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# Positive Energy and Effective Communication

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**Abstract:**

*Since time immemorial communication has been regarded as a tool for information and word exchange. Hence it has always been tutored that to master the communication skills one requires to inculcate a way with words and other verbal or non-verbal cues. Communication is much more than that. It is an energy exchange. Rather it is an exchange of karma which can make or break an individual or a collective. Yet never has communication been considered from this stand-point or perspective. Communication is not just speaking, listening, reading or writing but in essence, being.*

**Key words:** energy  karma  positive  communication

The term communication is much hyped up today in all field of life- be it personal or professional. Yes, and rightfully so because this is what differentiates us from lesser evolved species like reptiles, birds, fishes, insects and animals. Rather it is the crux on which entire human civilization is based Had there been no communication the human species would be without its history, inventions, discoveries and a plethora of platforms connected to entertainment.

As is commonly known communication entails reading, writing, speaking and reading. Imagine a world where human beings face a complete amnesia where communication is concerned. Entire record of human civilization would be wiped off and perhaps we would have to start from a scratch or go back to iron- age or the pre-human cave days and begin the growth and development of our civilization all over again in the absence of information or memory or even our analytical faculty required to process the same.

Till now all is well and good. Yet from the above it appears communication amounts to nothing but spoken and written words. This is of course the case where raw information is concerned. Yet isn't communication about relationship too ?  A tool for connecting and bonding? Communication is the tool where deals are negotiated, interviews are held, one gets to speak to a public on a mass or a smaller scale amounting to discussions, arguments, words of affections et al. Through communication a poet finds expression through words, a dancer and actor through body language, a painter through forms and colours… so on and so forth.

If we try putting the need, scope and purpose of communication it boils down to  the **2 Cs** i.e. **connecting and convincing** no matter what the situation or the circumstance or the occasion. It doesn't amount to much whether one or many or even  that on a mass scale are involved. Whatever the mode may be verbal, non-verbal or even silence. This is what communication is all about. How do we go about it?

Verbal communication through spoken and written words and non-verbal through body language, forms, colours, sound are all fine. Yet when we confine communication to a few basics we are missing the point.. We are studying and observing the features and factors of

communication that is very obvious and apparent. We analyse the running train but fail to pay as much attention to the track on which it runs to ensure the smoothness and finesse of it.

The track on which communication is manifested is nothing else but energy. The energy which goes into the skill and craftsmanship of communication is a field sadly neglected.

The point which I'm making is privy to the fact that all successful people carry an energy so intense and powerful that others who come into their orbit cannot help but get influenced or shaped by them. When a singer, dancer, actor, scientist, philosopher, poet , teacher,  sportsman , leader communicate through, their art and craft , philosophy, inventions, discoveries, singing, dancing, painting or even knowledge their communication has an element of passion. So much so that the audience who might have never heard about or witnessed their craft would get sucked in and become a die-hard fan and follower of whatever they may present or advocate.

Going by the above yard-stick, quintessentially communication is an energy exchange.  It is an exchange which creates its own equations and dynamics between different people which in turn pans out its own saga, drama and karma.

The energy exchange which is being talked about may be positive or negative consequently leaving its own impression and impact in the three dimensional world of which we all are a part.

Pondering on the above, let us take the example of Shakespeare's plays. In Macbeth wasn't it a powerful  and vicious energy exchange that vitiated the mind of  Macbeth to kill his own kith and kin? Next, what about Othello? Didn't the suspicious energy of Iago planted its vicious seed in his mind deep enough to kill his own wife?  These are but  a few  woeful tales of communication involving negative energy. In this category can be included the biggest villain of the century, Hitler who rose to power by the gift of gab and a very influential, powerful spread of energy among the masses. The above are but a miniscule instances out of a vast variety of stories in the world of both fact and fiction.

At the same time there have been powerful leaders like Abraham Lincoln, Mahatma Gandhi and others who could influence and mobilise their entire countrymen through communication energy exchange.

Communication is karma. Entire nations have been either created or destroyed by the dint of  communicative energy shared, albeit positive or negative. This  energy has had the power to make or break history, nations and civilizations.

From this standpoint communication becomes a karma.  Communication borne out of positive thoughts, feelings and intentions has a very positive energy exchange in return creating a positive karma and vice-versa.

