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AKING NUMERACY FUNCTIONAL: A STRATEGY FOR TEACHING COUNTING TO ADULT LEARNERS

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ABSTRACT

This paper provides the definition of numeracy, categories of numeracy, importance of numeracy, characteristics of adult learners which would give hint to the facilitators on how to cope with his/her learners, the strategy for teaching counting to adult learners in simple form on how to read and write numbers, both indicated number in figure and words, tables were drawn to easy acquire reading skills in numbers and words, identify the place value/position

INTRODUCTION

The issue of numeracy in Adult and Non-Formal Education centers in Nigeria is given little attention to facilitators and learners in the centers compared to literacy were most of the time lesson time table have no equal number between literacy and numeracy even if the time table have equal numbers the facilitator would dominate literacy lesson over numeracy, to learners their aim is to acquire ability in reading skills not knowing that, literacy and numeracy have symbiotic relationship in our daily transaction, this paper tried to explained the strategy facilitator would use to make counting very engrossing to learners in acquiring the skills and its usage, its usage is general in our life as indicated by Lamb & Geiger (n.d) cited (Australian Association of Mathematics Teachers Inc., 1997 p. 15) To be numerate is to use mathematics effectively to meet the general demands of life at home, in paid work, and for participation in community and civic life.

Some scholarly definition of numeracy

Numeracy is the ability to use numbers, especially in arithmetic operation, to read (a numerical expression) , to enumerate (count) and to give the more global “ acquainted with the basic principles of mathematics (and science). (Neill,2001)



of each number and the end of each step there are activities for the facilitator to give to the learners to test their abilities.

Keywords: Numeracy, functional, strategy, counting, Adult learners.

Halilu and Saleh quoted Orrill, (2001) that the term “Numeracy” is used in the adult education to include an array of mathematically related proficiencies that are evident in adults’ lives and worthy of attention in adult education settings, numeracy does not so much lead upward in an ascending pursuit of abstraction as it moves outward toward an ever richer engagement with life’s diverse contexts and situation.

According to Webster, (1828) numeracy is the ability to understand and work with numbers.

Categories of Numeracy

According to European Union (2014) they categories numeracy into three (3) as:

Multiple numeracy

The ability and willingness to use mathematical modes of thought (logical and spatial thinking) and presentation (formulae, models graphs, charts) that enable a person to fully function in a modern society.

Functional numeracy

The ability to apply basic mathematical principles and processes in every day contexts at home, school and work (as needed for banking, payments, reading timetable, etc.)

Baseline numeracy

Having a sound knowledge of numbers, measures and structures, basic operations, basic mathematical presentation and the ability to use appropriate aids that enable further development.

Importance of numeracy

Numeracy play a vital role in human endeavors such as

- It improves accuracy particularly in calculation measurement and graphical work.,
- It improves interpretation and presentation of graphs charts and diagrams.
- It improves reasoning and problem solving.

The nature of numeracy

Learners develop competence and confidence in numeracy by learning facts about numbers (e.g how quantities are represented in different ways etc.) how numbers represent quantity in the real world and how numbers interact through learning procedures (e.g adding numbers together etc.) the knowledge and skills then have to be



applied in a logical and reasoned way in order to make sense of the world and once that is achieved then an individual is numerate (Emerson and Babbie, 2013)

In curriculum for excellence learners are considered numerate if they have developed “confidence and competence in using number which will allow individual to solve problems, analyse information and make informed decisions based on calculation.” (Scottish Government 2009). The essential knowledge and skills required to become numerate are: accurate counting.” Remembering key number facts. Logical reasoning and problem solving ability (Emerson and Babbie, 2013). The foundation of numeracy is counting which is a set of skills and knowledge that takes years to master fully in normal development. (THCPS 2017).

Characteristics of adult learners

As a facilitator you need to know the characteristics of your learners knowing them would help you to handle them in a better way, according to Kuhne & Vandenberg (n.d) they explained the characteristics of adult learners as:

