## INDEX

# *Editorial*

***"Let us think of Education as the means of Developing our greatest abilities because in each of us there is a private hope and dream which fulfilled can be translated into benefit for everyone and greater strength for our nation."***

***- John F. Kennedy***

***Education*** *in its general sense is a form of learning in which the knowledge, skills, and habits of a group of people are transferred from one generation to the next through teaching, training, or research. Education frequently takes place under the guidance of others, but may also be autodidactic. Any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. Education is commonly divided into stages such as preschool, primary school, secondary school and then college, university.*

*The University Grants Commission or UGC, the central funding agency that coordinates college education policies, wrote to the Delhi University again recently saying that admissions must begin under a three-year degree format instead of the Four Year Undergraduate Programme or FYUP introduced last year amid opposition from students and teachers' groups.*

*Most of Delhi's 60-odd colleges have reportedly said they are ready to migrate to the old three-year pattern, but the university's Vice Chancellor Dinesh Singh has refused to consider it.*

*Nearly 60,000 students who started in the four-year programme last year are worried after the UGC said they have to migrate to a three-year pattern The confusion is killing the spirits of lakhs of students in Delhi, which is the matter of great concern our Educational community.*

***"Education is the most powerful weapon which you can use to change the world"***

***- Nelson Mandela.***

# A Computational Study on Organizational Culture and Climate with Special Reference to Fiber Industry

**Mr. Bosco Paul Alapatt:** Lecturer, Department of Computer Science & IT, Adigrat University, Ethiopia

**Abstract**

The study was taken up in a Fiber industry to find out the solution for a Computational Study on Organizational Culture and Climate followed in company. The study helps to identify the various recruitment techniques used by the organization for smooth functioning of their business activities. The primary objective was to study about the organization culture and climate in fiber industry. And the secondary objectives are to study the interpersonal relationship among the employees; to study whether the employers help the employees in their career development; to evaluate the motivational levels of the workers; to see whether the organization works on the policy of team spirit; to check whether the organization provides better working conditions to the employees; to study whether the top management takes the employees suggestions seriously; to evaluate the organization climate directly support to the organization goals and priorities; and to study whether the differentiating organization according to their procedures and practices. The study is made to provide suggestions to the organization for improvement if any in current inventory technique being practiced. This analysis report framed in this study will be of greatly useful for the company.

**Keywords:** culture, climate, growth, sampling, fiber industry

Culture values are the ways in which individuals assess certain traits, qualities, activities or behaviors as good or bad, productive or wasteful. High levels of service, for example might be a core value of a particular organization. Its value might be reflected in such things as the organization's motto response time, reliability or actual quality and performance measurements. Beliefs though frequently unstated reflect an individual understands of the way the organization works and the probable consequence of the actions they take. In some organizations people may champion new service /product ideas in the belief that innovation is the way to get ahead. In other organizations people adhere to rules in the belief that controlling risk is the way to get ahead.

Conceptually culture can be studied under two heads such as implicit culture and explicit culture.

Climate is the label used to describe the dimensions of the work environment that can be measured with relative precision. A variety of factors determine the climate of an organization, such as 1. Leadership is the signal most important determinant of organizational climate in the day-to-day leadership style of the leader has a powerful influence on the expectations and behaviors of everyone in the organization. 2. Optimally knowing how to anticipate lead and manage change is an art. A leader needs to develop strategies to face the challenges in the future and the best ways to engage everyone in the organization to attain the desired results. 3. Organizational structure is an equally powerful determinant of climate is an organization. 4. Historical forces have a strong impact on an organization 's founding, the manner in which crises were faced and resolved the organization's role models were the important factors influencing the climate in an organization.5. Standards of accountability and Standards of behavior measure the ways in which individuals take responsibility and are held accountable for both they do and how they do it. 6. Communication is an important component of desired behavior measured by the organizations communication patterns. Rewards measure competencies in tangible ways.

**Methodology**

This study is marked by a prior formulation of research questionnaires. The investigator already knew the substantial amount about the research problems. The data were collected for the sample of 200 in Suvarna Fibrotech Pvt.Ltd. at Vellore (Chennai). The tool used for collecting data is a questionnaire. A questionnaire is a simply formalized schedule to obtain and record specified and relevant information, with tolerable accuracy and completeness. In other words, it directs the questioning process and promotes the clear and proper recording. For the purpose of this study the researcher has used the stratified random sampling method. The total population was divided into groups and samples are collected randomly from these groups. The data collected through a specially designed questionnaire for the present study. The five point likert scaling is used in order to elicit frank opinion of the respondents with regard to training and development in Suvarna Fibrotech Pvt.Ltd, Vellore,(Chennai). For the purpose the researcher interviewed the supervisors of various departments who have participated and to their superior. They are selected at stratified random sampling.

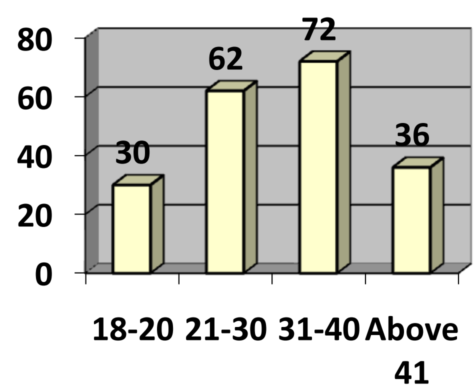
A pilot study was conducted on a sample size of 10, correct at the beginning of the survey. At the pilot study the researcher made a number in the questionnaire, which is seen as necessary. The changes are amended at this point to aid proper survey. Both the primaries as well as the secondary data are taken into account for the purpose of the study. The instrument used to collect primary data is a well – designed questionnaire. The questionnaire consisted only the likert scaled responses. Secondary data are extracted from the files, registers, records, obtained from personnel department.

**Analysis of results**

**Table I classification of respondents by age**

| Age | Number of Respondents | Percentage of Respondents |
|---|---|---|
| 18-20 | 30 | 15% |
| 21-30 | 62 | 31% |
| 31-40 | 72 | 36% |
| Above 41 | 36 | 18% |
| **Total** | **200** | **100%** |

**Fig.1 Classification of employees by age**

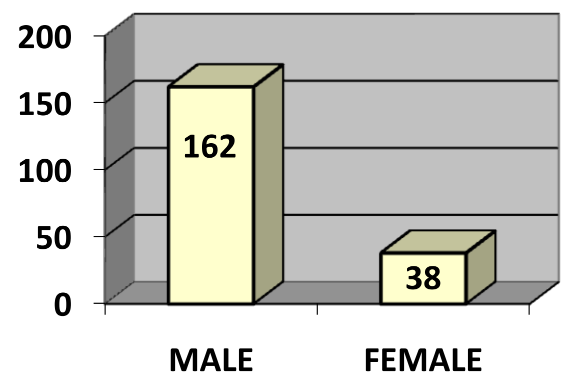



From the above table I it is found that most (15 percent) of the respondents are in the age between 21 and 30 years, 31 percent of the respondents are in the age of 18 to 20 years, 36 percent of the respondents are from 31-40 years and the rest 18 percent of the respondents are above 41 years of age.

**Table 1I classification of respondents by Gender**

| Gender | Number of Respondents | Percentage of Respondents |
|---|---|---|
| Male | 162 | 81% |
| Female | 38 | 19% |
| **Total** | **200** | **100 %** |

**Fig.2 Classification of employees by Gender**

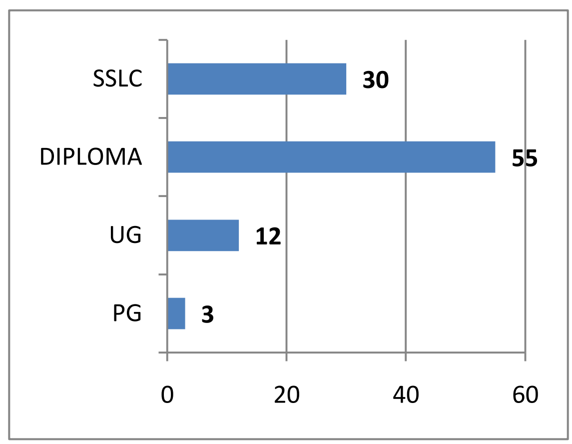



From the above table II it is found that majority (81 percent) of the respondents are male and the remaining 19 percent of the respondents are female.

**Table III classification of respondents by Education**

| Educational Qualification | Number of Respondents | Percentage of Respondents |
|---|---|---|
| PG | 6 | 3% |
| UG | 24 | 12% |
| Diploma | 110 | 55% |
| SSLC | 60 | 30% |
| **Total** | **200** | **100%** |

**Fig.3 Classification of employees by Education**

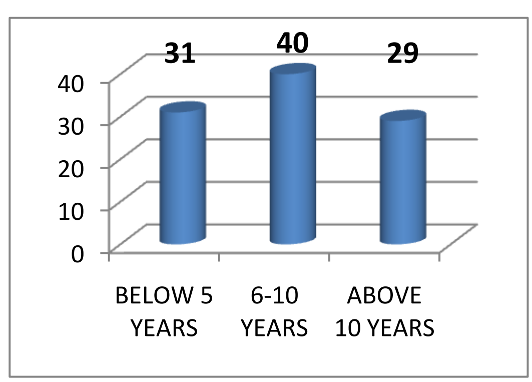



From the above table III it is clear that 3 percent of the respondents are possessing post graduation while 12 percent of the respondents are under graduates, 30 percent of the respondents are qualified upto SSLC and the remaining 55 percent of the respondents are diploma holders.

**Table IV classification of respondents by Experience**

| Years of Service | Number of Respondents | Percentage of Respondents |
|---|---|---|
| Below 5 yrs | 62 | 31% |
| 6 – 10 yrs | 80 | 40% |
| Above 10 yrs | 58 | 29% |
| **Total** | **200** | **100%** |

**Fig. IV Classification of employees by Experience**

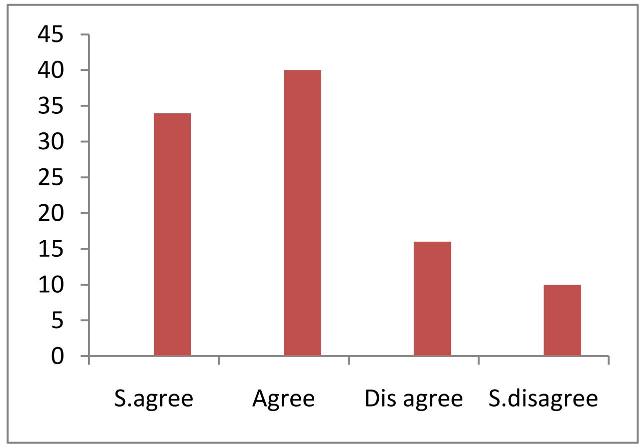


From the above table IV it is found that 31% of the respondents are in the having service experience below 5 years, 40 percent of the respondents are possessing experience between 6 and 10 years and the rest 29percent of the respondents possessing above 10 years of experience.

**Table V Leaders helps the employee in their work**

| Particulars | No of response | Percentage |
|---|---|---|
| Strongly agree | 68 | 34 |
| Agree | 80 | 40 |
| Dis agree | 32 | 16 |
| Strongly Disagree | 20 | 10 |
| **Total** | 200 | 100 |

**Fig. 5 Leaders helps the employee in their work**

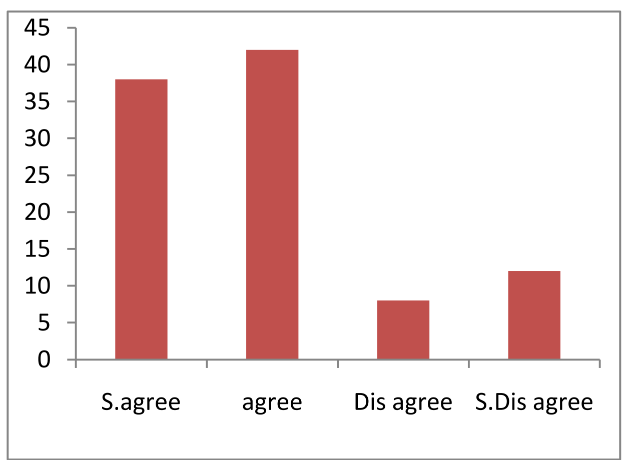



From the above table V stated that 34% of the employees are strongly agree that the leaders helps in their work. 40% of employee are agree 16% of employee are disagree 10% of employee are strongly disagree.

**Table VI Leaders provide freedom to their employees**

| Particulars | No of response | Percentage |
|---|---|---|
| Strongly agree | 76 | **38** |
| Agree | 84 | 42 |
| Disagree | 16 | 08 |
| Strongly Disagree | 24 | 12 |
| **Total** | 200 | 100 |

**Fig. 6 Leaders provide freedom to their employees**

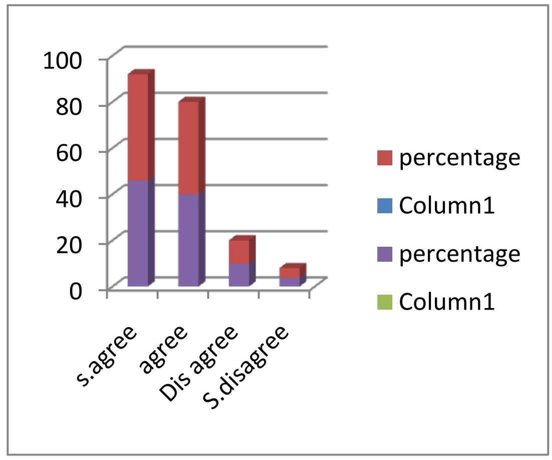



From the above table VI stated that 38% of the employees are strongly agree that the leaders provide freedom to them 42% of employees are agree 8% of employees are disagree 12% of employees are strongly disagree.

**Table VII Rules and regulation of the organization**

| **Particulars** | **No of response** | **Percentage** |
|---|---|---|
| Strongly agree | 92 | 46 |
| Agree | 80 | 40 |
| Dis agree | 20 | 10 |
| Strongly Disagree | 8 | 4 |
| **Total** | 200 | 100 |

**Fig. 7 Rules and regulation of the organization**

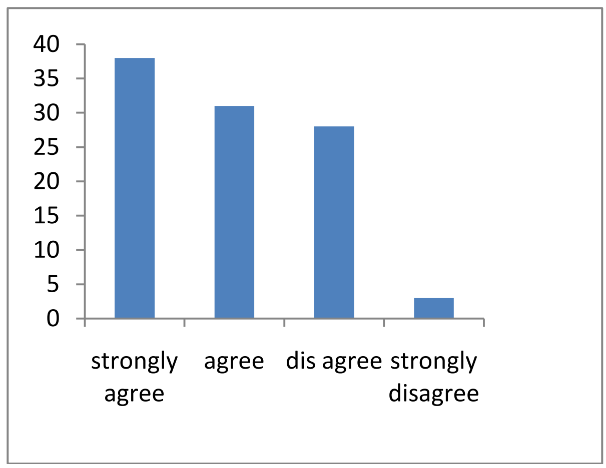



From the above table VII stated that 46% of the employees are strongly agree with the rules and regulations of the organization is perfectly scheduled 40% of employees are agree 10% of employees are disagree 4% of employees are strongly disagree

**Table VIII Leader provides good working conditions**

| **Particulars** | **No of response** | **Percentage** |
|---|---|---|
| Strongly agree | 75 | **38** |
| Agree | 62 | 31 |
| Disagree | 56 | 28 |
| Strongly Disagree | 7 | 3 |
| **Total** | 200 | 100 % |

**Fig. 8 Leader provides good working conditions**

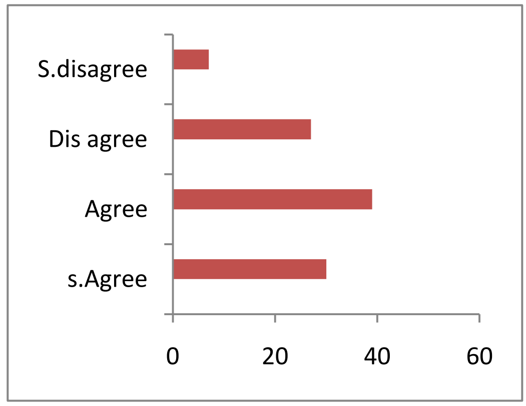



From the above table VIII stated that 38% of the employees are strongly agree with the leaders provide good working conditions to them 31% of employees are agree 28% of employees are disagree 3% of employees are strongly disagree.

**Table IX Organization provide perfect physical facilities**

| Particulars | No of response | Percentage |
|---|---|---|
| Strongly agree | 60 | **30** |
| Agree | 78 | 39 |
| Dis agree | 54 | 27 |
| Strongly Disagree | 8 | 7 |
| **Total** | 200 | 100 |

**Fig. 9 Organization provide perfect physical facilities**

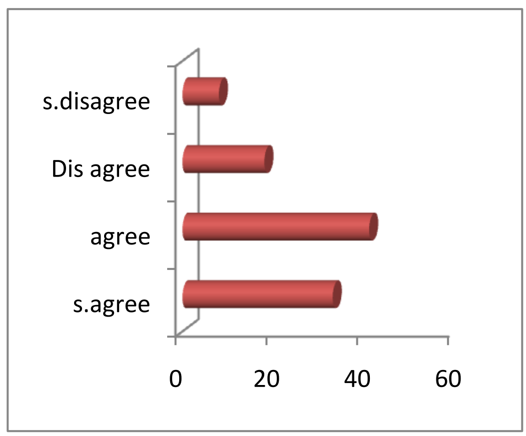



From the above table VIII stated that 30% of the employees are strongly agree with their organization provide perfect physical facilities 39% of employees are agree 27% of employees are disagree 4% of employees are strongly disagree.