Considered from this angle one cannot fake a positive communication for long .

**Positive communication is manifested by being positive within**. A positive personality carries a positive intention and a positive action for a positive consequence. Intention for positivity creates a positive energy which becomes a habit, no matter however trying the circumstances may be. Each person is a walking, talking energy transmitter. The process doesn't start with communicating positive but being so. It becomes an inseparable part of him/her as  is  our body and organs.

Its become a cliché to confine communication to just an exchange of information. No, its much more than that.  Its been a  very powerful and a potent tool for making or breaking homes, families, nations, civilizations, religions etc.

How inspiring are you? In what way can you convince and connect? Is it for a cause dubious or an agenda malicious? Or is it with the intention of affecting a positive change for the sole purpose of benefitting one and all?

We need to speculate and introspect on the above since communication goes beyond words or information exchange. None get impressed or impacted by them anyway; but rather the energy that they carry. Energy exchange is quite a subtle and fine which cannot be analysed by our logical mind. Rather it's a process that happens deep at a subconscious level without realizing. Therefore it becomes all the more powerful and even dangerous if not handled well. Hence my hypothesis would be…

In order to be a good communicator, take care of your energy first. Don't let it fall down. Subsequently excellent communication will follow on its own .

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## 3.3 Elementwise Classification

Overhead is the aggregate of indirect material, indirect wages and indirect expenses. He Overheads are classified into three categories.

### 3.3.1 Indirect Materials

It is the cost of materials which cannot be directly charged to the pro-duct manufacture includes, stores consumed, repairs and maintenance, small tools of general use, lubricating cotton waste, loss of stores etc.

### 3.3.2 Indirect Labour

It is the cost of labour which cannot be directly charged to the product manufacture includes salaries and wages of maintenance workers, overtime, holiday pay, idle time, emplo contribution to P.F. etc.

### 3.3.3 Indirect Expenses

These are the expenses which are incurred for the business as a whole. They cannot directly charged to the product manufactured. For example, rent, taxes, insurance, lighting heating, depreciation of building, training expenses, canteen expenses etc.

Chart showing the expenses falling under the above three categories :

| Indirect Material | Indirect Labour | Indirect Expenses |
|---|---|---|
| 1. Fuel | 1. Wages of maintenance workers | 1. Salary of factory employees |
| 2. Lubricating oil | 2. Salary of store-keeper | 2. Expenses on training of employees |
| 3. Stores consumed or repairs | 3. Salary of foreman | 3. Depreciation of plant, machinery and building |
| 4. Small tools for general use | 4. Idle time | 4. Insurance |
| 5. Cotton waste | 5. Compensation to workers | 5. Taxes |
| 6. Deficiencies and loss of stores | 6. Bonus for overtime & night shift | 6. Rates and rents |
|  | 7. Holiday pay / leave pay | 7. Lighting |
|  |  | 8. Heating of factory |
|  |  | 9. Expenses regarding hospital & canteen |

## 3.4 Behaviourwise Classification

### 3.4.1 Fixed Overheads

The cost which is incurred in relation to passage of time and which within certain output or turnover limits, tends to be unaffected by fluctuations in volume of output or turnover. Such cost remains fixed upto the capacity limit irrespective of output. For example, rent of building, depreciation of plant and machinery, pay and allowances of staff, bank charges, legal charges insurance, canteen expenses etc. These are also called 'period costs'.

### 3.4.2 Variable Overheads

A cost which, in the aggregate, tends to vary in direct proportion to changes in the volume of output or turnover. In other words such cost changes according to changes in the volume of changes in the same ratio as changes in output. For example, indirect materials, indirect labour, power and fuel, spoilage, stores handling, overtime, idle time etc. These are also called Product costs.

Variable overhead cost is further classified into two categories :

**1. Variable Production Cost :**

It is that portion of the variable cost which is concerned with production. It varies according to output or production.

**2. Variable Marketing Cost :**

It is that portion of the variable cost which varies in proportion to the change in the volume or turnover of sales.

### 3.4.3 Semi-Variable Overhead

It is neither fixed nor variable overhead. It remains constant upto a certain level and registers change after that. A portion of such expense remains fixed and remaining changes with output. For

example, repairs and maintenance, depreciation of plant and machinery, telephone, salary to supervisors, postage and stationery, service department wages etc.