1. Adults generally desire to take more control over their learning than youths:
Adults tend to be self-directed in their lives although responsibilities with jobs, families and other organizations can remove a degree of their freedom to act. Adulthood brings an increasing sense of the need to take responsibility for one's own life and adults strongly resent it when others take away their rights to choose. This fact is clearly seen in educational efforts among adults. When not given some control over their learning, most adults will resist learning some will even attempt to sabotage education efforts. They do not like being relegated to a “passive” position (Kuhne, n.d)
2. Adults draw upon their experience as a resource in their learning:
Adult learners come to obtain learning with diverse backgrounds of knowledge and experience. They feel motivated and encouraged within the classroom setting if the learning involves them in sharing their experiences, constructing their knowledge and authenticating their proficiency and capability, (Vandenberg, n.d).
3. Adults tend to be more motivated in learning situations than youths:
Higher motivation is linked to the fact that most adult learning is voluntary. Adults are making personal choices to attend schooling, even when such schooling is tied to professional development or job skills. Whenever an individual is able to choose to learn, she/he is much more motivated to learn. (Vandenberg, n.d)
4. Adults are more pragmatic in learning than youths:
Adults are particularly motivated to learn information that seems immediately applicable in their situation and needs. They tend to be frustrated with “Theory” that needs to be stored away for future use or learning for the sake of learning, certainly there are exceptions to this principle but it is very low.
5. In contrast to youths, the learner role is secondary for adults.
For most adults, the “students” role is a minor and secondary role. This is in sharp contrast to traditional age learners for whom the learner role is both



their primary social role and the main basic for their self –identity. Adults fulfill multiple roles and these multiple roles in evitable create conflicting and competing demands on the adult’s learners. Multiple roles will cause most adult to have far less time and energy to read. Study, or learn.

6. Many adults, lack confidence in their learning:
Many adults have had some what negative learning experience their traditional schooling for a variety of reasons they feel inadequate when comes to learning through formal educational programmes, still other adults, who may have done well in their earlier schooling, still lack confidence for further schooling effort due to what they perceive as rusty study skills, poor reading skills, test anxiety, or other such learning barrier.
7. Adults must fit their learning into life’s “Margins”
Adults roles, take energy and time to fulfill. Everyone faces the reality that there are limits on their energy and time. An important principle to understand that learning takes time and energy, if an adult is going to undertake a learning activity, she/he must realistically evaluate his/her life and see there is actually room for the added demands of the learning. Adult learners must learn to carve out some margin in their lives to allow learning to occur, a process of priority setting. If the existing demands on adult require all the energy they possess, then the learning will be compromised.
8. Adults are more resistant to change than youth:
Learning often involves changes in our attitude or actions. Adults tend to be somewhat resistant to such changes because life itself teaches us that change is not always for the better and that many of the outcomes of more idealistic and are often open to change just for the sake of change.
9. Adults are more diverse than youth:
Adults vary from each other as learners in terms of age and experiences much more than traditional age learners. Such difference can be used as a powerful resource for adult learning. Through collaboration in small groups, adults can benefit from their variety of experiences. Dialogue with other adults enables adult’s learners to perceive more nuances of application, and possible problems with new concepts, than could ever be gained from private reflection.
10. Adults must compensate for aging in learning:
Aging brings with a number of physical complications that can impact on adult learning efforts. The percentage of such complications increases with age. As we see, such complications are not really due to intelligence. Although the speed of learning tends to decrease with age, the depth of learning tends to increase. (Kuhne n,d)

Strategies to be use in teaching counting

Counting is part of numeracy which will help adult in solving his/her daily transaction in the market, banks and offices etc., it has been defined as to recite or indicate the numbers in order by units or groups (Webster 1828).



Knowing numbers in figures and in words from 1-100

Number in figures	Numbers in words	Number in figures	Number in words
1	One	24	Twenty four
2	Two	25	Twenty five
3	Three	26	Twenty six
4	Four	27	Twenty seven
5	Five	28	Twenty eight
6	Six	29	Twenty nine
7	Seven	30	Thirty
8	Eight	31	Thirty one
9	Nine	32	Thirty two
10	Ten	33	Thirty three
11	Eleven	34	Thirty four
12	Twelve	35	Thirty five
13	Thirteen	36	Thirty six
14	Fourteen	37	Thirty seven
15	Fifteen	38	Thirty eight
16	Sixteen	39	Thirty nine
17	Seventeen	40	Forty
18	Eighteen	41	Forty one
19	Nineteen	42	Forty two
20	Twenty	43	Forty three
21	Twenty one	44	Forty four
22	Twenty two	45	Forty five
46	Forty six	75	Seventy five
47	Forty seven	76	Seventy six
48	Forty eight	77	Seventy seven
49	Forty nine	78	Seventy eight
50	Fifty	79	Seventy nine
51	Fifty one	80	Eighty
52	Fifty two	81	Eighty one
53	Fifty three	82	Eighty two
54	Fifty four	83	Eighty three
55	Forty five	84	Eighty four
56	Forty six	85	Eighty five
57	Forty seven	86	Eighty six
58	Forty eight	87	Eighty seven
59	Forty nine	88	Eighty eight
60	Sixty	89	Eighty nine
61	Sixty one	90	Ninety
62	Sixty two	91	Ninety one
63	Sixty three	92	Ninety two
64	Sixty four	93	Ninety three



65	Sixty five	94	Ninety four
66	Sixty six	95	Ninety five
67	Sixty seven	96	Ninety six
68	Sixty eight	97	Nine seven
69	Sixty nine	98	Ninety eight
70	Seventy	99	Ninety nine
71	Seventy one	100	One hundred
72	Seventy two		
73	Seventy three		
74	Seventy four		

Whole numbers

Counting in thousands and Millions

It is expected adult learners should count numbers from one to hundred, hundreds to thousands and from thousands to millions both in figure and words, let see how adult should identify the value/position of each figure or digit in a set of numbers.