**Table IX Employees in the organization enjoy their work**

| Particulars | No of response | Percentage |
|---|---|---|
| Strongly agree | 66 | **33** |
| Agree | 82 | 41 |
| Dis agree | 36 | 18 |
| Strongly Disagree | 16 | 8 |
| **Total** | 200 | 100 |

**Fig. 9 Employees in the organization enjoy their work**

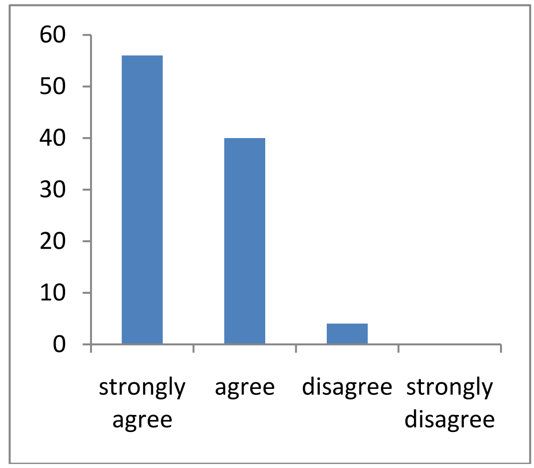



From the above table IX stated that 33% of the employee strongly agrees that they enjoy the work in the organization. 41% of employees are agree 18% of employees are disagree 8% of employees are strongly disagree.

**Table X Canteen facilities and drinking water provided in organization**

| Particulars | No of response | Percentage |
|---|---|---|
| Strongly agree | 112 | **56** |
| Agree | 80 | 40 |
| Dis agree | 8 | 4 |
| Strongly Disagree | 0 | 0 |
| **Total** | 200 | 100 |

**Fig. 10 Canteen facilities and drinking water provided in organization**

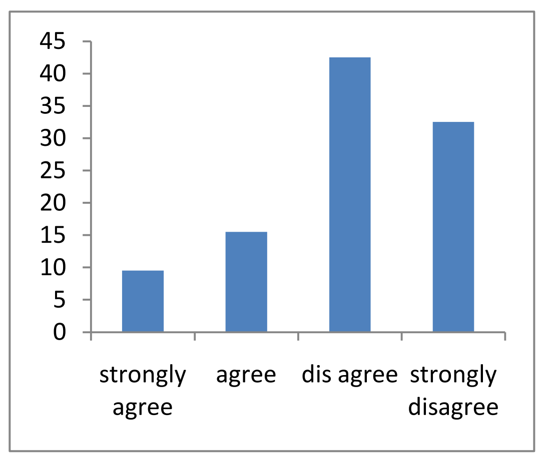



From the above table X stated that 56% of the employee are strongly agree with canteen facilities and drinking water facilities with their organization 40% of them are agree 4% of them strongly disagree.

**Table XI Personal policies of organization**

| Particulars | No of response | Percentage |
|---|---|---|
| Strongly agree | 19 | 9.5 |
| Agree | 31 | 15.5 |
| Dis agree | 85 | 42.5 |
| Strongly Disagree | 65 | 32.5 |
| **Total** | 200 | 100 |

**Fig. 11 Personal policies of organization**

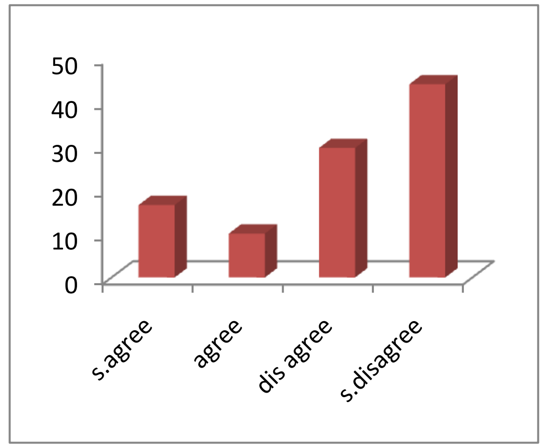



From the above table XI stated that 9.5% of the employees are strongly agree with their personal policies of organization 15.5% of them are agree 42.5% of them are disagree 32.5% of them are strongly disagree.

**Table XII Discuss personal problem with superior**

| Particulars | No of response | Percentage |
|---|---|---|
| Strongly agree | 33 | 16.5 |
| Agree | 20 | 10 |
| Disagree | 59 | 29.5 |
| Strongly Disagree | 88 | 44 |
| **Total** | 200 | 100 |

**Fig. 12 Discuss personal problem with superior**




From the above table XII stated that 16.5% of the employees are strongly agree with their superior discuss the personal problem 10% of employees are agree 29.5% of employees are disagree 44% of employees are strongly disagree.

**Conclusion**

This study is helpful to the culture and climate in Suvarna Fibrotech Pvt. Ltd., Vellore, (Chennai). This study would be helpful to understand the culture and climate of the organization. From this study it was found that the most of the employees were satisfied with their work environment. It helps to develop the organizational goal.

It also indicates that the scope for improvement in some of the areas, the researcher puts forward some suggestions in some of the areas, which may be implemented by the organization to improve further existing culture and climate in Sri Suvarna Fibrotech Pvt. Ltd., Vellore, (Chennai).

**Recommendations**

1. Organization can motive the employee for developing the skills and knowledge.
2. Based on the performance of the employees promotion can be provided.
3. Organization can conduct the career development programs for development of employees.
4. Organization can treat all the employees equally and provide salary according to their performance.
5. Employees can follow the rules and regulation of the organization.

**References**

1. K.Aswathappa HRM 5th edition pg.No.171
2. K.Aswathappa HRM 3rd edition pg.No.203
3. Harold Knootz and Heinz weihrich essentials of management and international perspective 6th edition pg.No 246
4. Harold knootz , Essentials of Management 6th edition pg.No.262
5. www.google.com
6. www.wikipedia.com
7. Luthans, Fred, Organizational Behavior, which is published by MGH.
8. Robert E. Stine, Statistics for business: decision making and analysis
9. J.K. Sharma, Business statistics: problems and solutions
10. David M. Levine, Business statistics: a first course

* * *

# Algebra of Omar Khayyam (1048-1131)

**Joyce Kuian:** Assistant Professor, Wilson College, Mumbai – 7

**Introduction**

The most important contributions of the Islamic Mathematicians lie in the area of algebra. They took the material already developed by the Babylonians, combined it with the classical Greek heritage of geometry and produced a new algebra, which they proceeded to extend. By the end of the 9th century, the chief Greek mathematical classics were well known in the Islamic world. During this time, they noticed certain geometric problems, which led to cubic equations, equations which could be solved by finding the intersection of two conic sections. During the 10th and 11th centuries, many Islamic Mathematicians solved certain cubic equations by this Greek idea of intersecting conics. But it was the Mathematician and poet "Umar Ibn Ibrahim al-Khayyami (usually known in the west as Omar Khayyam) was the most famous among them.

Al- Khyammi began his work in the style of al-Khwarizmi by giving a complete classification of equations of degree up to 3. He wrote his great treatise "Risala fi'l barahim'ala masa'il al-jabr wa'l muqabala", which systemizes algebra and was the earliest known work to relate it to geometry rather than arithmetic. In the first part of his treatise, he listed all types of equations in which no term of degree higher than three occurs. Recognizing only positive coefficients, he classified normal forms of 25 species of cubic equations. (Normal forms have positive coefficients). Eleven of these he reduced to quadratics and solved by Euclidean methods. The remaining 14 types of irreducible cubics are the following:- (1) One binomial equation $x^2 = d$ (2) six trinomial equations $x^3 + cx = d$, $x^3 + d = cx$, $x^3 = cx + d$, $x^3 + bx^2 = d$, $x^3 + d = bx^2$ and $x^3 = bx^2 + d$ and (3) Seven tetranomial equations $x^3 + bx^2 + cx = d$, $x^3 + bx^2 + d = cx$, $x^3 + cx + d = bx^2$, $x^3 = bx^2 + cx + d$, $x^3 + bx^2 = cx + d$, $x^3 + cx = bx^2 + d$ and $x^3 + d = bx^2 + cx$ and they were solved by the intersection or contact points of comic sections used for constructing these equations. For cubics of the modern form, $x^3 + b^2x = c$ (or as he wrote, cube and sides equal a number) he used a parabola and a semi-circle, cubics of the form $x^3 + ax^2 = c^2$, a hyperbola and a parabola and cubics of the form $x^3 + ax^2 + b^2x = b^2c$ ,an ellipse and a parabola.

**<u>Omar Khayyam's Rule for solving the quadratic $x^2 + px = q$ is as follows:-</u>**

Multiply half of the root by itself; add the product to the number and from the square root of this sum subtract half the root. The remainder is the root of the square.

That is, in modern notation, $x = \sqrt{(1/4p^2 + q)} - 1/2p$. By "half the root" is meant 1/2p and by " the number" is meant q. He used the equation $x^2 + 10x = 39$.

He also gave rules for other types, that, $x^2 + q = px$ being used upon the identity, $x(p-x) + (x-1/2p)^2 = (1/2p)^2$ and that for $px + q = x^2$ upon the identity, $x(x-p) + (1/2p)^2 = (x-1/2p)^2$

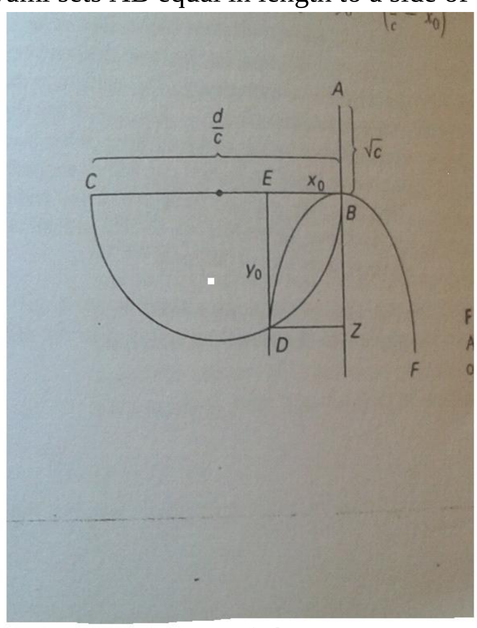
He solved one quadratic equation in modern symbols, $(100-x^2)(10-x^2) = 8100$, by the intersection of points of a circle and a hyperbola.

His treatise, the 'Al-jabr w'al muqabala was heavily influenced by the ideas and works of Al-Khwarizmi who had died two centuries before Omar Khayyam. Omar did not see all quadratic equations as instances of the single equation $ax^2 + bx + c = 0$, Instead, he divided quadratic equations into distinct types. For eg : " a number equals a square," which we would write as $x^2 = c$ , " a square and roots equal a number", which we would write as $x^2 + bx = c$ and " a square and a number equals a root," which we would write $x^2 + c = x$ . Also he made a distinction between $x^2+ bx = c$ and $x^2 + c= bx$ as he preferred to work with positive coefficients.

Omar borrowed al-Khwarizmi's examples. He used the same equation $x^2 =5x$ as al-alkhwarizmi used in his book and there are the by-now standard geometric demonstrations involving the proofs of his algebraic results.

He classified 3rd degree equations by using the same general principle that he used to classify equations of 2nd degree equations then he tried to solve them. But he became unsuccessful in finding an algebraic method of obtaining a solution. He even stated that one does not exist. In his book, al-Khayyami liked to provide algebraic algorithms for solving cubic equations. As he wrote, "when, however, the object of the problem is an absolute number, neither we, nor any of those who are concerned with algebra, have been able to solve this equation- perhaps others who follow us will be able to fill the gap" [14]

Now here we shall discuss al-Khayyami's solution of the cubic equation $x^3 + cx = d$. He conceives of the cubic equation as an equation between solids. Since x represents a side of a cube, c must represent an area(expressible as a square) so that cx is a solid, while d itself represents a solid. To construct the solution, al-Khayyami sets AB equal in length to a side of the square or $AB = \sqrt{c}$




Then he constructed BC perpendicular to AB so that BC. $AB^2 = d$ or $BC = d/c$. Then he extended AB in the direction of Z and constructed a parabola with vertex B and axix BZ and parameter AB. Similarly he constructed a semicircle on the line BC. Its eqn. Is $(x-d/2c)^2 + y^2 + (d/2c)^2$ or $x (d/c – x ) = y^2$

The circle and the parabola intersect at a point D. It is the x co-ordinate of this point, here represented by the line segment BE, which provides the solution to the equation.

He proved that this solution is correct by using the basic properties of the parabola and the circle. If $BE = DZ = x_o$ and $BZ = ED = y_o$, then first, $x_o^2 = \sqrt{c}\, y_o$ or $\sqrt{c}/x_o = x_o/y_o$, since D is on the parabola and second $xo (d/c –x_o) = y_o^2$ or $x_o/y_o = y_o/(d/c-x_o)$since D is on the circle.

So $c/x_o^2 = x_o^2/y_o^2 = y_o^2/(d/c – x_o)^2 =y_o/(d/c-x_o). x_o/y_o = x_o/(d/c-x_o)$ Then $x_o^3 = (d -cx_o)$ and hence $x_o$ is the desired solution.

Then he found a way to represent the solutions by geometry. Instead of using the segments as the Greeks had, he used numbers to describe the properties of the curves. This way he broadened the subject of algebra.

Omar Khayyam's syntheses of geometric and algebraic ideas in some were modern. When he discussed 3rd degree algebraic equations, he represented his ideas geometrically. For eg: the term $x^3$, "x cubed", is interpreted as a three dimensional cube. This gave him a useful conceptual understanding of 3rd degree algebraic equations. But this proved to be a barrier to further progress. The problem arouse when he tried to extend his analysis to fourth degree equations. As he could not imagine a four dimensional figure, his method failed. Thus he started thinking about the reality of equations of degree higher than 3.

Omar was aware of the close relationship between algebraic equations and the number system. But his narrow concept of number prevented him from identifying many solutions that Hindu Mathematicians accepted without question. There are important relationships between the degree of an algebraic equation and the properties of the number that can appear as solutions.

The work of Omar exemplifies the creative aspects of Islamic algebra. His synthesis of algebra and geometry helped him to think about algebraic questions in a new way. His work yielded new insights into the relationships between algebra and geometry. This helped his successors to investigate algebra with new tools and they attained a higher standard of rigor in the study of algebra.

Without any proof, he indicated that this class of equations always has a single solution. In other words, the parabola and the circle always intersect at one point other than the origin. The origin does not provide a solution to the problem

Thus Al-Khayyami's remark reflects the modern statement that the equation $x^3 + c\,x = d$ always has exactly one positive solution. He treated each of the fourteen cases in the same manner. In those in which a positive solution does not always exist he gives a geometric condition for the existence. Namely there are zero, one or two solutions depending on whether the conic sections involved do not intersect or intersect at one or two points with positive co-ordinates. His one failure in this analysis is in the case of the equation $x^3 + c\,x = bx^2 + d$ where he does not discover the possibility of three solutions. However, in general, he does not relate the existence of one or two solutions to conditions on the coefficients. In the case of the equation $x^3 + d = bx^2$, he noted that if $\sqrt[3]{d} = b$, there can be no solution. If x is a solution then $x^3 + b^3 = bx^2$ so $bx^2 > b^3$. Then $x>b$. Since $x^3 < bx^2$, it is also true that $x<b$, a contradiction. Similarly there can be no solution if $\sqrt[3]{d}>b$. The condition $\sqrt[3]{d} <b$, however does not guarantee a solution. He again noted that there may be zero, one or two positive solutions depending on how many times the conics for this problem ( a parabola and hyperbola) intersect.

In solving equations, al - Khayyami did not go beyond sections of curves falling within our modern first quadrant. This limiting of roots to positive real numbers was from al-Khwarizmi. Throughout his work Risala, al - Khayyami insisted that cubic equations of which the related cubic curves do not intersect have no root, while if the curves are tangential, the equation has one root and if the curves intersect in one or two points, then there are one or two roots. He did not recognise that under certain conditions cubics may have 3 positive roots. His classification of cubics and solutions with conics are highly influential.

In Omar Khayyam's work called "Algebra" he showed how to solve quadratic equations both algebraically and geometrically. His grouping of cubic equations together with prior Arabic studies of quartic equations and abstract algebraic computations, prompted him to seek an arithmetical technique for obtaining roots of cubics similar to that of 2nd degree equations. But he could not and he falsely assumed that an algebraic solution to cubic equations is not possible. Geometrically he solved cubics using a method known to the ancient Greeks, the intersection of comics. But when he tried to generalize this method to a given arbitrary cubic equation with positive roots, he stumped in his attempts to solve equations of a higher order than three. He and his contemporaries did not understand that negative solutions to equations have meaning. So he worked with positive coefficients. He wrote "No attention to be paid to the fact that algebra and geometry are different in appearance. Algebras are geometric facts which are proved" [1] . Regarding algebraic solutions of higher order equations Khayyam conceded, "It may be- - - - - - - - - that men who come after us will succeed" [11]

The Moslem Mathematicians made their best contributions in the field of geometrical algebra. But the peak being reached in Omar Khayyam's geometrical solution of cubic equations. He obtained solutions of some cubic equations algebraically. But these were all special cases in which either terms of the general cubic were missing or the coefficients were such that a solution was virtually by inspection. He rejected negative roots and often failed to discover all the positive roots. Other Arabic Mathematicians believed that cubic equations could not be solved algebraically. This view passed to Europe with the mathematics transmitted by the Arabs. However individual cubics continued to be solved. Cubic equations arouse from such problems as the construction of a regular heptagon and the Archimedean problem of cutting a sphere into 2 segments having prescribed ratio

Omar Khayyam, like his predecessors, provided solutions for quadratic equations both arithmetic and geometric. He took the praiseworthy step of generalizing the method to cover all third degree equations (having positive roots). But he did not envision similar geometric methods for equations of degree higher than three. The procedure then he applied to cubics can be stated in modern notation and concept as follows:-

Let the cubic $x^3 + ax^2 + b^2x + c^3 = 0$ If for $x^2$ we substitute 2py, then we get, $2pxy + 2apy + b^2x + c^3 = 0$, which represents a hyperbola and the equality $x^2 = 2py$ represents a parabola. Then it is clear that if the hyperbola and the parabola are sketched on the same set of co-ordinate axes, then the abscissas of the points of intersection of the two curves will be the root of the cubic equation. Many other pairs of conic sections can be used in a similar way to solve the cubic equation. As he was lacking the concept of negative coefficients he had to break the problem into many separate cases according as the parameters a, b, c are positive, negative of zero.