## 3.5 Controlwise Classification

### 3.5.1 Controllable Cost

It is that portion of the cost which can be controlled by an efficient management. For example, idle time, wastage etc.

### 3.5.2 Non-Controllable Cost

It is that portion of the cost which cannot be controlled by the management. For example, fixed cost, duty or tax imposed by Govern-ment or price-hike by authority.

## 3.6 Classification according to Normality (Nature wise)

### 3.6.1 Normal Overheads

These are the expenses which are expected to be incurred in producing a given output. They cannot be avoided. They are included in production cost.

### 3.6.2 Abnormal Overheads

These are the expenses which are not expected to occur in producing a given output. For example, abnormal idle time, abnormal wastage etc. These expenses are transferred to costing Profit & Loss Account.

## 4. ADVANTAGES OF DIFFERENT TYPES OF CLASSIFICATION

We have seen that overheads are classified on the basis of function, element, behaviour, controllability and nature. The following are the advantages of classifying overheads on different bases :

1. It enables management to exercise effective control on different operations.
2. It can become the basis of preparation of budgets for future operations.
3. It enables management to ascertain the profitability of different product lines or departments. It is useful in decision-making in areas such as product-mix and departmentalisation.
4. It helps management in controlling costs which in turn increases profitability.
5. It provides cost data which can be useful in making pricing decisions.
6. It provides cost data which forms part of management information system which is required for vital decision making.

## 5. CHARGING OF OVERHEADS TO COST UNITS

Overheads are indirect cost. They cannot be directly charged to the cost units or cost centres like direct materials, direct labour and direct expenses. We cannot arrive at the cost of production if overhead is not added to the prime cost. Hence, the following procedure is adopted to link the overheads to cost units or cost centres :

1. Classification of overheads.
2. Codification of overheads.
3. Collection of overheads.
4. Distribution of overheads to production and service departments.
5. Redistribution from service departments to production departments.
6. Absorption of overheads by production units.

## 6. CODIFICATION OF OVERHEADS

In the previous chapter, we have elaborated the classification of overheads. After the classification of overheads, they need to be codified. Codification means assigning code numbers so as to make it easier to identify each group of overheads. It has become increasingly important in large organisations where machine accounting system is adopted. The overhead code numbers are also known as standing order numbers. The following are the different systems being used for codification of overheads:

1. The Numerical System.
2. The Decimal System.
3. The Mnemonic System.
4. The Combined Code System.

Company has three Production Departments and two Service Departments and for the period the departmental distribution summary shows the following figures of overheads.

| | Production Department | | | Service Department | |
|---|---|---|---|---|---|
| A | B | C | X | Y |
| ₹ 800 | ₹ 700 | ₹ 500 | ₹ 234 | ₹ 300 |

The expenses of Service Departments are charged on a percentage basis as follows :

| Particulars | A | B | C | X | Y |
|---|---|---|---|---|---|
| Service Dept. X | 20 | 40 | 30 | – | 10 |
| Service Dept. Y | 40 | 20 | 20 | 20 | – |

Prepare a statement showing the apportionment of two Service Departments expenses to Production Departments by :

1. Repeated Distribution Method.
2. Simultaneous Equation Method.

## Solution :

1. **Overhead Distribution Summary (Under Repeated Distribution Method) :**

| Particulars | Production Dept. | | | Service Dept. | |
|---|---|---|---|---|---|
| | A ₹ | B ₹ | C ₹ | D ₹ | E ₹ |
| Overhead as per Primary Distribution | 800 | 700 | 500 | 234 | 300 |
| Distribution of Overhead of Department X | 47 | 94 | 70 | (– 234) | 23 |
| Distribution of Overhead of Department Y | 129 | 65 | 65 | 64 | (– 323) |
| Distribution of Overhead of Department X | 15 | 38 | 21 | (– 64) | – |
| Total Overheads | 991 | 887 | 656 | – | – |