M	H.TH	T.TH	TH	H	T	U	
						1	One Unit
					1	0	One Ten
				1	0	0	One Hundred
			1	0	0	0	One Thousand
		1	0	0	0	0	Ten Thousand
	1	0	0	0	0	0	One Hundred Thousand
1	0	0	0	0	0	0	One Million

Example 1

Counting in hundred

Numeral names (Words)	Numeral form
One hundred and nine	109
One hundred and twenty	120
Two hundred and thirty nine	239
Two hundred and seventy eight	278
Three hundred and sixty six	366
Three hundred and eighty five	385
Four hundred and ninety	490
Five hundred and twenty eight	528
Six hundred and forty seven	647
Six hundred and eighteen	618
Seven hundred and seventeen	717
Eight hundred and ninety	890
Nine hundred and ninety nine	999
One thousand	1000



Class activity

Write in words (a) 365 (b) 861

Counting in thousands

Th..... Thousand

H..... Hundred

T..... Tens

U..... Unit

Th. H. T. U.

3 6 2 4

Here, there are four digit, four numbers the abbreviation above should serve as a guide to the learners in reading all the numbers and in writing the numbers into words form, the above example 3 is in the position of thousand, 6 is in the position of hundred, 2 is in the position of tens, and 4 is in the position of unit, these are the position of the numbers, it would be read as 3624, three thousand six hundred and twenty four.

Numeral names (Words)	Numeral form
Four thousand five hundred sixty one	TH H T U 4 5 6 1
Five thousand eight hundred and thirty seven	TH H T U 5 8 3 7
Six thousand and four	TH H T U 6 0 0 4
Seven thousand and twenty five	TH H T U 7 0 2 5

Class activity

Write in figure (a) Five thousand and seventeen (b) Six thousand and twenty two.

Example 3

Counting in ten thousand

T. TH.....Ten thousand

TH.....Thousand

H.....Hundred

T..... Tens

U.....Unit

The position of numbers should be

T.TH TH H T U

4 3 6 2 4

Here, the beginning of this counting is in ten thousand (T. TH), thousand (TH), hundred (H), tens (T), and unit (U), 4 is in the position of ten thousand (T.TH), 3 is in the position of thousand (TH), 6 is in the position of hundred (H), 2 is in the position of ten (T), and 4 is in the position of unit (U). It should be read and write as 43624, four three thousand six hundred and twenty-four. (43 four three thousand, 6 six hundred, 24 twenty-four)
 43624→ Forty-three thousand, six hundred and twenty-four.



Numeral names (Words)	Numeral form
Fifty thousand eight hundred and seven	T.TH TH H T U 5 0 8 0 7
Sixty eight thousand four hundred and ninety five	T.TH TH H T U 6 8 4 9 5
Seventy nine thousand one hundred and seven	T.TH TH H T U 7 9 1 0 7
Thirty four thousand and six	T.TH TH H T U 3 4 0 0 6

Example 4

Counting in hundred thousand, let understand the abbreviation

H.TH..... Hundred thousand

T.TH.....Ten thousand

TH.....Thousand

H..... Hundred

T.....Tens

U.....Unit

In this example the beginning of this counting is in hundred thousand (H.TH), it has six digit/ numbers.

H.TH T.TH TH H T U
5 4 3 6 2 4

The arrangement in reading and writing should be 5 is in the position of hundred thousand (H.TH), 4 is in the position of ten thousand (T.TH), 3 is in the position of thousand (TH), 6 is in the position of hundred (H), 2 is in the position of tens (T), 4 is in the position of unit (U), 543624 should read and write in words as five hundred and forty three thousand, six hundred and twenty four.