Al-Khyammi, unlike most of his contemporaries, was concerned with the problem of homogeneity. For this he converted all the figures involved to quantities of the same type. Thus in order to equate a number and a rectangle, the number itself was treated as a rectangle with one side of unit length. Like that if a number was equal to a cube, this meant that a cube was equal to a rectangular parallelepiped with a base equal to the square of unity and whose height was equal to the given number.

Thus the algebra developed by the Islamic Mathematicians, especially, Omar Khayyam brought much closer to a modern conception of algebra than that of the Indians. His was probably, the most rigorous of all the Arabic algebras. Another important contribution of the Arabic mathematicians was the tendency to close the gap between numerical and geometrical algebra. Omar Khayyam was moving in the direction. When he died in 1123, Arabic science was in a state of decline.

**Reference:-**

1) Amir. D. Aczel, A Strange Wilderness: The lives of the great mathematicians, Sterling Publishing Co, Inc. 2011, P-50.
2) Berggren J.L., Episodes in the Mathematics of Medieval Islam, Springer Verlang, New York, P-118-124

3) Carl. B. Boyer, A History of Mathematics, John Wiley & Sons Inc., 1968. P-264-266.
4) Dirk. J. Struik, A Concise History of Mathematics, G. Bell & Sons Ltd, London, 1954, P-94.
5) Edna. E. Kramer, The Main Stream of Mathematics, Oxford University Press, 1955, New York, P-100-101.
6) Florian Cajori, A History of Mathematics, The Mac Millian Company, New York, 1961 ed.2, P-107.
7) Graham Flegg, Numbers: Their History and Meaning, Dover Publications Inc, New York. P-196.
8) Howard Eves, An introduction to the History of Mathematics, Rinehart and Company Inc, New York, P-193.
9) Jeff Suzuki, A History of Mathematics, Prentice Hall, Upper Saddle River, New Jersey 07458, 2002, P-255-258.
10) John Tabak, The History of Mathematics Algebra: Sets, Symbols and the language of thought, Vol. I, Viva Books Private Limited P-56-59.
11) Ronald Calinger, A contextual History of Mathematics to Euler, Prentice Hall, Upper Saddle River New Jersey 07458, 1999 P-343-346.
12) Smith D.E, History of Mathematics, Dover Publications Inc, New York 1958, Vol. II P-442, 447-448, 456.
13) Vera Sanford, A Short History of Mathematics, George. G. Harrap, London, P-169.

Victor. J. Katz, A History of Mathematics: An introduction, Harper Collins College Publishers, 1993. P-242-245

* * *

# Value Education and Its Importance Today: An Empirical Study

**Honey Premendra:** Senior Research Fellow, Department of Education, University of Allahabad, Allahabad (U.P.)

**Abstract.**

Although, the world is today facing the crises of monumental proportion of deteriorating human values. The additions of rapid scientific and materialistic medium in almost all the aspects of life has somewhere affected human character, values and virtues in all the parts of world. But in India, still the proportion of being 'valued' and 'ethical' have a large importance in all the aspect of life. In our daily life, we witness moral value disappearance in all fronts, in public as well as in personal life.

Every now and then, activities like terrorism, rampant corruption, wise spectrum of anti-social activities and war makes us to think about the place where we are trying to take humanism with all these human activities changing role of information and misinterpretation of the data in such a way that it leads to the further disaster have brought the world at the brim of disaster and destruction. Human activities conducted by human beings has led to a dramatic change in human value and ethics which ultimately effects the most importance element needed to for human being i.e. values of being human. Is there is any method, which can be used by human being to retain previous values and tradition of this world which again lead it to its Golden Age for which it was famous for. No doubt, the path which can lead the percent destructing world on the path of value, progress peace and harmony is only and only, good Education.

Good education can be defined as the education in which teacher teaches their children the method of achieving values, ethics, world peace, destroys narrow mindedness and prompts unity, equality and peaceful co-existence among human being globally. Education is the process of steady blossoming and awakening of inner-resources of strength endurance peace values and loves, so that a person becomes capable of going of through life and meeting its challenges with equanimity.

***Key Words***: Educational Values, Professional Ethics, Education.

**Introduction-**

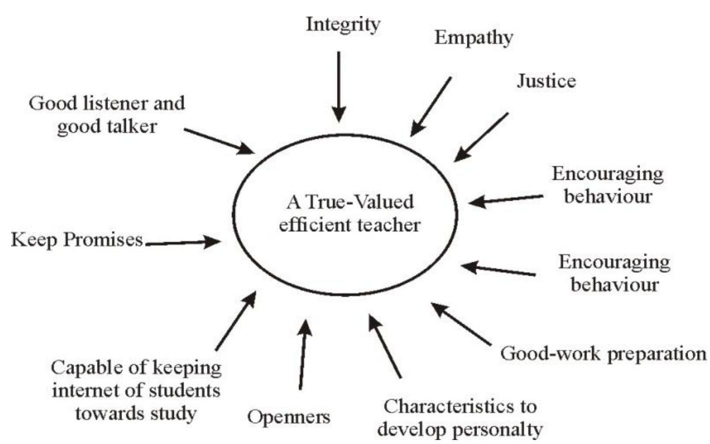
Good education should not only serve to develop one's intelligence and skills, but also helps to broaden one's outlook and makes him useful to society and the world at large. Basically the principle of good education is based on five human values of Truth, Right conduct, Peace, Love and Non-violence and all these values can only and only be cultivated by providing an individual a good education, which can the imparted by a good teacher only. Further education has two aspects, the first is related to external and worldly education, sometimes referred to as Bookish knowledge. The technological advancement and achievements of the modern age are as a result of this aspect of education whereas, the second aspect is education is related to human values which includes putting in the values which are essential for any human being characters like love, peace, truth, right conduct, non-violence etc. All this can only be achieved with the help of a good teacher.

A good teacher is not only a prime human aspect of teaching learning process but, the efficiency of an educational system depends largely upon the efficiency of its teacher. The quality of education imparted to children depends to a large extent on the quality of teacher in our school environment. Quality and efficiency of a good teacher not only awakes learning of pleasure and joy only but the sense of the responsible towards society and its country. Teacher should use innovative techniques to make the course interesting for students and to cultivate the characteristic of values, peace, harmony, co-operation brotherhood and this change in character imparted by a teacher is a prime demand of knowledge and this decides role, which the child is going to play in the near future.

According to the changing scenario, not only students of a school but also the teacher should be provided with the special teacher education which plays an important factor, responsible for the reincarnation of value education not only in one country but in whole world. The well efficient teacher and teacher education can be considered as two inseparable elements of imparting value education, which always leads any country on the path of peace and harmony. That some how these two, teacher and valued. Teacher Education possesses a large gap in between them because of a reason or other. Generally, teacher works in isolation become of various reasons and because of wrong curriculum or wrong execution of right curriculum it become impossible to a teacher to attain the goal for which this programme or curriculum was designed.

Here the question arises, why the teacher education and that should specialized value education should be provided to teacher to cultivate the characteristics responsible for world peace and harmony?

A valued teacher hold an important, critical and direct role in making a formal education system effective and bringing the quality product for the system and thus teacher education in responsible for producing not only professionally qualified competent teacher that also the teacher who are capable of imparting basic value to convert a man into human being.




**Some desirable values in teachers**

In summarized form, a teacher is the only person who can develop the feeling of Peace and Harmony in any person and this capability can only be achieved by specialized Teacher's Value Education programme.

**The teacher's professional ethics should include the following:**

(i) The first and the foremost, it should be able to understand the importance of child.
(ii) Teacher should provide education with love and sympathy.
(iii) Teacher should act as a guide and adviser of child.
(iv) Teaching should be organized around child experience and child centered teaching should be practiced.
(v) To beat child during education programme should be considered as an offence to a teacher.

Thus it can easily be concluded that it is only the teacher who can provide it students not only the teacher value but also the basic plan and working pattern which can take them on the right path of success. A well value based teaching done by a teacher not only provide essential and moral support to childrens but it also helps to cultivate the healthy feeling of competition in student to deal efficiently with be changing environment and problem of life In our day to day life, the world around us is changing so rapidly that sometimes it seems difficult to keep pace with changes and adjust according to the changing situation and in the situation like this it is very important to have a person who can not only show us the path of success but also guide us form the wrong path.

There are numerous moments in our life, where we feel helpless in solving on own problems it may lead to the serious consequences of disequilibrium. One of the helping hand in situation like this may be of a ideal teacher who can help there students not only psychological but also can tell him to deal with the serious problems of life. And these are the special moments of life where a true value of human being can he developed which can itself guide any person throughout his whole life.

Thus we can summaries that it is the only teach who can not only guide his students from the problem but can help in inoculating the true values of life for an ideal life. Generally it is believed that all the teacher possess teaching values along with the teaching skills which directly on indirectly is reflected in his teaching. These teachers are the only person who can transfer their teaching values to their students only if they possess teaching value in them only. These values then work as the fundamental base of setting value aspect of the world.

Thus researcher has decided to conduct empirical study to find out the teaching value difference in the teacher of today's time. There teachers value are the only method to set whole world on be path of peace and harmony, it is very important to know that the people who are hold responsible to impart there value in main younger generation itself have there value or not. Hence the following study has been taken up on following 4 dimensions having 28 items :

| S.No. | Dimension | Item No. |
|---|---|---|
| **(i)** | Aims, objective and need of Teacher-values | 1-8 |
| **(ii)** | Curriculum and Teacher-value Education. | 9-14 |
| **(iii)** | Teacher-students Relationship. | 15-21 |
| **(iv)** | Disciplines and Educational Institute. | 22-28 |
| | Total Items | 28 |

**The objective of the study:**

The present study was taken up with the following objective:

*"To compare the Educational values of Male and Female teacher of senior-secondary school of Allahabad district"*

**Hypotheses:**

Following hypotheses were tested:

(1) There is no significant difference in Aims, objective and need of teacher values in male and female teacher of senior secondary school.

(2) There is no significant difference in values of curriculum and teaching value education in male and female teacher of senior secondary school.

(3) There is no significant difference in importance of Teacher-student relationship in male and female teacher of senior secondary school.

(4) There is no significant difference in importance of discipline and educational Institution in male and female teacher of senior secondary school.

**Sample:** Researcher had decided to take 52 senior secondary schools teachers of Allahabad district by random sampling method of different schools, among which 25 were male teacher and 27 were female senior secondary school teacher of Allahabad district.

**Tools used-** Researcher has decided to construct a self-made opinionair based on *' Lickert 5 point scale'* system on which teacher has to mark their opinion about teacher values, based on four dimension having 28 items.

**Data Analysis:**

Mean, Standard Deviation and t-ratio were used to analyze the data.

**Results and Discussion**

The data collected by the opinionair based on 4 dimension was analyzed separately and following and results were obtained which can be show in the following taken as below:

**Table -1 -**

**Mean, SD and t-ratio showing the difference in Male and Female teacher with respect to Aim, Objectives needs of teacher value:**

| | Male Teacher | Female Teacher | Mean Difference | t-value | table value | Inference obtained: |
|---|---|---|---|---|---|---|
| | $N_1$=25 | $N_2$=27 | | | | |
| | $M_1$ $SD_1$ | $M_2$ $SD_2$ | | | | |
| **Aims, objectives and need of teacher, value** | 17.28 2.86 | 20.61 3.23 | 0.86 | 3.86 | 2.68 | Null hypothesis rejected |

(Significance level 0.01)

Thus the table shows that on this dimension i.e., *Aims, Objective and Needs of teacher values of Male and Female teacher of senior secondary school of Allahabad*, the mean and standard deviation is found to be 17.28, 2.86 and 20.61, 3.23 respectively. Where as the mean difference on this dimension if found to be 0.86 and t-value is found to be 3.86, which is significant at 0.01 significance level Thus null hypothesis stated above can be rejected. And it can be inferred that the Female teachers are more conscious in Aim, Objective and Teachers value in comparison to their male counter parts.

**Table 2 -**

**Mean, SD and t-ratio showing the difference in male and female teacher with respect to curriculum and teacher value education.**

| | Male Teachers | Female Teachers | Mean Difference | t-value | table value | inference |
|---|---|---|---|---|---|---|
| | $N_1$=25 | $N_2$=27 | | | | |
| | $M_1$ $SD_1$ | $M_2$ $SD_2$ | | | | |
| **curriculum and teacher value education** | 10.86 2.96 | 17.40 4.42 | 0.92 | 4.62 | 2.68 | Null hypothesis rejected |

*(significance level 0.01)*

Thus, the table shows that on this dimension i.e. *Curriculum and Teacher value education it of Male and Female teacher of senior secondary school of Allahabad*, the mean and standard deviation is found to be 10.86, 2.96 and 17.40, 4.42 respectively. The mean difference on this deviation if found to be 0.92 and t-value is found to be 4.62, which is significant at 0.01 significance level. Thus null hypothesis stated above can be rejected. And it can be inferred that the Female teachers are more conscious in Curriculum and Teachers value education in comparison of their male counter parts.

**Table 3 -**

**Mean, SD and t-ratio showing the difference in Males and Female teachers with respect to Teacher-Student Relationship.**

| | Male Teachers | Female Teachers | Mean Difference | t-value | t-value | inference |
|---|---|---|---|---|---|---|
| | $N_1$=25 | $N_2$=27 | | | | |
| | $M_1$ $SD_1$ | $M_2$ $SD_2$ | | | | |
| **Teacher-Student Relationship** | 35.04 3.46 | 35.20 4.01 | 1.07 | 0.14 | 2.68 | Null hypothesis accepted |

*(significance level 0.01)*

Thus, the table shows that on this dimension i.e. *Teacher Students Relationship Male and*

*Female teacher of senior secondary school of Allahabad,* the mean and standard deviation is found to be 35.04, 3.46 and 35.20, 4.01 for Male and Female teachers of Senior Secondary School of Allahabad district. Where as the mean difference on this dimension if found to be 1.07 and t-value is found to be 0.14, which is not significant at 0.01 significance level. Thus null hypothesis stated above can be accepted. Thus it can be inferred that the Female and Male teachers of Senior Secondary School of Allahabad district do not have only significant difference with respect to Teacher–Student Relationships.

**Table 4 -**

**Mean SD and t-ratio showing the difference in Male and Female teacher with respect to Discipline and Educational institutions.**

| | **Male Teachers** | | **Female Teachers** | | **Mean Difference** | **t-value** | **table value** | **inference** |
|---|---|---|---|---|---|---|---|---|
| | $N_1$=25 | | $N_2$=27 | | | | | |
| | $M_1$ | $SD_1$ | $M_2$ | $SD_2$ | | | | |
| **Discipline and Educational institutions** | 12.25 | 3.68 | 19.86 | 4.41 | 0.89 | 4.46 | 2.68 | Null hypothesis rejected |

*(significance level 0.01)*

Thus, the table shows that on this dimension i.e. *in Relation to Discipline of Male and Female teacher of senior secondary school of Allahabad,* the mean and standard dimension found to be 12.25, 3.68 and 19.86, 4.41. respectively. Where as the mean difference on this dimension if found to be 0.89 and t-value is found to be 4.46, which is significant at 0.01 significance level. Thus null hypothesis stated above can be rejected. Thus, it can be inferred that the Female teachers are more conscious about discipline and Education institution values man their male counterparts.

Thus, on the basis of opinion taken from teacher from senior secondary school of Allahabad District it is revealed that overall, the Females of teacher of Allahabad District have higher and better teaching value than their male counterparts. It also indicates that there might be some downfall in teacher value in males teacher of Allahabad district at senior secondary level in compassion of their female counterparts. There can be number of reasons related to psychology and related to main working areas of these teachers which can create there difference and a much detailed study can be made in there reference.

Findings of Surendra Kumar (2008) partially supports the finding of researcher whereas the nutshell finding of R. R. Singh (2003) supports the result of Females having more values and ethics than their male counterparts. The dissertation of Carnegie (1994) and more or less and all the books based on value education support the facts that Female are comparatively more value based, less susceptible to the change in their value and beliefs than their male counterparts which supported the study of researcher in more or less all dimensions.

**Suggestions:**

1. Home is considered as the first school of any child so, their first teacher, their parents, have to take responsibility of imparting value education to their child.
2. Implementation of Value added specialized programmes supported at international level and by organization like UNESCO etc should be organized more frequently.
3. Present education curriculum should include value education and value acquisition as regular curriculum programme.
4. Imparting value education at school level should also be conducted by the help of special programmes at regular interval of time.
5. Implementing Pre-service and In-Service Value based training programme for teachers in-service and before service.
6. Refresher courses that enable teachers to keep abreast of progress in Value based education should also be include.

7. Organizing workshops should be done, that gives opportunity for individual and group activity along with value exchange among participants along with the promotion of fellow feeling, inculcation of democratic procedure and for broaden teachers outlook.
8. Proper importance should be given to seminars and group discussions which provides opportunity for friendly exchange of ideas and inculcate positive zest of values, work and confidence in teachers.
9. Lectures by experts on value education which can provide specialized information.
10. And last but not the least, a clear well defined delimitations should be made by teachers and parents in between imparting value education to their children and imparting orthodoxy to their childrens.