2. **Simultaneous Equation Method :**

Let $x$ be the total overheads of Service Department X

Let $y$ be the total overheads of Service Department Y

$$\therefore \quad x = 234 + 0.2y \quad \ldots(1)$$
$$y = 300 + 0.x \quad \ldots(2)$$

for removing the decimals multipy both the equations by 10

$$\therefore \quad 10x = 2340 + 2y = 10x - 2y = 2,340$$
$$10y = 3000 + x = 10y - x = 3,000$$

for getting the value of y multiply to second equation by 10

$$\therefore \quad 10x - 2y = 2,340$$

$$+ (-) 10 x + 100 y = 30,000$$
$$98 y = 32,340$$
$$\therefore \quad y = \frac{32,340}{98} = ₹ 330$$
$$\therefore \quad x = 234 + 66 = ₹ 300$$

## Overhead Distribution Summary

| Particulars | Department A | B | C |
|---|---|---|---|
| Overheads as per Primary Distribution | 800 | 700 | 500 |
| Add : Share from Service Department X | 60 | 120 | 90 |
| Add : Share from Service Department Y | 132 | 66 | 66 |
| Total Overheads | 992 | 886 | 656 |

### Illustration 5 :

A Limited Company has three Manufacturing Departments A, B and C and one Service Department. The following figures are available for one month of 25 working days of 8 hours each day. All the departments work for all the days and with full attendance.

| Expenditure | Total ₹ | Departments S | A | B | C |
|---|---|---|---|---|---|
| Power and Lighting | 1,100 | 240 | 200 | 300 | 360 |
| Supervisor's Salary | 2,000 | – | – | – | – |
| Rent | 500 | – | – | – | – |
| Welfare | 600 | – | – | – | – |
| Others | 1,200 | 200 | 200 | 400 | 400 |
|  | 5,400 |  |  |  |  |
| Surpervisor's Salary |  | 20% | 30% | 30% | 20% |
| Number of Workers |  | 10 | 30 | 40 | 20 |
| Floor Area in sq. ft. |  | 500 | 600 | 800 | 600 |
| Services rendered by Service Department |  |  | 50% | 30% | 20% |

Calculate labour hour rate for each of the Departments A, B, and C.

### Solution :

## Allocation of overheads

| Expenditure | Basis | Total ₹ | Departments S | A | B | C |
|---|---|---|---|---|---|---|
| Power and Lighting | Given | 1,100 | 240 | 200 | 300 | 360 |
| Supervisor's Salary | Given | 2,000 | 400 | 600 | 600 | 400 |
| Rent | Floor Area | 500 | 100 | 120 | 160 | 120 |
| Welfare | No. of Workers | 600 | 60 | 180 | 240 | 120 |
| Others | Given | 1,200 | 200 | 200 | 240 | 120 |
|  |  | 5,400 | 1,000 | 1,300 | 400 | 400 |
| Allocation of Expenses of Service Dept. to Other Depts. |  |  | – | 500 | 1,700 | 1,400 |
| Total Overheads |  |  | – | 1,800 | 300 | 200 |
|  |  |  | – | 1,800 | 2,000 | 1,600 |

Number of hours in a month = 25 × 8 = 200

Total labour hours in each department :

A = 200 × 30 = 6,000 hours
B = 200 × 40 = 8,000 hours
C = 200 × 20 = 4,000 hours

∴   Labour Hour Rate (For Dept. A) = $\frac{1,800}{6,000}$ = 30 paise

(For Dept. B) = $\frac{2,000}{8,000}$ = 25 paise

(For Dept. C) = $\frac{1,600}{4,000}$ = 40 paise

Savi Ltd. has five departments A, B, C, D and E. The actual costs incurred for the month of February, 2012 are as follows :

| | ₹ |
|---|---|
| Repairs | 10,500 |
| Rent | 12,500 |
| Depreciation | 7000 |
| Supervision | 28,000 |
| Insurance | 6,400 |
| Employer's Liability for Employees Insurance | 3,000 |
| Lighting | 9,000 |

The following data is also available in respect of the five departments :

| Particulars | Dept. A | Dept. B | Dept. C | Dept. D | Dept. E |
|---|---|---|---|---|---|
| Area (Sq. ft.) | 140 | 120 | 110 | 90 | 40 |
| No. of Workers | 25 | 20 | 10 | 10 | 5 |
| Total Wages | 1,00,000 | 80,000 | 50,000 | 50,000 | 20,000 |
| Value of Plant | 2,00,000 | 1,80,000 | 1,60,000 | 1,00,000 | 60,000 |
| Value of Stock | 1,50,000 | 1,00,000 | 50,000 | 20,000 | – |

Apportion the cost to the various departments on the equitable basis. Consider stock value as a basis for apportioning insurance cost.

