STANDARD TIME CALCULATION (STC) FOR E-LEARNING

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Abstract- E-Learning is the recent trend of the current generation. But we usually design the material globally for the student community. We do not take into consideration the mental ability of all the students. Some seem to excel while others seem to fail. This is because of many factors that exist in E-Learning. This paper will describe about the time to be spent or Standard Time per document according to a student's mental ability so that a student can perfectly remember the document with ease.

Index Terms– E-Learning, Standard Time, Remember, Global Document

I. INTRODUCTION

E-Learning, the latest trend of this generation has a lot of boon to bane. Though it is cheap and convenient means to acquire knowledge, it has a lot of disadvantages to the advantages. Though E- Learning is good but a reader loses interest very soon as compared to reading a book manually. It is a fact that fewer readers prefer E-Learning to real learning. Although all help topics are being covered here but people don't prefer it. Under certain conditions E-Learning is very much dependent. The E-Learning documents so designed are global in nature and do not mean the same for all. A student who is a voracious book reader will face difficulty switching to E-Learning. More or less the memory capacity for all, choice of all, means of reading for all doesn't mean the same whereas E-Learning is a global document. Hence in this paper we will focus what enhances E-Learning.

II. FACTORS

Mostly E-Learning depends on many factors as described in "MKM formula to Calculate E-Learning". But here we will focus on the factors that can enhance E-Learning. The most important factors are the Brain Capacity (B) and the Content of the document i.e. (C). These two factors effect E-Learning the most. More the Brain Capacity, much the content you remember. But the content must be taken into account. If you are a dull student, then spending a hour is not equal to an intelligent student spending the same hour for the same document. But E- Documents are not designed taking only some groups into focus. So, we can help all to have a good grasp.

Talking about the first factor or Brain Capacity or B is the most vital factor for E-Learning. An intelligent person has the ability to remember a lot of things in a short period of time. It is very simple that a dull guy takes a lot of time to remember the contents. So, Brain Capacity is very vital in deciding the amount of content to be remembered by a candidate who goes through the process of E-Learning. It is a fact that no one can touch the cent percent in Brain Capacity, so the next dependent factor is the amount of content.

The second factor is the amount of content or simply C that an E-Document has. This time will say us that how much a reader can remember with a specific B. The amount of content is indirectly the number of lines in an E-Document. The number of lines say us the length and breadth of an E-Document. As, more the number of lines, much is the content. The standard number of words per line is taken to be fifteen.

These two vital factors will say us the Standard Time to be calculated for E-Documents basing on certain constraints. The time which will be calculated will be an average time per slide or page. The time which will be calculated is just an approximation. Because the vision capability, brightness of screen, font size, interest, age factors play a vital role in learning.

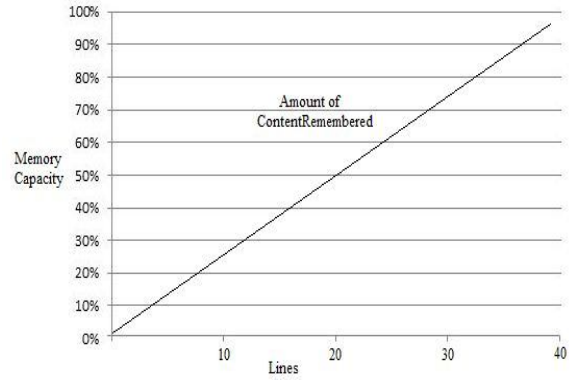
Taking these two factors we will derive few relations stating which depends on who. Exactly or to be very simple, we will be deriving the relationship among the factors so that the exact time can be calculated.

Brain Capacity or B is simply found by a standard test to be conducted on a very similar type of document and then answering few questions and calculating the correctness of answers given. This will calculate the effectiveness of the reader or B. The effectiveness lies between the scale of 1-100.

Amount of content of C, is taken to be standard number of lines in the given E-Document. The numbers of lines convey the length and breadth of the E-Document. The relationship among them is that more the number of lines, much the amount of content in the document.

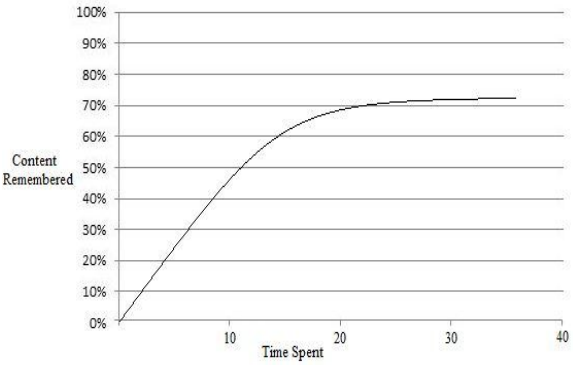
There is an indirect factor i.e. Time, which plays a vital role in this process. The Content of the material, Brain Capacity all depends on this factor directly. A reader who takes less amount of time to acquire the same B than a reader who takes more time will have standard time per page lesser than the other. We will see the relation in the next section in graphical format.