Values play an important role of motivating life on various factors whereas orthodoxy is somewhere a barrier in progress of not only any individual but for the whole society. Thus, a clear differentiation should be taught by the teacher, in between the two.

**References:**


- *Buch, M.B. (1997);* V Survey of Research in Education, Delhi, NCERT.
- *Panday, R.S. and Misra K.S.* (1991), Value teaching, Agra Vinod Pustak Publication Agra.
- *Mishra, Usha* (2009), Educational sociology Allahabad, New Kailash Publication Allahabad.
- *Upadhyaya, Pratibha* (2005) Bhartiya Siksha Mein Udayiman Prarastiya, Allahabad, Sharda Pustak Bhawan Publication, Allahabad.
- *Gupta, S.P.* (2008); Advanced Evaluation and Measurement Allahabad, Sharda Pustak Bhawan.
- *Ghosh, S* (1986), National Framework for value education, Department of Education, science and Training Jabalpur.
- *Krathwohl, D. Bloom, B and Maria, B.* (1964). Taxonomy of education objective hand book II affective domain. New York Mckay.
- *Blook, B.(ed)* (1956) Taxonomy of educational objective: Book I cognitive domain London : lorgman.
- *Carnegie* (1994), Dissertation, Association for Research in Education and Australian Association for Research in Education conference, Auckland.
- *Singh, R.R.* (2003) teacher makes a difference: Research evidence, Research paper presented in National seminar of Kota, Rajasthan University.
- *Kumar, Surendra* (2008) Samajik roop se Vanchit Snatak star ke Chataron ke mulyaon ka Addhyan, Dept. of Education, Allahabad University, Research paper presented in National seminar.


* * *

# Study of the Influence of Utilization of Learning Facilities on the Achievement of the Rural Students of XII Standard of Science Stream

**Pragnesh Sathawara:** Department of Education, JJT University, Jhunjhunu, Rajasthan

**Abstract**

. The achievement of the students in the H.S.C. Examination is decisive for their choice of caree and seeking admissions in the courses of their choice. The investigator had some questions regarding the problem of the achievement of rural students of higher secondary school. Therefore, this study deals with finding out the possible reasons behind these shortcomings of the students who belong to the rural background. By discussing with many students of the past years and present year of some schools, the instigator came to know that the latest and real knowledge providers like library, coaching centers, quality teachers and internet facilities are not freely accessible to the students of the rural background due to various reasons, that may lead to poor performance in the examination.

In the present study, the investigator tried to find out reasons for the poor performance of the rural students using a Questionnaire on a sample of eighty students. Treating the Experimental group of forty students with motivational programme for utilizing the learning facilities available in the school library, the results were obtained to know the influence of utilization of learning facilities in the school library.

The result of the investigation shows that the effective utilization of the existing library facilities is more than sufficient to score high percentage in the competitive examination of medical and engineering. But in order to utilize the library facilities in effective manner students should be motivated to an extent. Teachers play an important role in the motivation. Along with teachers, the school management and government bodies should be co-operated in this movement.

**Key words: Learning facilities, achievement**

**Introduction**

Education at higher secondary level is the most important phase of students' life as it decides the students' career and becomes the base of their life. The achievement of the students in the H.S.C. Examination is decisive for their choice of caree and seeking admissions in the courses of their choice. The investigator, being a teacher in the Higher Secondary School and teaching the students of science stream, felt that most of the students of Science Stream in the Higher Secondary School belong to villages. During their study for H.S.C. Examination, they also prepare for their CET (Common entrance test). Besides, some of the students rely on personal tuitions and some on the coaching classes. It seems to be very difficult for rural students to achieve the higher results with poor facilities and unawareness of utilising the available resources. This inspired the investigator to find out the possible reasons behind this shortcomings of the students belong to the rural background. By discussing with many students of the past years and present year, the instigator came to know that the latest and real knowledge providers like library, coaching centers, quality teachers and internet facilities are not freely accessible to the students of the rural background due to various reasons, that may lead to poor performance in the examination.

The investigator had some questions regarding the problem of the achievement of rural students of higher secondary school. The questions were as follows:

- Is it true that the performance of the rural students of science stream of higher secondary school is poor?
- Is the poor performance due to the lack of utilisation of facilities to acces knowledge?
- Is it due to the lack of utilization of library facility to a satisfied level?
- Is it due to the lack of motivation of the students to utilize the available facilities in the present surrounding?

- To have the solution of such questions in a scientific way, the investigator was inspired to undertake a research to find out how to utilize the library facility effectively to improve the overall performance of the rural students of science stream in H.S.C. Examination and competitive examinations at various levels.

**Rationale:**

In order to acquire better out put from library, the students must be introduced to the techniques of good learning. Simple reading is different from learning. Learning must be response strengthening, lead knowledge acquisition and knowledge construction (Mayer, 1992).

The present investigation tried to find out some solution for the shortcomings in the rural students in learning and poor scoring in the examinations. The major shortcomings in the rural background are the poor access of the latest knowledge and lack of better coaching facilities and reluctance of students, to utilize the available facilities to maximum. Motivating the students to utilize library, teachers and other facilities available in the school, the results of the rural students can be improved. Thus the study will be helpful to the teachers, students, school managements and other persons dealing with education field.

**Statement of the Problem:**

Study of the Influence of Utilization of Learning Facilities on the Achievement of the Rural Students of XII Standard of Science Stream

**Definition of Major Terms:**

**1 Study**

The word 'Study' here means compilation of information about the influence of utilisation of learning facilities on the achievement of the students of XII standard of science stream.

**2. Utilisation:**

Utilisation means proper and perposive use

**3. Learning facilities:**

Here learning facilities are those, which are available in the school library.

**4. Achievement:**

Students score on self-constructed test.

**Objectives**:

The present study was undertaken keeping in view the following objectives.

1) To study the influence of utilisation of learning facilities on the achievement of the rural students of Std. XII of the science Stream.
2) To compare the achievement of the students of control group and expeimental group

**Hypotheses:**

**1)** There will be no significant difference between the mean score of achievement of control and experimental groups.

**Delimitations of the Study:**

1. This research study was conducted on the students of XII standard studying in Gujarati Medium Schools in Mehsana City in Gujarat.
2. The study was limited to the Gujarati Medium Schools in Mehsana city following the course prescribed by the State Government of Gujarat.
3. Four Gujarati Medium Schools with Library facility and eighty students studying in XII standard comprised the final sample.

**Methodology:**

This was an experimental research with Pre-test, Post-test Equivalent Groups Design. Pre-test was used to equalize two groups, that is, experimental and control groups and post - test was used to collect the necessary data from both the groups.

**Sampling Design and Sample:**

Purposive sampling was used to select rural students of Std.XII of science stream in the Schools of Mehsana city. Two schools were selected randomly as Experimental Schools and two were retained as control schools. All the students studying in XII standard of these schools were drawn for the study. Eighty students (forty one to one matched pairs of students of experimental and control groups) comprised the final sample.

**Tools Used for Data Collection**

For this study following tools were used to collect the necessary data.

1. Questionnaire to know the reasons of the poor results of the rural students
2. Pre - test was used to equalize the two groups
3. Post test
4. Motivational programme for the students for utilisation of the learning facilities of the school library.

**Procedure of Data Collection:**

Following procedure was used to collect the data.

1. Questionnaire had been adnistered to know the reasons for the poor results of the rural students.
2. Pre test was prepared, validated, administered and assessed to equalize the groups.
3. Motivational programme was conducted to utilise the learning facilities of the school library
4. Post test was prepared, validated, administered and assessed to collect the Data.

**Data Analysis:**

Data collected through Questionnaire was analysed using percentage of the responses. Data, in the form of post test scores of both the groups was analyzed by using MS-Excel. The statistical techniques like mean, variance and 't ' test were used to test the influence of utilisation of learning facilities on the achievement of the students.

The data collected to test the influence of utilisation of learning facilities on the achievement of the students for this study has been presented in Table No. 1.

**Table No. 1**

**Comparison of Sample for Experimental and Control Group of XII Standard in the Post Test Score by Using 'T' Test**

| Sr. No. | Post Test | N | Mean | Variance | df | t Values | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Table t values | | Calculated t Value |
| | | | | | | At 0.05 level | At 0.01 level | |
| 1. | **Experimental Group** | 40 | 16.475 | 6.563 | 78 | 1.99 | 2.64 | 7.91 |
| 2. | **Control Group** | 40 | 12.025 | 6.076 | | | | |

**Observation and Interpretation:**

Table No. 1 shows the comparison of (mean, variance and t values) of scores of post test of experimental and control groups of XII standard.

From table No. 1, it is observed that, the mean of the scores of post test of control group was found t be 16.475 and variance was 6.563 and the mean of the scores of post test of control group was found to be 12.025 and the variance was 6.076.

The calculated 't' values between the mean of the scores of post test obtained by experimental control group was found to be 7.91, which is greater than the table 't' value 1.99 at 0.05 level of significance as well as 2.64 at 0.01 level of significance for df 78. Therefore, the difference between calculated 't' value and table 't' values is significant. Hence, it is concluded that, the scores of the post test of the experimental group are significantly higher that the score of the post test of the control group.

Therefore, it can be said that, the influence of utilisation of learning facilities on the achievement of the students for the study have shown favourable effects on the scores of post test obtained by the experimental group of XII standard in the post test.

**Conclusions**

The results of this study showed that:

1) The overall results shows that the poor performance of rural students is due to the lack of facilities that are available in the urban area, like lack of accessibility of latest knowledge, lack of interest in library facilities, lack of good coaching classes and lack of educational surroundings that motivate the students to achieve the better performance.
2) The overall performance of the students who utilized library facility is better than who did not use library facility.
3) The utilisation of learning facilities of the school library was found to be influencing.

**Suggestions**

1) The schools should organize lectures/workshops for their teachers to enable them to develop motivational skills for improving the quality of utilisation of the learning facilities available in the school.
2) The students should acquire the knowledge and skill to utilise the learning facilities of the school library.
3) The state Government of Gujarat should assist the schools to avail more learning facilities to be helpful to the poor students coming from the villages.
4) A separate library section for competitive examinations like "guidance center", "educational counseling center", 'carrier advisory center' etc must be set up to solve the problems of the students in the rural areas.
5) The results of the present investigation can open the eyes of many rural educational institutes to plan their programme and advise their teaching community to upgrade the student's performance in the future by adopting the strategies mentioned in the investigations.
6) The schools should provide a healthy surrounding in the library, soft spoken and polite librarian and internet set up if possible.
7) Government policy makers can also refer these findings as warning signals to plan their educational programs.

**References:**

1. Clymer, T, 1988. "What is Reading? Some current concepts". In H.R. Robinson (Eds.), Innovation and Change in Reading instruction -67th Year book. Illinois NSSE.
2. Davis and Hult, R.E, 1997. Effects of writing summaries as a generative learning activity during note taking. Teaching of psychology, 24, 47-49.
3. Di Vesta, F.J, and Gray, G.S, 1972. Listening and note taking. J Edu Psych, 63, 8-14.
4. Kiewra, K.A, Dubois, M.F, Christensen, M Kim, S.I and Lindbergh, N, 1989. A more equitable account of the note taking functions in learning from lecture and fro text. Instructional Science, 18,217-232.
5. Meckon, R, 1979. "Pride and Prejudice: Thought, characters, arguments and plot" Critical enquiry. Spring, 511-527.
6. Tam, M, 2000. Constructivism, Instructional design and Technology, Implications for transferring distance learners, Educational Technology and Society, 3(2), pp2000.
7. Tsur, R, 1970. "Learning and Literature" In the structuralism controversy. R. Macksesy and E. Donot (Eds.). Baltimore John Hopkins University Press.
8. Vanmeter, P, Yokoi, I and Pressley, M 1994. College students' theory of note taking derived from their perception of note taking. J Edu Psych, 6, 323-338.
9. White, H, 1979, Topics of discourse. Essays in criticism. Baltimore John Hopkins University Press.

* * *

# Just In Time in Pharmaceutical Industry

**A. C. Sukhtankar:** Research Scholar, J J T University, Rajasthan
**Dr. Subhash P. Desai:** Research Guide, J J T University, Rajasthan

**Abstract**

Just in time is the name given to Toyota Production System developed by Taiichi Ohno . JIT is sometimes referred to as lean production manufacturing. The term focused factory, demand flow technology is also referred for JIT.

JIT manufacturing has become a management philosophy that seeks to eliminate all forms of waste in manufacturing processes & their support activities. JIT permits the production of only what is needed, when it is needed & only quantity needed. This has to apply not only to the JIT manufacturer but also to its suppliers if the system has to eliminate all possible waste.

In JIT, no step of production process ever overproduces or produces before a demand is made. Thus, there is no need for a "waiting area" or unnecessary movements of materials into ,in & out of it; account for it & so on. The money is not locked up in the raw materials inventories or in WIP or even in Finished Goods. There is no storage, noobsolescence or spoilage. JIT emphasizes on elimination of wastes. Elimination of wastes is transferred to improved quality & lower costs, making a firm more competitive.

**Key Words** :

| | | |
|---|---|---|
| **AIOCD** | : | All India Organisations of Chemists & Druggists. |
| **GMP** | : | Good Manufacturing Practises |
| **ISO** | : | International Standards Organisation |
| **TQM** | : | Total Quality Management |
| **JIT** | : | Just In Time |
| **QC** | : | Quality Control |
| **WIP** | : | Work In Process |

Taiichi Ohno identified 7 wastes in "Mass Production"

- Waiting (time)
- Transporting
- Overproducing
- Process itself
- Unnecessary inventories
- Producing defective goods
- Unnecessary motion

**Mass Production**

- It is a Push System
- Marketing forecast is a basis to produce quantity, in turn buy raw materials,parts are purchased, stored, forced into the front end of production process.
- The process pushes each succeeding step, until finally finished products are made.
- Finished products await in Godown/ Distibution Center for further pushing at retailers stores.
- Actual orders are awaited.
- Real customer is not known.
- No real relationship exists between customer & supplier.

**JUST IN TIME**

- It is a Pull System.
- Even though a great deal of market research is done, production schedule does not originate in a market forecast.
- Customer places actual order, the production demand starts from that point.

- Demand is made on final assembly process.
- Operators of process in turn place pull demands on preceding process.
- Cycle's demand is felt throughout the process.
- Cycle is repeated until finally pull demand reaches back to material & parts.
- Real relationship exists between customer & supplier.

JIT implementation is successful in few industries, mainly in automobiles, engineering & to certain extent in consumer manufacturing units.

JIT implementation is not easy to implement in totality in Pharmaceuticals industry due to inherent obstacles. The major obstacles being Regulatory requirements, FDA rules, Quality control methods of testing & the required lead time for all these, warehouse & its requirements, strict observations of Good Manufacturing Practices (GMP) & testing at every stage i.e. Raw materials, WIP(at every stage of WIP) & finally Finished Product.The **CONSTRAINTS to** implement JIT in Pharmaceutical industry are elaborated below:

- **Vendors:** They are scattered all over India. Major vendors supplying high value---low volume, items in all probabilities may not be available near manufacturing vicinity.
- **Raw Materials/ Packing Materials:** These stocks are to be kept in separate stores and under separate quarantine labeled as "UNDER TEST", until Quality approval takes place. Once approved, the material could be stored appropriately.
- **QUARANTINE:** Firm needs to demarcate space particularly for incoming materials & keep it in this separate marked space, for Quality Approval, prior to storing it.
- **QUALITY (Analysis):** The lead time for Quality approval would vary between 1 day to even 15 days, depending upon various tests. Analysis required to be done at many stages RMs, WIP, FGs.

**Variety of Material**

In pharma industry, various types of raw materials such as Bulk Drugs, Intermediates, colours, essences, flavours, excepients, waxes, acids & alkalies, coating materials are being used. Packing materials like bottles, shippers, vials, pp caps, cartons are used.

All these materials may not be vailable at one's beck and call.

**Push System**

Pharma industry in India (even globally), works on Push system only. The Indian Pharma market is of Rs. 80,000 crs. & above (ref. AIOCD report 2012). It's growing at the rate of 15-16% per annum.

One can only imagine, the inventory lying at the market place—wholeseller, dealers, retailers, transporters & with various manufacturers at various stages—RMs, WIP, & finished goods. The major impact of all these will be on inventory carrying cost & in turn on obsolescence, expiry of medicines, deterioration, spoilage etc.

**JIT for PHARMA Industry**

The traditional way of JIT will not work in Pharma Industry due to constraints as mentioned above. However, one can try in the following manner:

- Select few materials at initial stage & few reliable suppliers for the same, get a success & then expand.
- Materials for JIT could be selected on the following critera:
- 1 High value-low volume
- 2 Low value-High volumes e.g. Glass bottles, Pet bottles, shippers, ampoules, vials, plastic items such as cups, spoons etc.
- 3 Approved suppliers must be in the vicinity of 15 to20 Kms. maximum, where travel time does not go beyond 2 hours or so.
- 4 Suppliers are selected on the basis of their audit, validation, GMP, ISO, TQM certification, etc.
- 5 Dedicated transport needs to be arranged for JIT items, else supplier should be instructed.

- 6 Demand for materials is fairly constant.
- 7 Lead time for QC analysis should be 1 or 2 days maximum. Thus materials could be released to production quickly, as per requirement. The RM inventory turnover would be faster.

**Process for JIT**

**Suppliers:** Buyers needs to have thorough discussions and understanding with JIT suppliers. The impact of failure in terms of rejection of lots or delay in delivery should be emphasized.

**Employees:** Awareness and proper communication required to be in the firm. Obviously all employees need to be trained & culture required to be developed. It is worth distributing booklets in regional language, to make workers understand more about JIT and its benefits.

**Accounts**: Payment to JIT suppliers should be done promptly as per the terms.

**Stores**: Daily update of stocks is required to be complied accurately, which needs to be coordinated with concerned JIT buyer.