**Solution :**

| Expenses | Base | Departments | | | | |
|---|---|---|---|---|---|---|
| | | A ₹ | B ₹ | C ₹ | D ₹ | E ₹ |
| Repairs | Plant Value | 3,000 | 2,700 | 2,400 | 1,500 | 900 |
| Rent | Area | 3,500 | 3,000 | 2,750 | 2,250 | 1,000 |
| Depreciation | Plant Value | 2,000 | 1,800 | 1,600 | 1,000 | 600 |
| Supervision | No. of Workers | 10,000 | 8,000 | 4,000 | 4,000 | 2,000 |
| Insurance | Value of Stock | 3,000 | 2,000 | 1,000 | 400 | – |
| Employees Insurance | Wages | 1,000 | 800 | 500 | 500 | 200 |
| Lighting | Area | 2,520 | 2,160 | 1,980 | 1,620 | 720 |
| Total | | 25,020 | 20,460 | 14,230 | 11,270 | 5,420 |

## Illustration 7 : (Repeated Distribution)

A company has three Production Departments and two Service Departments. For a period, the following is the primary distribution summary of costs :

| Production Departments | | | |
|---|---|---|---|
| | A | ₹ | 8,000 |
| | B | ₹ | 7,000 |
| | C | ₹ | 5,000 |
| Total | | ₹ | 20,000 |
| Service Departments | S1 | ₹ | 2,340 |
| | S2 | ₹ | 3,000 |
| Total | | ₹ | 5,340 |
| Grand Total | | ₹ | 25,340 |

The expenses of the service departments are charged to the Production and other Service Departments on the basis of following percentages :

| | A | B | C | S1 | S2 |
|---|---|---|---|---|---|
| Service Department S1 | 20% | 40% | 30% | – | 10% |
| Service Department S2 | 40% | 20% | 20% | 20% | – |

Apportion the expenses of service departments to Production Departments by repeated distribution method.

**Solution :**

### Secondary Overhead Distribution Statement (Repeated Distribution Method)

| Particulars | Total ₹ | Production Dept. | | | Service Dept. | |
|---|---|---|---|---|---|---|
| | | A ₹ | B ₹ | C ₹ | S1 ₹ | S2 ₹ |
| As per Primary Distribution Summary | 25,340 | 8,000 | 7,000 | 5,000 | 2,340 | 3,000 |

| Particulars | | | | |
|---|---|---|---|---|
| Apportionment of Expenses of Service Dept. S1 (in the given percentages, i.e. 20%, 40%, 30% & 10%) | 468 | 936 | 702 | (–2,340) |
| Appointment of Expenses of Service Dept. S2 (in the given percentage) | 1,294 | 647 | 647 | 646 |
| Appointment of Expenses of Service Dept. S1 (in the given percentages) | 129 | 258 | 194 | – 646 |
| Appointment of Expenses of Service Dept. S2 | 26 | 13 | 13 | 13 |
| Appointment of Expenses of Service Dept. S1 (in the given percentages) | 3 | 6 | 4 | – (13) |
| Total | 25,340 | 9,920 | 8,860 | 6,560 | – |

## Illustration 8 : (Repeated Distribution) Simultaneous equation

You are supplied with the following information and required to work out the production hour rate recovery of overhead in Departments A, B and C.

| Particulars | Total ₹ | Production Dept. | | | Service Dept. | |
|---|---|---|---|---|---|---|
| | | A ₹ | B ₹ | C ₹ | P ₹ | Q |
| Rent | 12,000 | 2,400 | 4,800 | 2,000 | 2,000 | |
| Electricity | 4,000 | 800 | 2,000 | 500 | 400 | |
| Indirect Labour | 6,000 | 1,200 | 2,000 | 1,000 | 800 | |
| Depreciation | 5,000 | 2,500 | 1,600 | 200 | 500 | |
| Sundries | 4,500 | 910 | 2,143 | 847 | 300 | |
| Estimated Working Hours | | 1,000 | 2,500 | 1,400 | – | |

Expenses of Service Departments P and Q are apportioned as under :

| | A | B | C | P | Q |
|---|---|---|---|---|---|
| Service Department P | 30% | 40% | 20% | – | 10% |
| Service Department Q | 10% | 20% | 50% | 20% | – |

The expenses of Service Department may be apportioned with the help of Repeated Distribution Method.