Numeral names (Words)	Numeral form
Four hundred and thirty six thousand, two hundred ninety one	H.TH T.TH TH H T U 4 3 6 2 9 1
Nine hundred and eighty thousand and one	H.TH T.TH TH H T U 9 8 0 0 0 1
Four hundred and twenty one thousand and seventy nine	H.TH T.TH TH H T U 4 2 1 0 7 9
Three hundred and two thousand and five	H.TH T.TH TH H T U 3 0 2 0 0 5

Example 5

Counting in millions, let understand the abbreviations



M.....Millions
 H.TH..... Hundred thousand
 T.TH.....Ten thousand
 TH.....Thousand
 H..... Hundred
 T.....Tens
 U.....Unit

Here, the beginning of this counting is in million (M), it has seven digit/numbers

M H.TH T.TH TH H T U

7 5 4 3 6 2 4

The arrangement in reading and writing should be 7 is in the position of million (M), 5 is in the position of hundred thousand (H.TH), 4 is in the position of ten thousand (T.TH), 3 is in the position of thousand (TH), 6 is in the position of hundred (H), 2 is in the position of tens (T), and 4 is in the position of unit (U). It should write and read both in figure and word as 7543624 Seven million five hundred and forty-three thousand, six hundred and twenty-four.

Numeral names (Words)	Numeral form
One million two hundred and thirty four thousand, five hundred and sixty seven	M H.TH T.TH TH H T U 1 2 3 4 5 6 7
Five million and two thousand and six	M H.TH T.TH TH H T U 5 0 0 2 0 0 6
Six million and fifty thousand	M H.TH T.TH TH H T U 6 0 5 0 0 0 0
Seventy million one hundred and eight thousand, nine hundred	M H.TH T.TH TH H T U 70 1 0 8 9 0 0

Class activity

Write in words (a) 3425721 (b) 5935676

Write in figure (a) Two million, three hundred and sixty-six thousand, five hundred and forty.

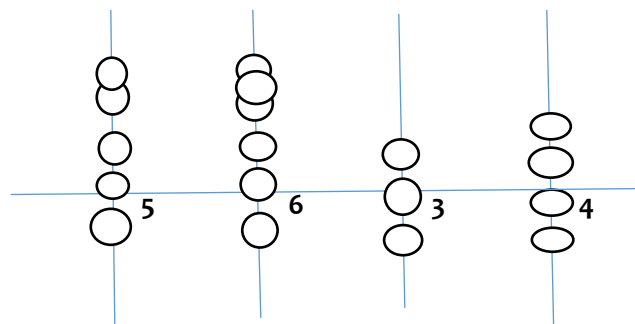
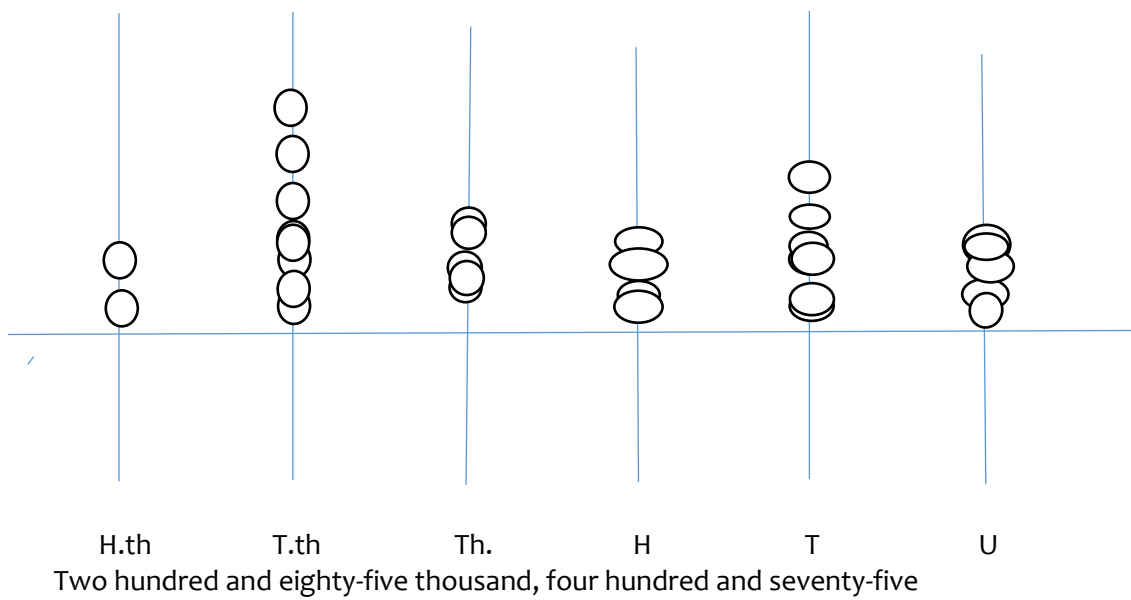
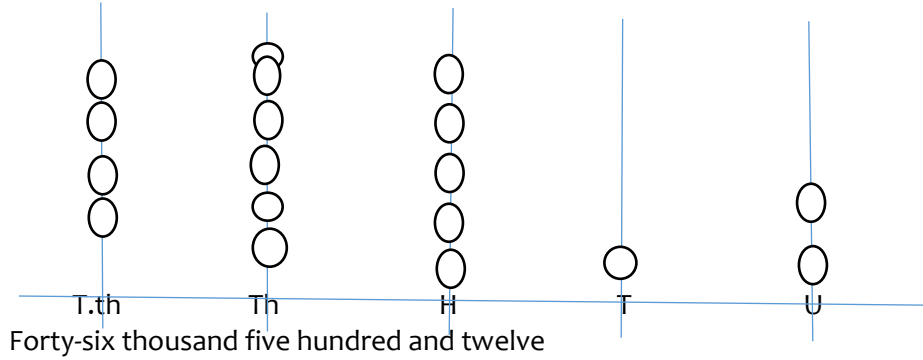
(b) Nine million, four hundred and twenty-two thousand, four hundred.