**Management:** Top management should take cognizance of JIT implementation, motivate and support team of employees.

For successful implementation, manager requires to drive out fear, continuously improve, train and motivate employees. Institute leadership, learn from mistakes/failures, improve and take appropriate action to accomplish the task.

The benefits of JIT implementation (eventhough partly implementation) is, inventory turnover is faster, especially large volume items. No need to keep stocks of 30-45 days instead, 3 to 4 days at the maximum. The culture is developed within organization which would reap the benefits. One can practice JIT by working with 3 “Fs”, FREE, FRANK, & FEARLESS.

References: (1) Just in Time for Today and Tomorrow---Taiichi Ohno
(2) Just in Time at Toyota----David Lu

* * *

# Supply Chain Management Issues and Challenges --- A Manufacturing Perspective

**S. Rajagopalan:** Research Scholar, JJT University, Rajasthan
**Dr. Subhash P Desai:** Research Guide, JJT University, Rajasthan

**Abstract**

Managing Supply Chain even in normal times poses several issues and challenges to the supply chain managers, particularly in the manufacturing sector. The supply chain in manufacturing does not end with the delivery of products to customer but extends to reverse flow of materials from the point of consumption to the point of origin. Increased global competition, shortened product life cycles, changing trends of requirements of customers, tightening of environmental regulations –all these contribute to the complexities of Supply Chain Management (SCM) in the manufacturing sector. More companies are contemplating implementation of environmentally sustainable practices internally and in coordination with other firms along their supply chains. Further, risks in supply chains represent one of the major business issues today. In this article, an attempt is made to identify some of the major issues and challenges of SCM in manufacturing sector and to analyse and suggest possible courses of actions.

**Key words:** Supply Chain Management – manufacturing sector - Reverse supply chains --- product life cycle --- environmental regulations --- global competition – Closed Loop Supply Chain – Risks in SCM – Remanufacturing

**Introduction**

A Supply Chain (SC) is a connected series of value activities concerned with planning, controlling of raw materials, components, and finished products from suppliers to final customers. Supply Chain Management (SCM) is the management of activities that transform raw materials into intermediate goods and final products, and deliver them to customers. In the manufacturing sector, this chain extends beyond the customer and includes reverse flow of materials to the point of origin. The processes in the organisation include internal feedback as well as external feedback to suppliers.- as illustrated in Fig. 1 below:

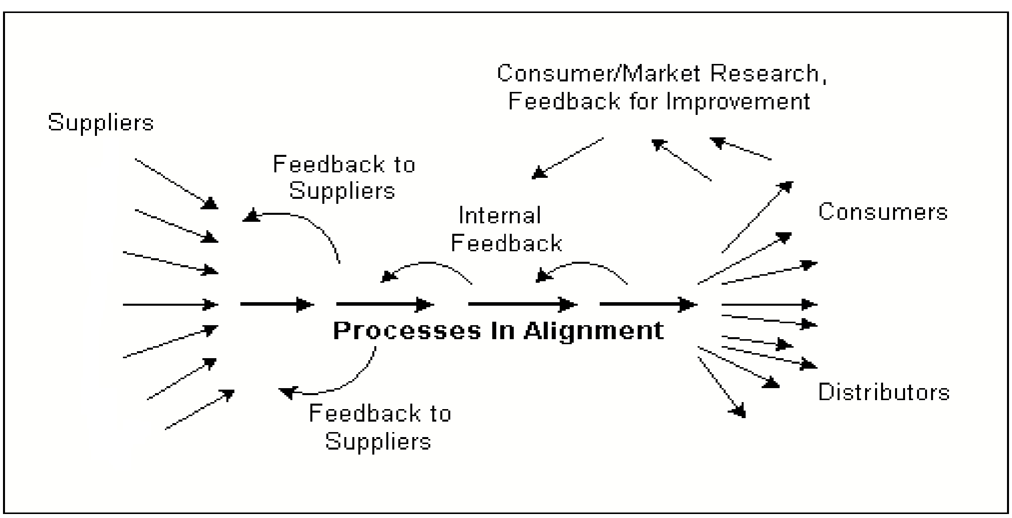



Fig. 1 – View of the organisation processes
(Adapted from Deming, 1986)

SCM offers opportunity to firms to look beyond their own organisation and collaborate with supply chain partners for mutual benefit. The SCM concept originated from the recognition that the process of transforming raw materials to finished products is becoming increasingly complex. In today's manufacturing environment, globalisation policies have created more intensive competition among manufacturers. Any improvement of individual SC entity does not lead to improvement of SC as a whole. Competition in the manufacturing environment has shifted from individual firms to their respective supply chains. Most companies, customers and suppliers are in connection with each other like a chain and the key to success is to have an efficient SCM. The network of manufacturers and distribution facilities are often scattered around the world. Some of the issues and challenges of SCM in manufacturing sector are discussed below.

**Supply Chain Management – Issues and Challenges**

Every SC faces certain barriers. These barriers are not only between internal departments and business processes, but also across companies within the whole SC. These barriers need to be broken down for successful implementation of SCM. There is need to develop a challenging new culture based on empowerment, on-going and shared learning and continuous improvement. The challenge is also linked with the emergence of network organisation which can lead to a complex web of linkages to be coordinated and managed. There could be lack of common purpose, multiple and hidden goals, power imbalances, culture and procedure, conflict over autonomy and accountability, over-dependence, and lack of openness and opportunistic behavior. All these barriers need to be managed effectively to ensure achievement of common goals of the SC.

**Issues in Supply Chain**

SCM encompasses planning, manufacturing, and operations management necessary to bring a product to market place, from the sourcing of materials to the delivery of the completed product. Some of the issues that need to be managed in supply chain are listed below:

***Information Technology and Information Management***

Advances in Internet and Communications Technology have enabled companies to be more responsive to their customers than before. While the rich experience of firms with ERP's led to higher overall performance, but there is no evidence of similar effect on supply chain performance. Information sharing practices such as vendor-managed inventory (VMI) enable manufacturers to access more accurate demand information. Even for products with stable demand, an improvement in demand visibility could lead to improved production and inventory control efficiency.

***Knowledge Management***

Knowledge constitutes a firm's intellectual capital, including work-related experience, expertise, know-how, and best practices that can be acquired and shared. Global competition and technological advances in communications have made the competition knowledge-based, thus affecting SCM across firms. Knowledge management (KM) involves individuals and groups, both within and between firms, managing tacit and explicit knowledge to make better decisions, take actions and deliver results to support the business strategy.

***Customer – Supplier Relationship Issues***

Efficient customer response (ECR) is a SCM that attempts to address the inefficiencies in the SC. There is need to manage the interface between customer relationship management (CRM) and supplier relationship management (SRM) at each link in the SC. Long-term relationships between customer and supplier can lead to higher satisfaction.

***Customer relations issue***

Successful supply base management involves downstream integration of customers as well as the management of upstream suppliers. Each entity in the SC is a supplier as well as a customer. When customer-driven corporate vision is implemented along with TQM and supply base management practices, it can lead to competitive edge in different ways.

***Issues of Supply Chain Design***

Manufacturing firm's supply chain design is based on effective integration. Current static approaches and theoretical models are ineffective in considering all variables and constraints for designing SC. "Lean" and "Agile" paradigms can be integrated. A total performance metric can be designed and a roadmap can be developed for integration of lean production and agile supply in the total chain. Current developments in systems thinking and continuous system simulation, when applied within the context of an operations management framework, may offer good design of SC and improve SCM.

***Logistics Management***

There is need to manage product returns in reverse logistics by focusing on product ownership data, average life cycle of products, past sales, forecasted demand, and likely impact of environmental policy measures. Reverse logistics is one of the toughest supply challenges. Once the product is manufactured, it is very important that there should be an adequate structure to distribute it to the customers. Quick adaptation to changing market situation and automation of SCM processes are essential.

***Global Issues***

Increasing global competition and shortened product life cycles have made traditional manufacturers to contemplate on their core competencies such as product design and development and outsource other products and processes. There are benefits and problems related to outsourcing decision. These include issues of cost, quality, flexibility, strategic focus, and diversification, the potential loss of critical skills and knowledge, and appropriation of final product value. All these factors need to be examined and considered while taking outsourcing decisions.

***Partnership Issues***

As the global markets become increasingly efficient, the competition is no longer between individual businesses, but between entire supply chains. Therefore, there is need to develop supply chain partnerships/collaboration to reduce costs, improve service, and to gain competitive edge. Collaborative partnerships can be achieved through both trust and electronically mediated exchange. One of the most common usages of partnerships is in the provision of transport and distribution services. Instead of building in-house supply chain, it would be more cost-effective to form partnership with a shipping company and allow them to manage the distribution at a lower cost than the enterprise could manage itself.

***Environmental Issues***

Efforts to improve a supplier's environmental management practice can raise critical issues of transaction costs and efficacy of approach for the buyer. However, it is necessary that an environmental bias is to be introduced into the decision making process which would enable more environmentally conscious decisions to be made.

***Trust and Commitment***

There are several dimensions of trust in supply chain performance such as confidence in preferred trading partner, belief in information provided, close personal friendship, good reputation etc. Trust is the extent to which the buyer believes that the supplier has the necessary expertise to perform the activity effectively and reliably.

***Performance Measurement in Supply Chain***

Performance measurement is an important strategic tool and provides the means to achieve the required objective. Many firms evaluate performance primarily on the basis of cost and efficiency. They focus on financial data such as return on investment, return on sales, price variances, productivity and profit per unit production etc. Due to globalisation and competition, organisations have started adopting innovative business practices and improvement initiatives such as TQM, JIT, and SCM.

**Risks in Supply Chains**

There is no secure environment in which businesses can operate today. Risks in SC represent one of the major issues today. Since the objective of every organisation is to strive for success and uninterrupted operations, efficient supply chain risk management is very crucial. Current trends of globalisation and global sourcing have aggravated the risks in SCM. Supply Chain Risk Management (SCRM) is “a process that supports the achievement of SCM objectives”. When we talk about “risk”, a myriad of questions arise such as – How to perceive risk? How to measure them? Which risks we are most exposed to in a given moment? What are the consequences of exposure to risks? Which risks are acceptable and to what extent or magnitude? How do risks change over time? What is their impact when observed individually and when taken together? How should risks be managed? How to assess the amount of assets required to for mitigating or hedging the risks?

One has to understand the risks in order to begin their efficient management. Perhaps it can be easily understood through the example of investments. Investments are the foundation of any business activity and involve risks and their management is a vital part of operating activities. There are practically no investments without risks. When considering risk management in supply chains, the organisation can take guidance of ISO 31000 family of international standards. It is assumed that the risk in SC is composed of Uncertainty (objective and subjective), and Exposure.

**Environmentally Sustainable Supply Chain Management Practices**

Environmental Sustainability is defined as “meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. It has been incorporated within the context of corporate social responsibility (CSR) and commonly assessed through a range of social, cultural, legal, political, economic, and natural environmental dimensions. Interest in sustainability has emerged due to concern for the potential impact that regulatory compliance and stakeholder pressure have on planning and management decisions and resulting corporate financial performance (CFP). More companies are contemplating the implementation of sustainable practices internally and in coordination with other firms along their supply chains. Interest in the environmental dimension of sustainability has become more prominent in operations and SCM research as firms understand the impacts supply chains may have on the natural environment as well as society. The interaction between environmental sustainability and SCM emphasises an extension beyond internal operations and core supply chain practices, to include issues related to product design, manufacturing of products, product end of life and other factors that may relate natural environment. This has led to the concept of Green Supply Chain Management (GSCM). The results of research indicate that there is a small positive relationship between environmental performance and CFP. Environmental supply chain practices are positively associated with market-based, operation-based, and accounting-based firm performance. Implementing environmental supply chain initiatives can help improve many aspects of firm performance.

Sustainability is an important consideration for business and supply chains as stakeholders are becoming increasingly concerned about society, the natural environment, and the state of the economy. Implementing environmental supply chain practices results in increased firm performance.

**Reverse Flow of Materials – Remanufacturing**

In the automotive industry, amongst all manufacturing sectors, environmental awareness is at a high level. There is a shift in business practice from traditional manufacturing to eco-friendly solutions, caused mainly by the application of a number of European Union Directives. The business practice is closer to the Closed Loop Supply Chain (CLSC) Concept. All the materials originally used in the manufacturing of product should preferably be re-used at the end of life in the forward supply chain as re-supply. The forward supply chain processes include all procurement of raw materials, work-in-progress materials flow at the production facility, and distribution of products to customers. However, the reverse processes in supply chain are more difficult to define. The main phases in the reverse supply chain are collection, inspection, inspection and disassembly, reprocessing which includes recycling, remanufacturing, or reuse, and re-supply or redistribution to alternative markets.

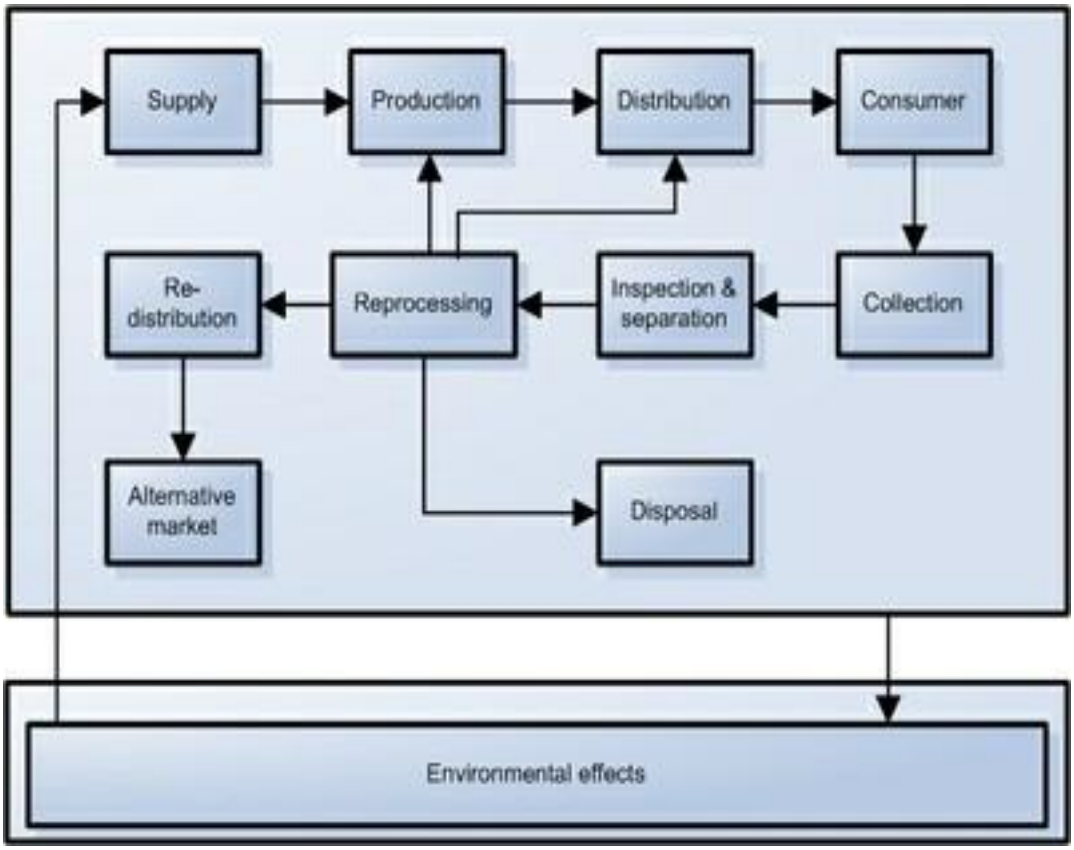



Fig. 2 – Closed Loop Supply Chain Model with remanufacturing

**Nearshoring versus Offshoring in Manufacturing Sourcing**

Another important consideration in Manufacturing-Sourcing is whether to nearshore or not to nearshore. This decision is becoming increasingly important. Actual cost-effectiveness varies greatly according to product type and other factors. Cost, as expected, is the main driver in this. The most attractive potential advantage in case of nearshoring is the lower freight costs and improved speed-to-market and lower inventory or in-transit costs.

***Factors to consider regarding costs of nearshoring versus offshoring***

In 2009, exchange rates and a drop in ocean freight and materials costs made all major low cost countries much more competitive. When these factors stabilize, the cost of importing started to creep back up to pre-recession levels. However, the freight rates continued to remain low, thus favoring offshoring in the near term. But if the rates increase due to capacity cuts and rising fuel prices, then the US and Mexico will become more competitive manufacturing locations.

***A View of What May Come***

In China, major considerations include strengthening exchange rates against USD and internal wage inflation. If these trends continue, China's landed cost will approach US cost. Mexico and India may remain cost competitive.

Even when the economic advantages are clear and risks are low, significant barriers to nearshoring do exist. Firstly, the switching costs must be overcome and other hurdles including tooling and transition costs, uncertainty, need for approval from customers or regulatory agencies.

When companies first outsourced, they rationalized their production assets, i.e., the plants and equipment that would be required to bring work back to US would need to be rebuilt. UC based companies too are finding it difficult to get skilled domestic manufacturing workers and manufacturing management talent. Thus when it comes to moving production out, companies should consider all factors before taking decision. Product-cost variables vary widely according to product type. Several other factors such as exchange rates, material costs, and labor agreements would also have significant impact on the outcome.

**Managing Supply Chain in times of crisis**

In the normal course, the global flow of goods routinely adapts to all kinds of setbacks and is quite resilient and self-healing. For example, a breakdown in one unit in one country is quickly replaced by additional supplies from some other unit in the network. Sometimes the problems are spread over whole regions and require emergency actions for several days to restore the supplies.