## Solution :

### Overhead Distribution Summary for the period

| Particulars | Total ₹ | Production Dept. | | | Service Dept. | |
|---|---|---|---|---|---|---|
| | | A ₹ | B ₹ | C ₹ | P ₹ | Q |
| Rent | 12,000 | 2,400 | 4,800 | 2,000 | 2,000 | |
| Electricity | 4,000 | 800 | 2,000 | 500 | 400 | |
| Indirect Labour | 6,000 | 1,200 | 2,000 | 1,000 | 800 | |
| Depreciation | 5,000 | 2,500 | 1,600 | 1,000 | 500 | |
| Sundries | 4,500 | 910 | 2,143 | 847 | 300 | |
| Total | 31,500 | 7,810 | 12,543 | 4,547 | 4,000 | |
| Expenses of Dept. P | | 1,200 | 1,600 | 800 | 4,000 | 400 |
| | | 9,010 | 4,143 | 5,347 | – | |
| Expenses of Dept. Q | | 300 | 600 | 1,500 | 600 | |
| | | 9,310 | 14,743 | 6,847 | 600 | |
| Expenses of Dept. P | | 180 | 240 | 120 | 600 | |
| | | 9,490 | 14,983 | 6,967 | – | |
| Expenses of Dept. Q | | 6 | 12 | 30 | 12 | |
| | | 9,496 | 14,995 | 6,997 | 12 | |
| Expenses of Dept. P | | 4 | 5 | 3 | (–12) | |
| Total | 31,500 | 9,500 | 15,000 | 7,000 | – | |
| Working Hours | | 1,000 | 2,500 | 1,400 | | |
| Rate per hour | | ₹ 9.53 | ₹ 6 | ₹ 5 | | |

Let $p$ be the expenses of Service Department P.

Let $q$ be the expenses of Service Department Q.

Then $\quad p = 4,000 + \frac{1}{5}q \quad$ (service 20% of $q$ will be apportioned to Dept. P)

$$q = 2,600 + \frac{1}{10}p$$

$$q = 2,600 + \frac{1}{10}\left(4,000 + \frac{1}{5}\right)q \quad\quad \text{(puting the value of } p\text{)}$$

$$q = 2,600 + 400 + \frac{1}{50}q$$

$$q = 3,000 + \frac{1}{50}q$$

$$50\,q = 1,50,000 + q$$

$$49\,q = 1,50,000$$

$$q = 3,061$$

$$p = 4,000 + \frac{1}{5}(3,061)$$

$$= 4,612$$

**Overhead Distribution Summary**

|  | Production Department | | | Service Department | |
|---|---|---|---|---|---|
|  | A ₹ | B ₹ | C ₹ | P ₹ | Q ₹ |
| Total (given) | 7,810 | 12,543 | 4,547 | 4,000 | 2,600 |
| Expenses of Dept. P ₹ 4,612 | 1,384 | 1,845 | 922 | – 4,612 | 461 |
| Expenses of Dept. Q ₹ 3,061 | 306 | 612 | 1,531 | 612 | – 3,061 |
|  | 9,500 | 15,000 | 7,000 | – | – |
| No. of Hours | 1,000 | 2,500 | 1,400 |  |  |
| Rate per hour ₹ | 9.50 | 6.00 | 5.00 |  |  |

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# VOLUME XI – ISSUE 3- PART-4

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# Big Data and Hadoop: Enhancing Performance in Educational Sector

Dr. Sanjivani B. Nalkar

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*Abstract-*

*Recently, many educational institutions have used big data to conduct organizational analytics and use learning management systems to perform new business intelligence. The available data is huge. So this data visualisation is used to evaluate the performance indicators in administration, research and teaching. These current analytics will help to track individuals and also help to improve and personalise their learning experience. There are several challenges in the education sector in teaching effectiveness, difficulties in storing or processing or analysing data , student acquisition and student retention. Hence, to enhance the performance, we use the Hadoop platform and big data for education sector. Also, research design determines the challenge and need of big data in the education sector. Thus, research explain big data with Hadoop provides effective results in the education sector.*