II.GRAPHS



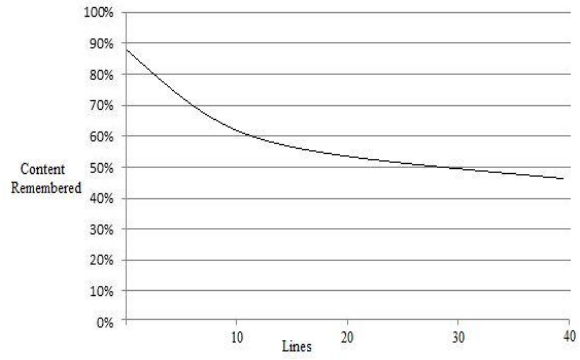
(Figure 1)

From Fig 1- This graph shows Memory Capacity (B) vs. Lines (L). This graph clearly shows how the Amount of Content Remembered increases with the increase in Brain Capacity and Lines. As the B increases, remembering capacity increases with the number of lines. The slope of the graph gives the amount of content remembered while performing E-Learning.



(Figure 2)

Fig. 2- Says us that more the time spent more is the content remembered. But after certain time the content remembered becomes constant because the brain capacity remains constant. Hence, time too plays a vital role in remembering the contents in E-Learning.



(Figure 3)

Fig. 3- Clearly tells us that as the numbers of lines go on increasing the Content remembered decreases. This is real life effect. More the content we remember, more the content we forget.

III. DERIVATION

At first we took all the readings from the readers that what amount of time they take to complete reading a document given to them. The time taken was noted. As far as we worked on the data, we found that an intelligent person took lesser amount of time than a dull person.

Hence it was obvious from the observation that a dull person must have Standard Reading Time (SRT) greater than the SRT of an intelligent person.

Another factor that was in focus was the amount of content. As the content went on increasing, the time to read the document went on increasing. This was immaterial from both intelligent and dull person's point of view.

After knowing all these, we found out the relationship between them.

Time to Read (TR) $\propto$ Brain Capacity (B)
And Time to Read (TR) $\propto$ Content (C).

After deriving the relation, we tried to map the output and found a relation between the output and these factors.

TR $\propto$ B and TR $\propto$ C, hence TR $\propto$ B.C

This was the resultant, but the output of the equation didn't match the result expected. Then after further processing, we found there exists logarithmic relation between the formula and expected output. Hence the relationship is

(TC) Avg. = [log (B.C)] x 2 x 100 Seconds

Proportionality Constant is taken to be 2.

Or the Average Standard Time to Read a document was log (BXC) x 2 x 100 Seconds

Standard Time (Average) = log (Brain Capacity X Content) x 2 x 100 Seconds

Where Content is equal to the number of lines in a document.

This was Average Standard Time Calculation for E-Learning. Now we will find the Maximum Standard Time for E-Learning. For the Maximum Standard Time we will focus on the Brain Capacity and Number of Lines.

Amount of Content Forgotten= 100- Brain Capacity.

So this will also help us in finding the Maximum Time. After going through various calculation and observations, we found that the Maximum Time is a logarithmic function and is much dependent on Brain Capacity and Number of Lines i.e. Content.

The formula becomes

(TC)Max.= Log ([100- BC] x C) x 100 Seconds

Hence, using these formulas we calculated the Standard Time for many users for E-Learning and we got the readings as shown next. There were few deviations which was obvious. But we could predict approximately.

IV. TABULATION

Actual Time (AT)	Max Time (MT)	Error |(MT-AT)|
127	128.44	1.44
129	125.22	4.22
152	121.34	31.34
135	128.74	7.74
110	126.45	18.45
121	122.82	1.82
132	127.91	5.91
134	128.94	6.94
112	122.33	10.33
137	128.61	9.61

These readings were taken for a document of 20 lines with various Brain Capacity (B). The observation was taken with more than 100 people of different age groups. The error was negligible.

CONCLUSION

From our formula and real data there is a little mismatch which can be neglected because the data are real and the value is an approximate value. So this formula gives us the Standard Time for a reader who goes through E-Learning.

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