However, when a natural disaster, like the recent Tsunami in Japan occurs, the SC managers are put to severe test juggling production and shipments world-wide to keep supplies going. Japan is the world's third largest economy and vital supplier of parts and equipment for major industries in the automotive and consumer electronic sectors. To cope with such situations, many corporate organisations maintain alternate sources of supply and this makes it easier for these supply chains to adapt to the disaster. Normally, in this type of situations, supplies of larger more costly components tend to grab the attention of SC managers who maintain alternate sources, but there are many kinds of little specialised parts without second sources and the lack of such parts even if they cost just s few dollars, can result in shutting down a factory.

Further down the supply chain lie the raw materials. Trouble for a supplier to a company's part supplier can cascade across an industry. For example, reports that a Gas Chemical factory in Fukushima was damaged by the tsunami resulted in fears of shortage of a resin used in the packaging of small computer chips in cell phones and other products. The Japanese quake will make the companies to re-evaluate risk in their supply chains. Perhaps, there may be a shift from focusing on reducing inventories and costs in just-in-time model, to one that places greater emphasis on buffering risk. Adding inventories and back-up suppliers reduces the risk by increasing the redundancy in the supply system.

**Conclusions**

In this article, we have discussed the concept of Supply Chain Management along with the need for SCM from organisation point of view. One must examine the nature, interrelations, and dependency among business operations. The challenge is to make a roadmap for adoption and implementation. Even in normal times, managing supply chain in manufacturing sector poses several issues and challenges to the supply chain managers. Current trends like outsourcing, information technology adoption and third party logistics present an opportunity for SCM. For effective and efficient SCM, all organisations will have to adopt partnership information sharing initiative with suppliers. Therefore, establishment of mutual trust within supply chain to share the vital information for effective SCM practice will be a great challenge for SCM practitioners.

Environmental Sustainability is another important consideration for supply chains as stakeholders are becoming increasingly about society and the natural environment. Risks in SCM are a primary concern for every organisation and should be included in every aspect of an organisation's operations to ensure its efficiency and thoroughness. Managers should be aware of threats to their organisation and of tools to manage them.

Further, questions of nearshoring or offshoring in manufacturing sourcing need to be examined taking into consideration several factors like freight rates, labor costs, switching costs, tooling and transition costs, exchange rates, uncertainties etc. Finally, in times of crisis and natural disasters, one needs to have contingency plans to reduce the interruptions in supplies to the minimum. Emphasis on buffering risks, adding inventories and back-up suppliers could mitigate the risks to some extent.

**References**

**Golicic, S.L**. and Smith, C.D., (2013), “A meta-analysis of environmentally sustainable supply chain management practices and firm performance”, Journal of Supply Chain Management, Vol. 49 (2), pp. 78-95

**Golinska**, P. and Kawa, A., (2011), "Remanufacturing in automotive industry: Challenges and limitations", Journal of Industrial Engineering and Management, Vol. 4 (3), pp. 453-466

**Hamedani, S.G**., et. al., (2013), “A multi-objective model for locating distribution centers in a supply chain network considering risk and inventory decisions”, vol. 3, pp. 1077-1088

**Jereb, B**. and Cvahte, T., et. Al., (2012), "Mastering Supply Chain Risks", Serbian Journal of Management, Vol. 7 (2), pp. 271-285

**Olugu, E.U**. and Wong, K.Y., et. Al., (2010), "A Comprehensive Approach in Assessing the Performance of an Automobile Closed-Loop Supply Chain", Sustainability, Vol. 2, pp. 871-889

**Popescu, M**. and Dascalu, A., (2011), “Value Chain Analysis in Quality Management Context”,Bulletin of the Transilvanis University of Brasov, Vol. 4 (53), pp. 121-128

**Shukla, R.K**., et. al., (2011), “Understanding Supply Chain – A Literature Review”, International Journal of Engineering Science and Technology, Vol. 3 (3), pp. 2062-2066

* * *

# Basic Principles for Resistance Training In Sport of Bodybuilding

**Shri Kishore J. Maru:** (ACSM Health/Fitness Specialist®), Assistant Professor, B.P.C.A's College of Physical Education, Wadala, Mumbai.

**Dr. Kailas A. Asai:** Assistant Professor, B.P.C.A's College of Physical Education, Wadala, Mumbai.

**Introduction to Resistance Training**

**Gym**

A gym is as good as the equipment one find there, the atmosphere of training; the people who share the gym and the help lo create that atmosphere. The people who share the gym can he good motivators especially when one feels like skipping a day or feel very low and not exercising, hence are a few things that one must look for in a gym.

- A gym should have a variety of equipment, including plenty of free weights. Dumbells and barbells still occupy a place of prime importance and give one the fundamental muscularity.
- It should not be too big or too small. If it is too small then one has to wait for one's turn and then one cannot keep up with the rhythm of one's training. If it is too huge then one can be dwarfed with the space and one is unable to concentrate.
- A gym should have the right training atmosphere check out the kind of music played in the gym.

**Training at Home**

Although there is really no substitute for training at a good gym, training at home can be useful if you have run out of time to workout in a gym or want to additional work at home. With an extra set of weights and a simple bench one can do reps and sets when one feels like. Ab work-out can also be done at home. For those with more money to invest, there is lot of equipment available for the home.

***Getting Started***

- **The first step**

  "The longest journey begins with a single step" A BB career can be one of the longest in sports; one can keep getting better right through one's thirties and forties. One has to begin with:

  - Having, photographs taken of one's physique from all four sides and writing down important measurements viz. neck, chest, biceps, forearms, wrists, waist, thighs, and calves) to monitor progress.
  - Find a suitable place to suit one's goals and master the basic BB exercises. A beginner needs to be concerned with only creating a solid, quality muscle structure as the first task. Advance BB are concerned with improving muscle shape, achieving separation and tying in various muscle groups.
  - The idea is to limit oneself to those exercise's that build mass in the shortest time and then go on to carefully sculpt and shape that mass into championship quality.
  - One has to build a basic structure, learn how to train correctly, acquire knowledge of diet and nutrition, and then give the body time to grow.
  - In a year, maybe a little more or less, one can see radical changes in one's physique and can get enough experience lo develop an individualized program based on one's instincts of what is right or wrong for one's body.
  - Maintaining a dairy with one's measurements, pictures, training program and diet would go a long way to monitor progress and develop oneself.

- **Fast and Slow Developers**

  Not all respond to BB training at the same pace. It depends on one's genes and not all are early bloomers. Its not how quickly one develops that will finally make the difference, but how far one is able to go.

- **Free Weights versus Machines**

  Free weights demand more of your body, and yet allow one's joints to and limbs to move in their natural planes, not just along. The lines dictated by the design of a machine, free weights give the BB the freedom to isolate certain muscles and to work the body in any number of creative ways. They also enable people of different heights, weights, physical proportions long-armed, short armed, long-legged, short-legged etc. to get a complete workout, while many machines are designed lo satisfy only those who represent the average customer of the commercial health spa. A good BB program should include not more than 30-40% training, with machines. Machines keep the resistance working along one plane only, requiring the use of less muscle while doing the exercise while with free weights the muscle reacts differently as it is subjected to resistance from varying angles and different directions as opposed to that which is always along a predictable line.

- **Gear**

  BB is an in expensive sport in the sense that one does not require a lot of training equipment than what is supplied by the gym. Here is a list of a few basic that one might consider buying.

- **Shoes**

  For some exercise it does not mailer whether one works out with athletic shoes or with bare feet hut for certain exercises like heavy squats, power lifting exercises, very heavy calf raises etc., one needs the extra support that the shoes give. In fact, high ankle shoes give that extra support that can really help protect the ankle and foot from injuries.

- **Gloves**

  Many BB wear gloves to protect their hands but it is recommended that weights should he gripped with bare hands to let them toughen up and develop calluses.

- **Straps**

  Straps (fastened around the wrist and twisted around a bar) are used because with bare hands it is often very difficult to hold on to a weight that would really challenge a back in a heavy work out. If held with bare hands the grip would generally strengthen and is therefore recommended.

- **Belts**

  The purpose of wearing a heavy belt is to support the muscles of the lower back when one is lifting heavy weights. It is considered necessary only for heavy lifts and is not meant to be worn all the times as this has the effect of binding the lower back muscles and preventing them from developing the strength they ought to have.

- **Wraps**

  Wraps are used to support weak or injured joints and muscles. Unless one has an injury or a joint problem, one need not use wraps until one has progressed to a point where one is using heavy weights. Though wraps give additional support it also limits flexibility of movements.

- **Head straps**

  Many BBs use a kind of harness that fits around the head to which one can attach a dumbbell or a weight plate so one can do progressive resistance exercises for the neck. A complete workout routine tends to build the neck muscles too with everything else so one need not waste one’s time over this.

- **Gravity Boots**

  Gravity boots helps one to hang upside down and stretch out the spine. Though this has no direct effect on BB, it feels very relaxing. It is an adjunct to training rather than a fundamental part of BB.

- **Rubber Suits**

This are used to increase perspiration and accelerate water loss but is not recommended as a good workout will make one sweat bucket, and one should allow one's pores to breath. Warring a suit on a hot, hard training day could lead to hypothermia.

- **Training Diary**

A diary must be maintained by every BB which should record the training program, the number of sets, reps and weights for each exercise, record of physical measurements, pictures, diet etc. This is done with a view to track development

**Age and the Sport of Bodybuilding**

Young children should not lift weights as their bodies are too unformed, their bones still too soft, to stand up to the stresses of weight training. Pre-ten training should rely on calisthenics or gymnastics exercise rather than weight training. Once the body begins to mature, weight training can begin. BB training is usually recommended after the age of 16-18 years but most of the BB starts out at the age of 14-15 years. It takes a few months, may be year to simply learn the exercises and to begin to understand the training experience.

BB is a potentially long lived career hut certain obstacles do intrude as we get older. For one thing. After the age of twenty five, the metabolism tends to slow down (by about 10 calories a day per year), which means that an older BB has to diet more strenuously to stay lean. Also, older BBs tend to have more on their minds - business, family, career, and so forth while younger ones need lo be concerned with only eating, sleeping and training.

However, if older BBs tend to gain muscle more slowly, add fat more quickly, have more trouble concentrating, and recuperate more slowly as we get older, there is another side to the issue: since the body lends to deteriorate more with age, the effect that the BB training has in building, shaping, and strengthening the body is even more pronounced in older BBs than in younger ones.

**Making the Transition**

Making the transition from training for fitness to training for competition is largely an evolution of consciousness as one learns to appreciate the potentials of one's body that ones was not previously aware of. Slowly the attitude towards the training begins to change and often one decides to make BB a center piece of one's existence.

There is much more money in BB today for persons who want to make BB a career. There are many more opportunities at the amateur level as well so one can continue to train and compete while pursuing careers as doctors, lawyers, chiropractors, or businessmen.

As the popularity of bodybuilding increased, the money to be made from the sport also increased. There is enough money in bodybuilding to attract an increasing number of young athletes. The increase in the number of magazines, gyms and sale of gym and has tinned bodybuilding into big business.

Most BBs are highly competitive individuals, but there are those in the sport who are in the sport primarily for the meaning it gives to their lives, regardless of whether they or not they achieve a victory. BB is more than a sport; it is also a way of life. It is an entire of philosophy of how to live, a value system that gives specific answers to questions that concern so many of us these days questions of what is worth doing and what value to give to excellence and achievement. It is a way of pursuing self-worth and personal validation, of finding satisfaction in one's ability to set goals for oneself and reach them.

**Basic Principles in Resistance Training**

It takes hard dedicated work lo build a great physique, but hard work alone is not sufficient one also needs knowledge and mastery of principles that make BB training effective.

- **Progressive Resistance**

Muscles grow only when they are subjected to an overload. By progressively adding weight lo keep in pace with the growing strength of the body, one can ensure that the muscles will always be working at their maximum capacity and therefore will grow as last as possible.

- **Over Training and Recuperation**

  "Intensity" is the measure of how hard one forces one's muscles to work in any training session. The more intense one's workout, the more recuperation time the body needs to rest and grow. Over training occurs when a muscle is worked too often to allow it to recuperation fully. The muscle regimes time to restore the chemical balance of the muscle cells, to clear out residual waste products, to restock the depleted stores of glycogen and most important; to allow the muscle cells to adapt to the stimuli of exercise and grow. Each body part requires at least 48 hours rest before it is trained again.

- **Full Range of Motion**

  BB exercises should take the muscles through its longest possible range of motion. This is the only way to stimulate the entire muscle and every possible muscle fiber.

- **The Quality of Contraction**

  The BB training comes into effect by stimulating the muscle fibers with correctly performed exercises, not by trying to lift the heaviest weight possible by my means you can.

- **Cheating**

  Cheating is a specialized technique in which one uses extraneous muscles lo help out the ones directly involved in the exercise with a view to doing increased number of reps than one could have done without this help. This in effect puts increased stress on the muscles.

- **Warming Up**

  Warming up properly takes the body from becoming overstressed, prepares it for the demands of heavy training and reduces the chances of an injury such as strain or a sprain, for each different exercise it is beneficial to begin with a light warm up set.

- **Sets**

  One needs to do at least 5 sets of 'each exercise in order to have the volume of training necessary to fully stimulate all the muscle fibers. Doing 5 sets per exercise for a total of 15 sets per body part (for the larger muscle groups) in the Basic Training Program and 20 sets in advanced training, enables one to do a sufficient variety of exercises to work all areas of a body part. For power exercises usually only 3 sets per exercise is recommended as lifting heavier weights would not require as much volume of training.

- **Reps**

  To get the most out of ones training, unless otherwise specified, one should "'train to failure" in each set. In this method one progressively increases the weight in each set and decreases the number of reps with each set in a way that maximum repetitions are carried out Training, this way is beneficial as it gives the muscles time to fully warm up for that particular exercise, slightly increased reps with heavier weight forces blood into the muscles and gives a great pump and adding on more weight trains one for strength.

- **Choosing the Right Weight**

  One should use an amount weight that would normally make one fail at 10 repetitions. As one as one continues to train to failure one is still able lo gel most of ones training even though one might slop at 8 reps or at 12 to 13 reps. One should not stop because one has arrived at a certain preconceived number. If one can do a set comfortably with 13 to 15 reps it should be understood that it is time to use more weight for that exercise.

- **Resting Between Sets**

  Resting between sets should be a minute or less. The point of training is to stimulate a fatigue the maximum amount of muscle fiber possible which happens when the body is forced to recruit additional muscle fiber to replace that which is already fatigued. The idea of keeping the time between sets minimum is to not to all the muscle fibers to recover too much between sets just enough to be able to continue the workout and keep forcing, the body innervate more and more muscle tissue.

- **Breathing**

  Only one simple rule "breathe out with effort
- **Power Training**

  There are various ways of assessing strength. If A can lift 300 Ibs and B can lift only 250 Ibs, A is stronger that B in one rep strength. This is called power training. Including power training in ones program makes one stronger for the rest of the training. On would be able lo move up to using heavier weights more quickly so muscles would grow more faster. It also strengthens the tendons the attachments of tendons to the bones as well as the muscles. Unless low-rep strength training exercises arc included in the program one would never be able to achieve the hardness and density to create a truly first class physique.
- **Heavy Days**

  Training moderately heavy on one day and then to the limit on the next one is more likely to speed the progress than maximum effort every time. Once or twice a week one must schedule "heavy days" whereby one body part can be picked up and tested out for maximum strength.
- **Stretching**

  Stretching is recommended before training to allow one to train harder and more safely and stretching after you train as well to stretch out those tight and tired muscles. Stretching increases flexibility. Stretching is also important during training. Stretching requires slow and gentle movements to prevent the stretch reflex. One should stretch out carefully and hold that position for 30 seconds or more.

**Learning Your Body Type**

One method of categorizing body types recognizes three fundamentally different physical types, called "somatotypes":

- The ectomorph: characterized by a short upper body, long arms and legs, long and narrow hands and feet, and very little fat storage; narrow in the chest and shoulders, with generally long, thin muscles.
- Mesomorph: large chest, long torso, solid muscle structure and great strength.
- Endomorph: soft musculature, round face, short neck, wide hips, and heavy fat storage.

**Body Type and Training Programs**

**Ectomorph Training**

The extreme ectomorph's first objective is gaining weight, preferably in terms of quality mass, will often have to ensure that he cats enough to ensure continuous growth and would find it difficult to develop the muscle mass.

- Do the entire basic training workout.
- Include plenty of power training.
- Intake more calories than one is used to.
- Keep outside activities i.e. other sports to a minimum so energy is conserved for muscle building.

**Mesomorph Training**

The mesomorph would find it relatively easier to build muscle mass but has to be careful to ensure that the muscles develop proportionately and well shaped rather than just thick and bulky.

- Exercise Combination of heavy power moves
- Variety of shaping exercises
- Relatively long sessions with short rest time
- A balanced diet to maintain body weight within 10-15 pounds of contest weight all year long.

**Endomorph training Program**

Generally the endomorph would not find it difficult to build up muscle mass but would have to regulate his dietary intake to ensure loss of fat weight and exercise strict control so that he does not regain the fat lost.

- High set, high-rep training
- Additional aerobic exercise
- Low calorie diet that contains the necessary nutritional balance.

**Reference Books:**

1. ACSM. (1990). The Recommended Quantity and Quality of Exercise for Developing and Maintaining Cardiorespiratory and Muscular Fitness in Healthy Adults. Medicine and Science in Sports and Exercise. 22, 2, 265-274.
2. American College of Sports Medicine. (2009). Guidelines for the Personal Trainer. (3rd ed.) Philadelphia PA: Williams & Wilkins.
3. American College of Sports Medicine (2009). ACSM's Guidelines for Exercise Testing and Prescription, Eighth Edition PA: Williams & Wilkins.
4. American College of Sports Medicine (2009). ACSM's Resource Manual for Guidelines for Exercise Testing & Prescription, Sixth Edition PA: Williams & Wilkins.
5. American College of Sports Medicine (2009). ACSM's Certification Review, Third Edition PA: Williams & Wilkins.
6. American College of Sports Medicine (2009). ACSM's Exercise Management for Persons With Chronic Diseases and Disabilities (Third Edition), J. Larry Durstine, Geofffrey E. Moore PA: Williams & Wilkins.
7. American Council On Exercise. (2005). Personal Trainer Manual. San Diego: American Council on Exercise.
8. Baechle, T. & Groves, B. (1992). Weight Training -Steps To Success. Champaign: Human Kinetics.
9. Campbell, W., Crim, M., Young, V. & Evans, W. (1994). Increased energy requirements and changes in body composition with resistance training in older adults. American Journal of Clinical Nutrition, 60, 167-175.