*Keywords: Big data, Hadoop ,education, performance*

## Introduction

Business is completely dependent on analytics, which is used for determining hidden aspects and trends. For the last few years, the rise of big data analytics has been helping entrepreneurs to explore data manually for carrying useful patterns. Big data analytics has generated various opportunities which have enhanced knowledge and learning  success throughout the organization, cross collaboration over the institutions , cost reduction over organizing financial performance has become possible and academic risk is lowered. Big data does not use traditional application software. Hence, it uses cloud-based technologies such as Hadoop and Spark. In business,  the organisation becomes strong and active after using big data. The Hadoop platform has become popular as it gives different benefits to institutions and learners. Here this study focuses on the influence of big data on education and how the education system will be benefited by using big data analytics.

## Problem Statement -

Recently, the use of big data analytics has been increased. Though there are various opportunities, the educationalist experiences some challenges for deploying big data analytics. It is difficult to access specific data from the integrated database system and also it becomes difficult to create data warehouse for the institution. Unstructured and lack of quality data may leads to rise in essential issues. To create the awareness of the system among trainees, educators which may take more time  in learning the system. To provide the information, in the informative way the educators and learners faces many difficulties. To solve all these problems and to explain an effective use of  big data, this paper is proposed .

## Related Work -

For using data to determine new field in the business, big data analytics offers an effective assistance to the organisations. This will help to develop new opportunities and enhance smart business. This data analytics results in effective operations, customer relationship and also profits. It is significant to notice that usage of Hadoop in organizations work faster and make effective decisions as this platform has capability to determine source of data [1]. With the customer requirement, the new products and it's services can be produced by using analytics. So companies are aiming on the needs by improving services which  to fulfil customer needs.

i. Educational sector

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Educational sectors as school, colleges, universities has vast amount of data. It can be determined to focus on which enhance the operational effectiveness of the educational institutions [3]. Student's examination data and educational progress, which highly depends on changing education requirements, calculated by using statistical analysis. For the innovative ways, students can use big data, which provides a way for revolutionary system. Students and parents gains effective advantages as educational sector has adopted big data techniques. It has been used for evaluation of academic progress of the students during examinations. Each student produce a unique data which can be evaluated for determining the student behaviour to develop learning environment [5]. Big data analytics govern the students activities such as curricular activity interests, favourite subjects, classroom performance and time to complete the examination. Using this data driven approach, the institutions can develop a learning experience based depending on student ability, learning capability and preference. Various programs will be used to motivate and understand what they need to learn. Depending on this many reports will be produced and predict what they want to do in future. After receiving feedback from the learning experience for students the educators can enhance teaching skills [6].

### ii. Prediction of Career-

The authority can identify the student strength and weakness by taking help of students performance report prepared by big analytics. This report guides the students about the areas to be focused in future. If the student focuses on learning specific subject, the student must be motivated and choice should be recommended to prefer what they want to follow [6]. Big data is useful in the various fields and provides valuable information to human beings. The important decision will be taken to improve current scenario and determine predictive big data analytics. Educational data mining focuses on creating methods for determining type of data, gained from educational settings. Educational data mining helps to apply and research the computerized methods to find the pattern of the educational data. The pattern becomes difficult to analyse due to high volume of data. The process involves in the educational data mining These methods are obtained from data mining, psychometrics and machine learning, information visualization and modelling [3]. The application of data mining approaches which includes association rule, classification, clustering. These approaches support students and teachers in learning and analyzing the process [7].

### iii. Learning analytics-

Learning analytics has becomes very popular as it gives various benefits to institutions. It also aims on managing capacity of analytics like prediction and forecast behaviour. Learning analytics objective is to improve the prediction over time. It enhances the efficiency of approaches in interpretation, mining to enhance the understanding of learning and teaching [8]. It focuses on huge data gathered by academic activities of students. An increased development of big data analytics becomes significant for the organization to manage the measurement and management processes [9]. It is a process of collecting, analysing and reporting the data about learners regarding their learning. In the education sector, learning and academic analytics are the process of analytics. Academic analytics aims at development of the processes, resources and workflows of the institution over use of academic, learner and institutional data. It also focuses on enhancing the organizational effectiveness [7]. A large amount of data has been collected but they are not analysed properly in education sector. The business analytics, predictive analytics and action analytics are taken into consideration of the big data analytics [11].

