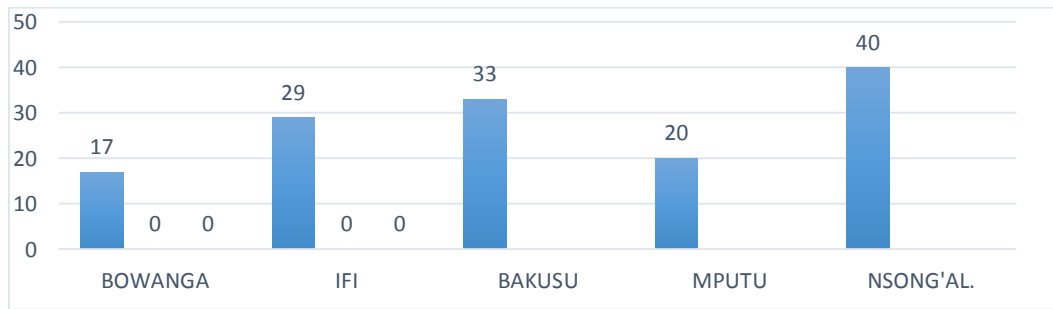➢ Question n°4: To calculate: 2,7 + 3, 4 = ?
  Awaited answer: 6,1

Figure 4: Numbers good answers to the n°4 question, by school

According to the results presented by 250 pupils, we raised what follows:

✓ 139 i.e. 55,6% of these pupils knew to carry out this calculation;
✓ 111 is 44,4% did not know to carry out this calculation.

➢ Question n°5: To calculate: 31,20 x 3,5 = ?
  Awaited answer: 109,200

Figure 5: Numbers Good answers to the n°5 question, by school

On the 250 inquired:

✓ 110 i.e. 44% calculated this product very well;
✓ 140 i.e. 56% of surveyed are unable to calculate the aforementioned product.

➢ Question n°6: To write in the form of a fraction the decimal number 2,659

Awaited answer: $\dfrac{2659}{1000}$

Figure 6: Numbers good answers to the n°6 question by school

After analysis, it arises what follows:

✓ 22 pupils out of 250 i.e. 8,8% succeeded with this question of transformation of the decimal number into a fraction;

✓ On the total of 250 pupils 228 is 91,2% practically failed this question of transformation of the decimal number into a fraction.

➢ Question n°7: To round number 24,5

Awaited answer: 24

Figure 7: Numbers good answers to the n°7 question by school

For the total of 250 pupils surveyed into the district of a number whose first figure to be eliminated is equal to 5 and the last figure to be maintained is an even figure, we obtained the following results:

✓ 43 i.e. 17,2% succeeded in rounding number 24,5;

✓ 207 i.e. 82,8% failed as for the district of number 24,5.

➢ Question n°8: To round number 241,71
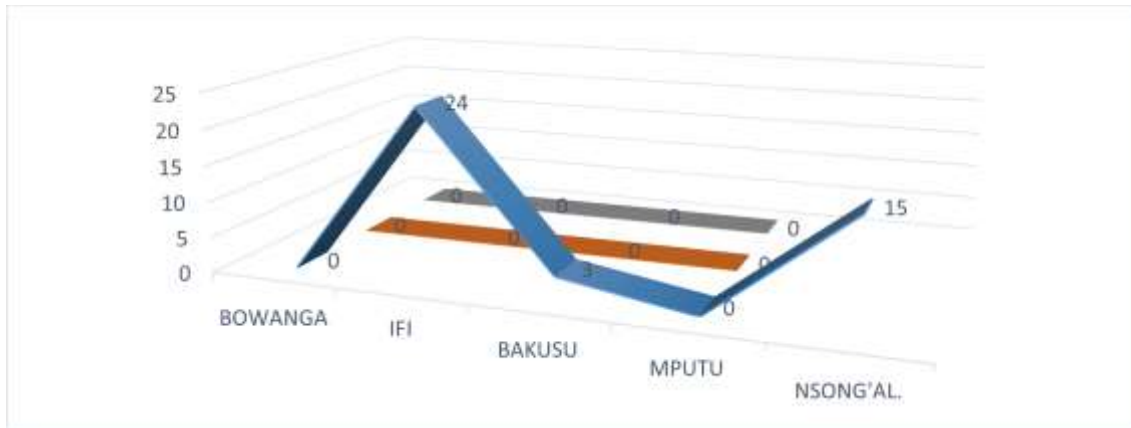
   Awaited answer: 242

Figure 8: Numbers good answers to the n°8 question by school

At the end of the correction of the copies of 250 pupils, the constant one is as follows:

✓ 42 pupils i.e. 16,8% knew to round 241,71;

✓ 208 pupils i.e. 83,2% did not know to round number 241,71;