* * *

# Microfinance Post Andhra Pradesh Crisis -Towards Redemption

**Sachinsingh B. Chauhan:** Researcher, Faculty of Management Science, Swami Ramanand Teerth Marathwada University, Nanded
**Dr. Santosh Dandwate:** Research Guide, Associate Professor, Nutan Mahavidyalaya, Sailu.

**Abstract**

The Andhra Pradesh is an agrarian state, located in the southern part of the country which was also the epicenter for most of the MFI's before 2010. Before 2006 AP witnessed huge influx of funds poured by most of the public sector and commercial bank and PE Investors .The MF sector was designated as a priority sector by Government of and sector was glorified and appreciated for serving the neediest and deprived population of the country. The common names given to this population served by MFI were "Bottom of Pyramid", economically vulnerable class, who were supposed to be provided with the basic financial assistance in order to improve their financial conditions and living standards. The very purpose of sustainability which was addressed by Microfinance Institutions itself raised a question on their sustainability. Rapid sector growth and minimal regulatory oversight eventually led to predatory practices, widespread client over-indebtedness and allegations of abusive collection practices, culminating in 2010 with the sensational media stories of farmers in AP driven to suicide as a result of their inability to repay their loans. The deployment of untrained workfare and inefficient recovery and operational practiced paralyzed the sectors growth and raised concerns by various policymakers/stakeholders who were looking forward for change in the sector and economy. Andhra Pradesh was the only state which once became a heaven for most of the MFI's, started grappling with the issue of suicides of borrowers. The enactment of " Andhra Pradesh Microfinance Institutions (regulation of money lending) Act 2010, was a big blow to the very existence of the MFI's thereby squeezing their finances and giving a political mileage to political parties across Andhra Pradesh who took it as a political agenda to shine their political image. This paper focuses on post Andhra situation of MFI's; it's social, political and economic implication on Indian society.

**Keywords**: - Bottom of pyramid, MFI (Microfinance Institutions), Andhra Pradesh (AP) Microfinance Mangalam Committee, self-help groups, Integrated Rural Development Plan (IRDP),MFIB (Microfinance Institutions (Development and Regulation) bill.

**Introduction**

Microfinance began with an intension of serving the very poor and deprived community there by extending their support and serving to the remotest part of the nation. Andhra Pradesh remained at the epicenter for almost as all the major Microfinance Institutions which were having ambitious plans to grow aggressively. The word microfinance can also be interchangeably with microcredit indicating the very tiny nature of loans and advances for the needy people. The issue of sustainable development, financial inclusion once becomes a buzz word of the times. Most of the Microfinance Institutions received enormous response not only from the government but also from private equity players. But the situation suddenly worsened for all MFI's and their financial situation started deteriorating. The most objectionable discussion started when microfinance Institutions were alleged for usurious lending and coercive recovery practices. The unprecedented suicide epidemic of farmers in the fifth biggest state of India gave readymade issue to the opportunist political system in Andhra Pradesh to take a political advantage of the situation. The incompatibility of the MFI's to manage the political system of AP was the only reason for its failure argues Elizabeth Rhyne, ("On Microfinance: Who's to Blame for the Crisis in Andhra). Media started to get saturated with the stories and series of articles from BBC world news, Bloomberg, New York Times running number of articles like *"Microcredit faces collapse from defaults"*, "*India's Micro-finance suicide epidemic", "Suicide in India Revealing How Men Made a Mess of Microcredit"*[2] .In the year 2010 SERP (Society for elimination of Rural Poverty came out with a stunning 70 number of deaths in AP. The blame was put against inefficient handling of recovery cases of MFI's. The critic and outrageous remarks of various politicians and media against MFI started building a political turmoil in AP. It forced the AP government to pass an ordinance to regulate the activities various MFI operating from its soil. The term which was used was multiple lending and loan offering without understanding and calculating the risk profile of customer which was clear from the interpretation of Reddy Subramanyam who advocated regulations and termed it as "hyper profits of the poor". The microfinance was criticized for using usurious lending activities and charging exorbitant interest rates. The sector had gone through three phases since last three years as High growth (2010), Volatile growth (2010-2011), consolidation (2011-2012), now is in a state of stability.

The reasons for such fallout can only be traced if we understand the working culture, style of functioning of MFI. Commercialization of microfinance was also one the main reasons as because non-government organization state funded subsidies, charities existed for a less time. However, commercialization was inevitable only because charity from donors, subsidy ceased and the accumulation of funds was possible only by attracting investors and PE institutions to deluge their funds in this sector and thereby earning financial incentives. But it resulted in suicide of farmers and economically vulnerable borrowers who borrowed from many sources and could not repay their loans. This issue was taken by media: suicide and prostitution (Guerin et al, 2009a; Mader, 2013; Taylor 2011)[4]. Whether all this was because of commercialization or usurious lending practices of MFI or government's inability to tackle this issue? Was it an outcome of unethical practices adopted by MFI's?

This paper focuses the reasons for fallout of microfinance and its future course. Starts with literature review, remedial measures taken by government post AP crisis followed by, consequences post AP crisis, recommendations and conclusion.

## 1. Theoretical Background and Literature Review

The concept of commercialization can be well understood as business without charity or for the purpose of booking profit without direct or indirect subsidy element (Armendariz and Morduch, 2010). MFI operating as commercial organization mobilize the funds by means QIP or Equity funding thereby distributing profits to their shareholders.

But there was always risk involved to trade-off between profitability and outreach termed as "mission drift" (Morduch, 2000;Armendariz and Szafarz, 2011). M. Younus of Grameen Foundation and others termed commercialization as 'ethics of conviction', (Schmidth, 2012) Whereas Max Weber's proposition of 'ethics of responsibility' formed the basis of commercialization in microfinance.

### 1.1 Commercialization "The real cause of Crisis in Andhra Pradesh"

The recent example of microfinance commercialization is Andhra Pradesh, a southern state of India. Microfinance operation in this 'hub' began in 1980s in small scale as NGO driven MFIs. But due to the state drive as the 'priority sector' and the World Bank funding in 1990s, it underwent expansion and commercialization (Taylor, 2011). Trade liberalization, state retrenchment of formal banking sector and transformation in the agricultural sector facilitate livelihood diversification. It bolstered MFIs as the new breed of private sector offering attractive profit to investors. Massive influx of capital from shareholders, commercial banks, and international and private investors cause exponential growth of loan portfolios of MFIs that finally push the whole state as an ideal breeding ground of debt dependency and over-indebtedness of the poor households (Mader, 2013; Taylor, 2011).

However, Andhra Pradesh ordinance did not come out of the blue. Genesis of the Andhra Pradesh Microfinance crisis can be traced back in the year March, 2006 when Krishna district government closed down 57 branches of two largest MFIs (SHARE and Spandana) as well as those of few smaller MFIs. Decision to close down of these MFIs came because of the allegations of unethical collections, illegal operational practices (such as taking savings), poor governance, usurious interest rates, and profiteering *(CGAP, 2010)*. There was even an allegation that 10 borrowers of MFIs in

Krishna district committed suicide because they were unable to repay the loans taken from MFIs (*Shylendra ,2006). Ghate (2006)* cited near-saturation of Andhra with microfinance as one of the most important enabling cause for the crisis. The implication of above point is that borrowing from multiple sources like Velugu (SHGscheme backed by AP Government and assisted by World Bank), MFIs and moneylenders culminated in over indebtedness. Rapid expansion of bank credit as facilitated by initiatives like ICICI partnership model and availability of cheap credit in form of "Pavala Vaddi" scheme, motivated by political consideration, intensified the

crisis. As diagnosed by *Shylendra (2006*) conflict between State supported SHGs and Civil society initiatives in form of MFIs as the major reason behind the eruption of crisis.

MFI despite so many warning issued faced the brunt of the situation arose during 2010 , for not learning lesson from 2006 crisis and ignoring all the warnings pertaining to high interest and growth rate, concentration of activities in the Andhra Pardesh region etc. Over indebtedness and multiple lending in AP can be gauged from the fact that, in comparison to national average of Rs. 7,700, in Andhra Pradesh, the average debt outstanding per household was Rs. 65,000 *(CGAP, 2010)*.Most of the MFI's were concentrating their marketing activities only in one region that was Andhra Pradesh without understanding background of their clients who was already overburdened and indebted. Inability of borrowers to repay such huge amount resulted in stress on the part of borrowers and use of coercive methods on the part of MFIs to recover the loan payments, which ultimately resulted in suicides of the borrowers. The government had cited the death of 70 customers by suicide. However state Government backed SHGs were kept out of the purview of the Act though different studies are showing they were also responsible for multiple borrowing. *M-CRIL (2011*) study clearly stated if the number of MFIs loans is over 100% of the number of eligible, financially excluded families, SHG loans are actually 310% of that number. So keeping SHGs away from the ambit of Act, agonized MFIs and it was perceived by them as an Act to protect state Government backed SHGs from the competition from MFIs. So in the wake of incidents like over-indebtedness, hype created by the IPO of SKS Microfinance coupled with the reports of suicides in rural Andhra Pradesh resulted in ordinance of 14 October, 2010

**1.2 Development post AP Crisis:-**

Post the AP ordinance in October 2010, there was regulatory uncertainty over the microfinance activities undertaken by the MFIs. To overcome or reduce uncertainty and bring MFI activities under single regulator and avoid multiple lendings, Government of India initiated Microfinance bill. The MFI bill aims to address the concerns and regulate the MFI sector and it is with the parliament. Furthermore, in May 2011, the Reserve Bank of India (RBI) issued guidelines to regulate NBFC MFIs and retain priority sector lending status for micro-finance institutions. It issued specific guidelines for NBFC MFIs, to ensure that the clients are offered services in a transparent manner including clear communication of lending rates, tenure of loans, repayment flexibility etc. The guidelines further ensure that NBFC MFIs assess the indebtedness level of the clients and disburse loans. In addition to this it also mentions that MFIs need to have customer redressal mechanism in place to address customer grievances. In totality the guidelines were aimed at customer protection principles by the NBFC MFIs. Recently RBI has given recognition status to self-regulatory organizations which adhere to set of functions and responsibilities prescribed by RBI. The table below shows the timelines and amendments of guidelines by RBI for the microfinance sector:

**2. Malegam committee**

Post Andhra crisis various issues pertaining to the sectors growth were discussed nationally and internationally. Malegam committee was the way forward to provide structural past to the estranged sector thereby developing a new image.

1. **October 2010** Formation of Malegam Committee by RBI to study the issues and concerns in microfinance sector.
2. **January, 2011** RBI released Malegam Committee recommendations for the Microfinance sector

3. **May, 2011** Acceptance of broad framework of Malegam Committee recommendations in Monetary Policy Statement 2011-12 including: Retention of priority sector lending status for bank loans to MFIs, margin cap at 12% and interest rate cap at 26%.
4. **December, 2011** RBI introduced new category of NBFC and termed as 'Non-Banking Financial Company-Micro Finance Institutions' (NBFC-MFIs). Some of the key points include
   a) Minimum Net Owned Fund of Rs.5 crore for new NBFC MFIs and for existing NBFC MFIs w. e. from April 1,2012.

   b) Capital Adequacy Ratio of 15% (relaxation for AP based MFIs for FY12 and for, NBFC MFIs With loan Portfolio less than Rs.100 crore)
   c) Margin cap at 12%, interest rate cap at 26% and processing charges at 1% **August, 2012** Amendment to NBFC MFI guidelines by RBI which included
   d) Registration compulsory for NBFCs intending to operate as NBFC MFIs by October 2012.
   e) Relaxation in meeting norm of Minimum Net Owned Fund of Rs.5 crore for existing NBFC MFIs. It has to be met in tranches with Rs.3 crore NOF by March 2013 and Rs.5 crore by March 2014.
   f) Removal of interest rate cap and linked to borrowing rate plus fixed margin. Margins are capped at 10% for large MFIs and 12% for others **July, 2013** Amendment to NBFC MFI guidelines by RBI which include relaxation in margin cap for all NBFC MFIs irrespective of size at 12% till March, 2014. However from April, 2014, margins are capped at 10% for large MFIs and 12% for others **Nov, 2013**
   g) RBI has allowed recognition of industry association of NBFC MFIs as Self-Regulatory Organization (SRO).

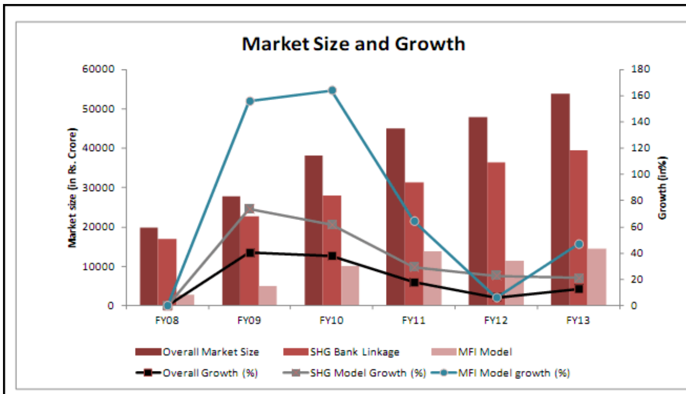
5. **Feb, 2014** Amendment to NBFC MFI guidelines by RBI with respect to pricing of credit: it would be lower of two
   - The cost of funds plus margin
   - The average base rate of the five largest commercial banks by assets multiplied by 2.75

**3. Microfinance post Andhra crisis:**

The following graph indicates the sector performance of MFI post regulatory steps taken by government of India post 2010.

**Data Analysis & interpretaion**

Fig No. 1



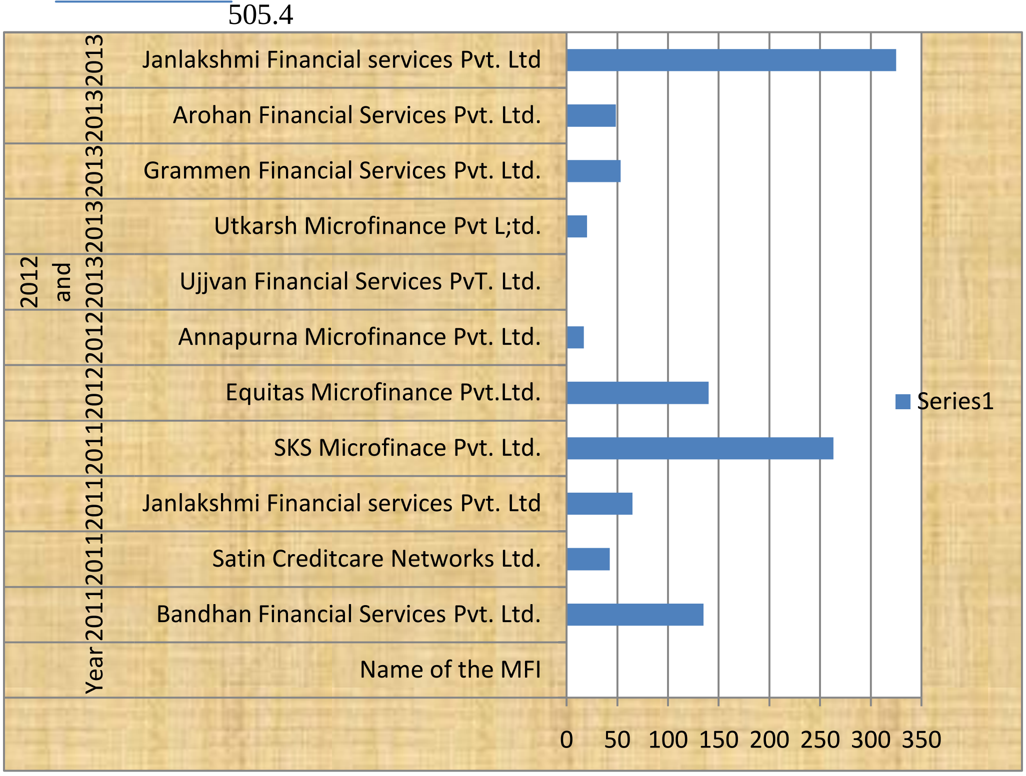

*Source: NABARD Report "Status of Microfinance in India" from FY09 to FY13*

**Table 1:- Equity infusion in the microfinance sector (20011-2013)**

| Year | Name of the MFI | Amount of equity infuesion (in crores) |
|---|---|---|
| 2011 | Bandhan Financial Services Pvt. Ltd. | 135 |
| 2011 | Satin Creditcare Networks Ltd. | 42.4 |
| 2011 | Janlakshmi Financial services Pvt. Ltd | 65 |
| 2011 | SKS Microfinace Pvt. Ltd. | 263 |
| 2012 | Equitas Microfinance Pvt.Ltd. | 140 |
| 2012 | Annapurna Microfinance Pvt. Ltd. | 17 |
| 2012 and 2013 | Ujjvan Financial Services PvT. Ltd. | 127.9 and 47.3 |
| 2013 | Utkarsh Microfinance Pvt L;td. | 20 |
| 2013 | Grammen Financial Services Pvt. Ltd. | 53.2 |
| 2013 | Arohan Financial Services Pvt. Ltd. | 48.7 |
| 2013 | Janlakshmi Financial services Pvt. Ltd | 325 |

$$\text{\% change in investment(in crs)} = \frac{(\text{Investment in 2013 - Investment in 2011})}{\text{Total investment in 2011}}$$

$$\text{\% Change} = \frac{(494 - 505.4)}{505.4} = -0.022\%$$




<u>Figure 2 - Year v/s Investment in crores</u>

The figure number 1 indicates the fluctuating growth pattern of MFI and its recovery from the fallout. The figure no.2 indicates the amount of equity infusion in MFI by various investors which is also showing signs of recovery. The sector is trying to stabilize itself in the regulatory environment post Andhra crisis.