### iv. Slow progress of big data in education-

In education sector, big data is considered as a game changer in academic performance. The learning company like Knewton is helping this analytics efficiently. The company has increased $157 million dollars to develop an adaptive learning system which suggest the learning paths for the students over grade and subject levels [10]. There are some barriers preventing this process. Teachers and parents

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have fear that the data could be misused. There are other challenges like difficult approach and working in tight deadlines. If we monitor students course, the offline activities like homework and classroom discussions are difficult. For each student, big data has capability to improve academic performance and learning need to enhance the personal learning.

## Methodology

In this study a qualitative study has been applied. To acquire the knowledge of people reasons, motivations and opinions, the qualitative research is used. It gives an extensive view of the problem and provides different ideas for making quantitative research. It also determines the thoughts and opinions about the problem[2]. Hence this qualitative research will add views to current problem statement. This is called an exploratory research.

A. Data collection: For evaluating the result, the researcher may use primary and secondary method.

B. Primary method: In this method, data is gathered by performing interviews, observations and surveys. With these, researcher will get confidentiality issues. It also focus on market research, observation and experiments. Hence this methods are not applicable here.

C. Secondary method: In this method, data is gathered from the sources like magazines, articles, journals and newspapers. This method is applicable here for data collection and data is collected from literary sources and introduces an effective solution for education using big data analytics.

## Research Design-

Here, the exploratory research design has been applied. Exploratory research can able to determine the research questions and do not offer final solutions to the existing issues [2]. In order to find the problem, the research designs offer a effective understanding of problem. From this, the researcher can decide the solution depending upon findings of new insights and new data. It explores different problems and gives new solutions where no research has made this.

## Analysis And Findings -

This research results that NoSQL databases are extremely scalable and schema less. It gives effective support to frameworks like Dryad and MapReduce for accessing large amount of data.

Recently some platforms such as Big table, Apache Hadoop, Mongo DB and HBASE are able to manage large amount of data. To store educational data, Mongo DB is used. As scalability Mongo DB is widely used in the educational platform [15]. Similarly, Hadoop platform are also used in education sector for managing large mount of data efficiently. To enhance the process, the education sector uses stream and batch processing for storing the data. The distributed processing of data using single programming model is performed using Hadoop. The characteristics of Hadoop platform are reliable, scalable, flexible and economical [16]. Hadoop is the modern big data processing framework used for extensive storage and effective scalability[11].

## Proposed Approaches Of Big Data Technique In Education -

In the system process, the proposed approach of big data technique in education is implemented by using Apache Hadoop. Here stream processing and batch processing are used in processing of the educational data. In the Batch processing, the evaluation of the blocks of data is done over a certain period of time. For processing the data in batches, Hadoop MapReduce is an effective platform. In the educational sectors, the stream of data has divided into blocks of data and performs the function by using Hadoop platform[13]. It enables to give data into analytics tools and receive analytics results[14]. These two types of processing are used for enhancing the performance of the educational data.

### A. Storing

For storing data, this study uses cloud storage to store files. In the cloud, the educational data is stored in form of files and tables.

### B. Analysing

In the educational industry, the big data Hadoop is used due to accountability, economical and reliability. Some challenges are there in the education sectors for enhancing evaluation and monitoring, getting trained teachers for enhancing quality education, creating industry ready education system makes system more accountable and understand the industry demand. With these challenges, Hadoop has possibility to solve these challenges with using big data.

### Conclusions

This study clearly highlights how big data influence the education sector. There are some challenges in the education sectors such as data privacy, data security, ineffective decisions, unable to capture or access or store the data. These issues can be solved using Hadoop framework and big data. It also uses batch and stream processing for processing the data. cloud storage is used for storing the data and Hadoop platform for analyzing the educational data in an efficient manner. By using this framework, the education sector can enhance the student retention, improve teaching effectiveness, transform into effective decision thinking and actions and student acquisition optimization. For future research, the practitioner

can integrate Spark and Hadoop for enhancing the performance of education sector.

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