Using abacus to represent large numbers.

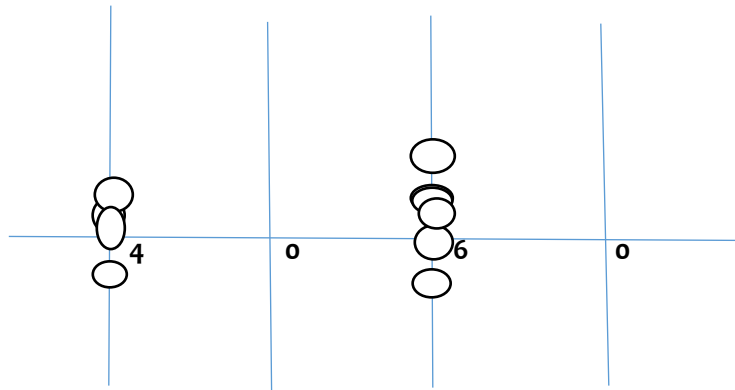
Abacus are instrument for performing calculations by sliding counters along rods or in grooves. In this example, we have understood the abbreviation of series of numbers from million down to unit in our previous discussion, now using abacus and the abbreviation would help learners to to read and write a large number both in figure and in words.



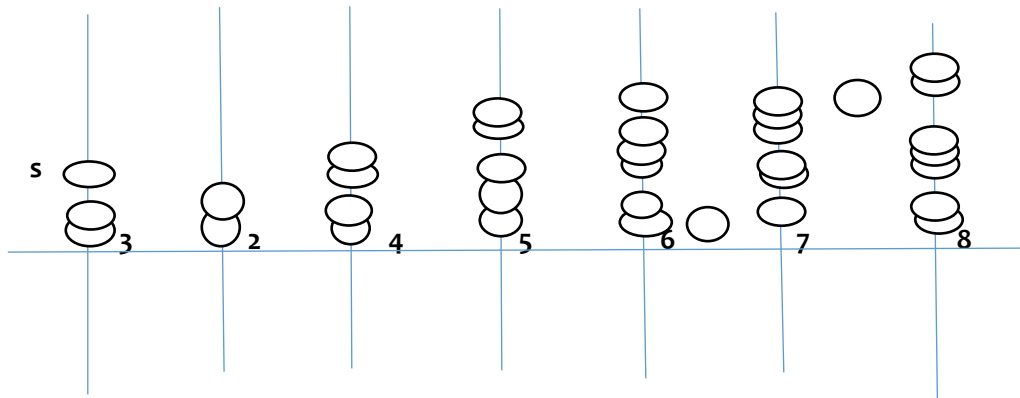
Example



Five thousand six hundred and thirty-four



Four thousand and sixty



Three million, two hundred and forty-five thousand, six hundred and seventy-eight
Class activity

1. Write in words
(a) 576 (b) 891 (c) 75060
2. Writes in figure
(a) Eighty-eight thousand and forty
(b) Nine hundred and sixty thousand four hundred and thirty-five
(c) Five million, two hundred and thirty-five thousand, seven hundred and twenty.

Conclusion

Numeracy is one of the basic knowledge adult learners should know apart from literacy, it serves as a medium of transaction in buying and selling, it could be in figure or words it would be write and read by the adult since, it involved money, with the knowledge of



numeracy identifying amount both in numbers and words would reduce fraud in our society, strategy for teaching counting and characteristics of adult learners are colossally discussed for the facilitators. Basic skills in counting from simple to complex numbers were all explained vividly.

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