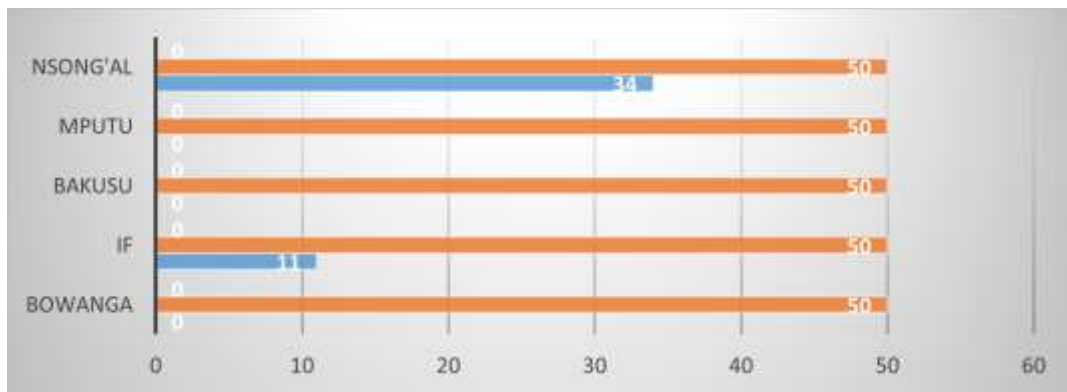➢ Question n°9: To round number 23,5

   Awaited answer: 24

Figure 9: Numbers good answers to the N09 question by school

With 250 pupils tested:

✓ 45 i.e. 18% knew to round;

✓ 205 i.e. 82% did not know how to round 23,5;

➢ Question n°9: To round number 5689,2
     Awaited answer: 5689

Figure 10: Numbers good answers to the n°10 question by school

The correction of 250 copies of 250 pupils of 5 targeted schools gives us:

✓ 66 pupils i.e. 26,4% knew to round number 5689,2;
✓ 184 pupils i.e. 73,6% did not know to round number 5689,2

4. DISCUSSION

After analysis and interpretation of the results of test of ten questions submitted to the 250 pupils of the Town of Mbandaka distributed in the 5 schools of the place, we could note what follows:

➢ No pupil, is 0%, cannot define a decimal number correctly and 147 is 58,8 defined a decimal number partially.So a pupil who cannot define a decimal number, will be able it to handle it in a situation of physical sciences or different, utilizing it?This is why, according to our perception, it poses already a problem on the use of the decimal numbers by a pupil of Mbandaka.A study could be planned to detect the causes of them:the teacher, the pupil or another thing. Confer question N 01.

➢ 111 pupils is 44,4% were not able to calculate 2,7+3,4.According to the copies corrected of our surveyed, certain pupils do not draw attention when with the radix point.They need many exercises, and especially to point out them the rules of placement of the commas. Confer question N 04.

➢ 140 pupils i.e. 56% of the pupils are unable to calculate the product 31,20 X 3,5.Here still it pose the problem of placement of the commas. Confer question N 05.

➢ 228 pupils out of 250 i.e. 91,2% cannot transform 2,659 into a fraction.The pupils have difficulties in transforming a decimal number into a fraction by disregarding comma and by dividing this number by 10, 100, 1000, etc according to whether there is 1, 2, 3, etc figures after the comma. Confer question N 06.

➢ 207 pupils i.e. 82,8% are unable to round number 24,5.It is known as if the 1st figure to be eliminated is equal to 5 and the last to be kept is an even figure, then the district is done by defect.Just a difficulty moreover for our surveyed pupils.Confer question N 07.

➢ 208 pupils out of 250 i.e. 83,2% cannot round 241,71.The majority of the pupils of 8th year of the basic education of Mbandaka have difficulties for reconnaitre the rules of district.However, the concrete cases, the 1st figure to be rounded being higher than 5, it are eliminated from office while adding a unit to the last figure to be retained. Confer question N 08

➢ 205 pupils out of 250 i.e. 82% cannot round 23,5.It is known as if the 1st figure to be eliminated is equal to 5 and the last to be kept is an odd figure, then the district is done by excess.Just a difficulty moreover for our surveyed pupils.Confer question N 09.

➢ 184 pupils out of 250 i.e. 73,6% cannot round 5689,2. It is known as if the 1st figure to be eliminated is lower than 5, then the district is done by defect.Just a difficulty moreover for our surveyed pupils.Confer question N 10.

5. CONCLUSION

The present The aim in view in this work was that to adapt the representations which our pupils of 8th years have when they intend to speak about the decimal numbers and to know how they undertake certain elementary operations on these so useful numbers, handled in several fields of the life.

Our subject of research led us to present the following conclusions and suggestions:

➢ The crushing majority of our pupils cannot define a decimal number exactly.The teachers are invited to define with precision a decimal number.And especially to point out with learning that a decimal number is that which contains the comma and the number of figures after the comma must be finished because, all the numbers which contain commas are not decimal numbers.

➢ The pupils have bad theories especially operations on the decimal numbers if it is about the sum of the decimal numbers whose sum of the units right after the commas is higher or equal to 10.Multiplication, especially with regard to the placement of the comma.

➢ A serious problem on the transformation of a decimal number into a fraction, whereas to make a number decimal in a fraction, one disregards comma of this number, and one puts this number on 10, 100, 1000… according to whether you have one, two, three…   Figures after the comma.

➢ Difficulties also on the notion of the districts, without truly referring to the rules of district.

This work pushes us to ask us questions about the causes of the difficulties which these pupils have.What it would be at the base?Lack of information on behalf of the teachers?Lack of works (manual) school adapted to the program?Lack of qualification of the teachers?The satisfying of learning?…

We would ask the teachers to adapt the difficulties which present our pupils of 8th year of basic Education such indicated by this research and to often insist on what muddle with an aim of éradiquer distort them theories and distort representations that they have of the decimal numbers.In the same way with the government of the Democratic Republic of Congo through its ministry for Primary education Education, Secondary and Technique to organize regularly continuous trainings of the teachers not only on the methods of teaching but also on the contained disciplinary ones.

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