ISSN 0975-5020

**4. Recommendations**

For the Microfinance industry to self-regulate and bring operational efficiency and mitigating risks following recommendations are suggested.

a) Earn customer respect and thereby achieving customer retention.
b) Bring transparency in terms of interest rates while dealing with customers especially in case of delayed payments *(Arguello et al, 2013)*.
c) Know your customer history before disbursing loan
d) Full disclosure of pricing so that customers are well informed.
e) Developing discipline in the field officers thereby ensuring adherence to the code of conduct while dealing with any client.
f) Develop an environment of mutual trust especially while dealing with recovery matters.
g) Stop aggressive marketing for competing in order to grow the customer portfolios.
h) Random, surprise visits by seniors MFI staff members to track field officers performance (Burki 2009) thereby achieving strict compliance and monitoring system.
i) Develop early warning systems so that the client can be informed in case of future default condition.
j) Develop a culture of savings and create awareness towards insurance among the group members.
k) Develop close link between Aadhar and telecom sector to identify customers and bring connectivity.

**6. Limitations**

With a huge customer portfolio it is virtually impossible to track each and every individual. The customer's database cannot be maintained as there is no such mechanism which is existing in MFI. The new Aadhar card scheme is yet to fully implement in various parts of India due to poor connectivity and failure to rich the masses. There is a retention problem when it comes to maintaining filed staff. Educated youths do not consider it as a best career option. Some of the group employees and staff members encouraged over-indebted members to commit suicide and claim for insurance. The credit life insurance is taken in a negative manner by the clients which used it as a tool for committing suicide and their families claiming for insurance. The classic example can be taken from the Bollywood movie *"Peepli Live", a story of "Nattha",* an over-indebted farmer. Some of the clients were found to be misusing their over-indebtedness to gain political and media attention. The microfinance institutions have to get themselves acquainted to the rules and regulations related to financial and risk management. It's quite clear from above facts which make it difficult to fully implement all these recommendations.

**7. Conclusion**

The Indian Microfinance sector was remembered as controversial and worst post 2010 situation. Unethical ways of loan recoveries, governments inability to tackle the situation, multiple lending causing over-indebtnesss of clients, suicides and the political turmoil, high rate of interests charged by MFI's, which resulted in *Andhra Pradesh Microfinance Institutions (regulation of money lending) Act, 2010.* Stated objective of the Act was to protect the poor borrowers from the MFIs but it worked in adverse manner due to which the sector saw a declining growth since past two years and yet to heal its wounds. This situation not harmful to the poor but it has also reduced investors trust who should be given be full credit for its growth. The situation even more worst for MFI's post losing their confidence from investors who are finding difficulties for maintaining liquidity, lost hope of making profits. This issue is going spread like an epidemic thereby jeopardizing (Gonzalez, 2008; Wichterich, 2012; Mader, 2013) this sector and spilling it across the world. This situation has endangered the social and financial objectives and also hampered Indian economy.

Indian government needs to implement an effective mechanism to ensure the sector growth but also to mitigate various risks originated from the AP situations that it wont get repeated again. The lesson is also learned by various MFI's, who were operating unprofessionally and inefficiently. The situation for all these MFI''s is like walking on a tight rope. On one hand they have to regulate themselves and the other hand they have to ensure steady growth and sustainability along with maintaining profitability.

**References**

1. Argüello, N., Delalex, I., & Limvorasak, S. (2013). Pricing transparency and performance in the microfinanceindustry: Truth-in-lending, profitability, scale, and funding. *Journal of Innovation Economics*, (1), 173-204
2. Armendáriz, B., & Szafarz, A. (2011). On Mission Drift In Microfinance Institutions. In Armendariz, B. andLabie, M. (eds.). *The Handbook of Microfinance*, 341-366. London & Singapore: The World Scientific Publishing.
3. Armendáriz de A. B. and, Morduch, J. (2010). *The Economics of Microfinance*, 2nd edition. Cambridge: MIT Press.
4. Burki, Hussain-Banu (2009). *Unrevealing the delinquency problem (2008/2009) in Punjab-Pakistan*. Micro NOTE No. 10 (October), Pakistan Microfinance Network.
5. Elizabeth Rhyne, "On Microfinance: Who's to Blame for the Crisis in Andhra).
6. Guérin, I., Roesch, M., Venkatasubramanian and Kumar, S. (2009b). The Social Meaning of Over- Indebtednessand Creditworthiness in the Context of Poor Rural South-Indian Households (Tamil Nadu), *Draft paperpresented at the RUME / IEDES workshop on over-indebtedness in Paris*, December 2009.
7. Ghate P. (2006). *Microfinance in India: A state of the sector report.* Microfinance India, New Delhi.http://www.microfinanceindia.org/download_reports/state_of_the_sector_06.pdf.
8. Mader, P. (2013). Rise and Fall of Microfinance in India: The Andhra Pradesh Crisis in Perspective. Strategic Change, 22(1 • ]2): 47-66. DOI: 10.1002/jsc.1921.
9. Taylor, M. (2011). Freedom from Poverty is not for Free: Rural Development and the Microfinance Crisis in Andhra Pradesh, India. Journal of Agrarian Change, 11(4): 484-504.
10. Shylendra, H. S. (2006). Microfinance Institutions in Andhra Pradesh: Crisis and Diagnosis. *Economic and Political Weekly*, May 20, 2006: 1959–1963.
11. .Schmidt, R. H. (2012). Microfinance, commercialization and ethics. *Poverty & Public Policy*, *2*(1), 99-137.
12. Nabard "Status of Microfinance" from Fy09 to Fy 2013.

* * *

# Study of Illegal Bowling Action in Cricket

**Atul Gaikwad:** Research scholar, M. M.'s. C. Agashe College of Phy. Edn. Pune-37
**Dr. Sopan Kangne:** Associate Professor, M. M.'s. C. Agashe College of Phy. Edn. Pune-37

**Abstract**

The purpose of the study was to Study of illegal bowling action in Cricket: Causes and Remedial program. The populations for the present study were bowlers from various clubs, academies and teams playing under 14 & qualified to play state selection invitational matches conducted by the MCA. Around 106 numbers of bowlers were participated. As cluster random sampling technique was applied to select sample for experiment. Sample for present study (n=37) were identified as a chucker. The data was analyzed using statistical techniques such as cross tab & chi square. The result summarized very high significant as bowlers from experimental group are changed from chucker to legal action.

**Key words:** Illegal bowling action

**Introduction**

In Cricket a bowler has to ball with a legal action. A well developed and legal bowling action is of enormous importance to developing cricket athletes and teams both nationally and internationally. Good bowlers can make the headlines, but so do the controversial. (Woolmer, 2008).A ball bowled with an illegal bowling action is called as chucking. Illegal bowling is a no modern trend. Down the decades calls have been made for drastic steps to be taken by those in authority. In various parts of the world, umpires from time to time have no-balled bowlers for throwing.

Youngsters, many of them schoolboys are using an exaggerated bent elbow. These youngsters are the future cricketers and unless checked ruthlessly the increase in throwing would get out of proportion. There is a need of constructive efforts to remove the stigma of unfairness in bowling from the game and for this; the whole issue should be tackled at grass-roots level.

The issue of chucking is often highly emotive with accusers considering that deliveries with an illegal action are akin to cheating. & when the bowler has been called on more than one occasion, his career is international cricket is effectively ended. Coaches& officials must be on the lookout for the wobble in young players so that it can be corrected before it becomes a problem. An adult action that inclines a throw or chuck will be almost impossible to correct hence need to pay attention at young players.

Hence it was, thought desirable to undertake the problem entitled, **"Study of illegal bowling action in Cricket: Causes and Remedial program"**

**Method**

As present investigation follows the survey of illegal bowling action which is followed by experiment to correct the same, it becomes descriptive cum experimental study (Miller, 2006). The populations for the present study were bowlers from various clubs, academies and teams playing under 14 & qualified to play state selection invitational matches conducted by the MCA. Around 106 numbers of bowlers were participated.As cluster random sampling technique was applied to select sample for experiment. Sample for present study(n=37) who were identified as a chucker. These bowlers were later divided in to two groups, 19 chucker's were in the experimental group and 18 were in control group. Experimental group bowlers did remedial program for six months. Video Clips, Observation Chart&Questionnaire were used to assessthe bowlers.

**Result**

The data was analyzed using various statistical techniques such as cross tab (Table 1)& chi square (Table 2 &3).

Table 1 are the Status of chucker's in the Experimental group before and after remedial program

**Table 1 Cross Tabulation of chucker's of Experiment & Control Group based on Pre & Post Test**

| | Pre test | | Post test | |
|---|---|---|---|---|
| | Chuckers | Legal | Chuckers | Legal |
| Experimental | 19 | 0 | 02 | 17 |
| Control | 18 | 0 | 18 | 0 |
| Total | 37 | 0 | 20 | 17 |

Table 1 show that there were 19 chucker's in the experiment group and 18 chucker's in control group before the experiment. After giving treatment to the subjects from experimental group 17 bowlers out of 19 who were chucker's are converted to legal bowlers but none from control group.

**Table 2 Chi Square Test of Association**

| | Value | Significance |
|---|---|---|
| Pearson Chi-Square | 29.795 | 0.00 |

The chi square value in the table 2 is found very highly significant as chi square value is found 29.795 (P=0.00), which shows the association between the variables. Hence it is interpreted that the change in the bowling actions (chucking to the legal) is totally depends on the group of the subject. Bowlers from experimental group are changed from chucker (19) to legal action (17) and chucker's from control groups (18) remained unchanged.

Analysis of Chucker's from Experimental Group Based on the Pre and Post Observations of the Experts

**Table 3 Chi Square test for pre test and post test of experimental group**

| Observation | Chi Square Value | Significance |
|---|---|---|
| Bowling Type-Classification | 57.00 | .000 |
| Appropriate Speed & Rhythm of run up | 2.287 | .130 |
| Approach of run up | 6.967 | .073 |
| Appropriate Direction of Take off | 3.074 | .080 |
| Appropriate Height of Jump | 1.810 | .179 |
| Bowling action in range (side/semi/open/mixed) | 10.55 | .032 |
| Turnover of bowling arm | 3.95 | .047 |
| Palm position of bowling Arm | 8.337 | .080 |
| Counter rotation | 3.20 | .073 |
| Alignment of back foot and front foot | 3.971 | .046 |
| Front foot position | 19.76 | .001 |
| Bowling arm position at release | 12.86 | .045 |
| Excessive lateral Flexion | 13.35 | .000 |
| Follow through | .65 | .418 |

**Discussion**

This study was about to find out the causes of chucking and to rectify. Observations were done on several factors such as Appropriate grip, Run up, Loading, Back and Front Foot contact, Release action and follow through. This remedial program can be successfully administered to rectify illegal bowling action of players & can be applied at various levels. These assessment methods can be applied to identify all bowlers having illegal bowling action. Further investigations in this field may be focused on pertinent psychological factors that may lead to chucking. These assessment methods and remedial program can be used to educate coaches.

**Conclusions**

After analyzing the data following conclusions are made:-

- Grip is not the major reason for chucking action.
- Inappropriate speed, rhythm and approach run may lead to chucking action hence need to be focus on these factors during training and coaching.
- Inclusion of training of direction and height of jump will help in avoiding bowlers to be a chucker.
- Corrections in turnover of arm during bowling action in the initial period of training will be helpful in converting bowlers from chucker to legal.
- Changing palm position of bowling arm from up position into side and down position, chucker's were converted in to legal action. Hence it is concluded that if bowlers bowling action is observed in the initial phase will help bowlers to avoid illegal action.

**Reference**


1. Aginsky, K. (2011). Effect of a lumbar stabilization intervention on Shoulder counter – rotation in elite schoolboy fast bowler. Science and medicine in cricket, proceedings of the 4th world congress on science and medicine in cricket, Chandhigarh 2011.pg 109.
2. Andrew W, Wayne S, Mark D, Portus M, James D. (2010). Wearable sensors for on field near Real time detection of illegal bowling action. Cricket Australia Sports Science Sports Medicine Conference Proceedings 2010,Cricekt Australia Centre of Excellence ,Brisbane.
3. Davids, K., Button, C., & Bennett, S.J. (2008). Dynamics of skill acquisition: A constraints – led approach Champaign: Human Kinetics.
4. Protus, M., Silva, B., &Spratford .W. (2010) Umpire perception and biomechanical results of fast bowling arm actions. Cricket Australia sport science sport medicine conference May 2007, 78.


* * *

# Impact of Stress on Mental Health among Post Graduate Students

**Dr. Sinku Kumar Singh:** Swami Ramanand Teerth Marathada University Nanded.
**Dr. Deepak Bachhewar:** Director of Sports, Vasantrao Naik College, Vasarni, Nanded

**Abstract**

The primary objective of the study was to impact of stress on mental health of post graduate students of Swami Ramanad Teerth MarathwadaUniversity Nanded. Total 100 students were selected as a subject for the present study & their age ranged from 20 to 30 years. The data was collected to the students through questionnaires. The instruction was given by the investigator to the students before filling these questionnaires. To analysis of data Mean, Standard Deviation and Co-relation were used to find out the impact of Stress on Mental health of Post graduate student's .The reveals that there was negative impact of stress on Mental Health. That means stress negatively effects on mental health among Post graduate students. Finally, the results of the study were expected to be of great use and importance to the students as the same can be utilize in formulating the modalities in putting their knowledge acquired through developed scientific investigations, analysis and interpretation of findings to use of all type of students.

**Introduction:**

Stress is mental and emotional pressure, tension, or stress that occurs due to the demands of University life. University is a stressful time for many students as they go through the process of adapting to new educational and social environments. University may be even more stressful for international students who have the added strain of learning different cultural values and language in addition to academic preparation (Hudd, S., Dumlao, J., Erdmann-Sager, D., Murray, D., Phan, E., Soukas, N., &Yokozuka, N. (2000), Elizabeth Scott, M.S.(2008)) Gerdi Weidner, Carl-Walter Kohlmann, ElkeDotzauer&Lawrence R. Burns (1996). Mental health may be describe as an individual's state of well-being, when he or she realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully and is able to contribute to his or her community (World Health Organization, 2003a).

In the light of the above, the investigator becomes interested in determining the effectiveness on the stress management among students.

**Methodology**

In this section selection of subjects, administration of the tests, data collection, statistical techniques, tools of the study has been described for present study.

**Selection of Subjects**

Total 100 post graduate students selected for present study from Swami Ramanand Teerth Marathawada University, Campus.

**Inclusion and Exclusion Criteria**

The inclusion and exclusion criteria for participants were as follows:

The inclusion criteria are:

1. The participant agreed to participate in the study via an informed consent.
2. The participants must be sedentary student in their under and post graduate degree programme aged range was 20 to 30 years.
3. The participants were not rotating through other health facility at the time of study.
4. Active Physical illness. The participants advised not to participate if under any injuries and management within 2 weeks of study.
5. Inability to obtain the consent of the respondent.
6. Presence of chronic medical conditions such as asthma, heart disease or any other condition. And
7. Participants free from the smoking, drug abuse and alcohol consumptions during the experimental period.

**3.3. Research Design:**

The design in a research study refers to "the researcher's overall plan for answering the researcher's question or testing the research hypotheses" This study involves descriptive survey design of post graduate students in a non-experimental, descriptive survey design. This explores and measures the perceptions of participants' psychological characteristics within the clinical environment.

**Administration of the Test:**

Questionnaires were used to gather data in this study. The purpose of the study, rights of respondents and the ways to answer the questionnaire were explained by the researcher verbally and in written form. The written form was attached to each questionnaire. The respondents were informed by the researchers that the questionnaire comprised three sections and these sections were demographic information, Stress and Mental Health. In collecting the data, the researcher Follow to ethical guidelines, principles, and standards for studies conducted with human beings

**Tools of Study:** The major dependent variable was obtained from each student participant on the Demographic Data Sheet. The independent variable were stress and mental health, which were measured by the Stress questionnaire and General Health Questionnaire (GHQ).The Description are as follows:

**Demographic Information:** The data was collected through respondents in the form of Questionnaire. The demographic information about Gender, age, height weight , etc. was obtained before seeking responses.

**Stress Questionnaires** of Sheldon's were given to 10 subjects. The instructions were given to the subjects before filling these questionnaires by the researcher.

**Scoring:** 0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the positively.

**Mental Health**

For the present study, mental health was measured by the using General Health Questionnaire (GHQ -12).The General Health Questionnaire (GHQ) is a measure of current mental health developed. by Goldberg

**Results of the Study**

The present chapter is dedicated to the presentation of results along with the discussion of present study. The results and discussion have been presented in concise and comprehensive manner that is easy to comprehend starting with stress on mental health.

The results concerning this are presented in the form of tables and also illustrated with the help of suitable figures where ever necessary. For the sake of co-relationand methodical presentation of the results, following order has been adopted.

**Table-1**

**Mean scores of morphological characteristics of post graduate students**

| Parameters | (mean) |
|---|---|
| **Age (year)** | **25.98** |
| **Height (cm)** | **167.60** |
| **Weight (kg)** | **64.43** |

ISSN 0975-5020

**As per table show mean of age, height and weight.**

The mean age, Height and Weight of Postgraduate studentswas25.98, 167.60 and 64.43 respectively.

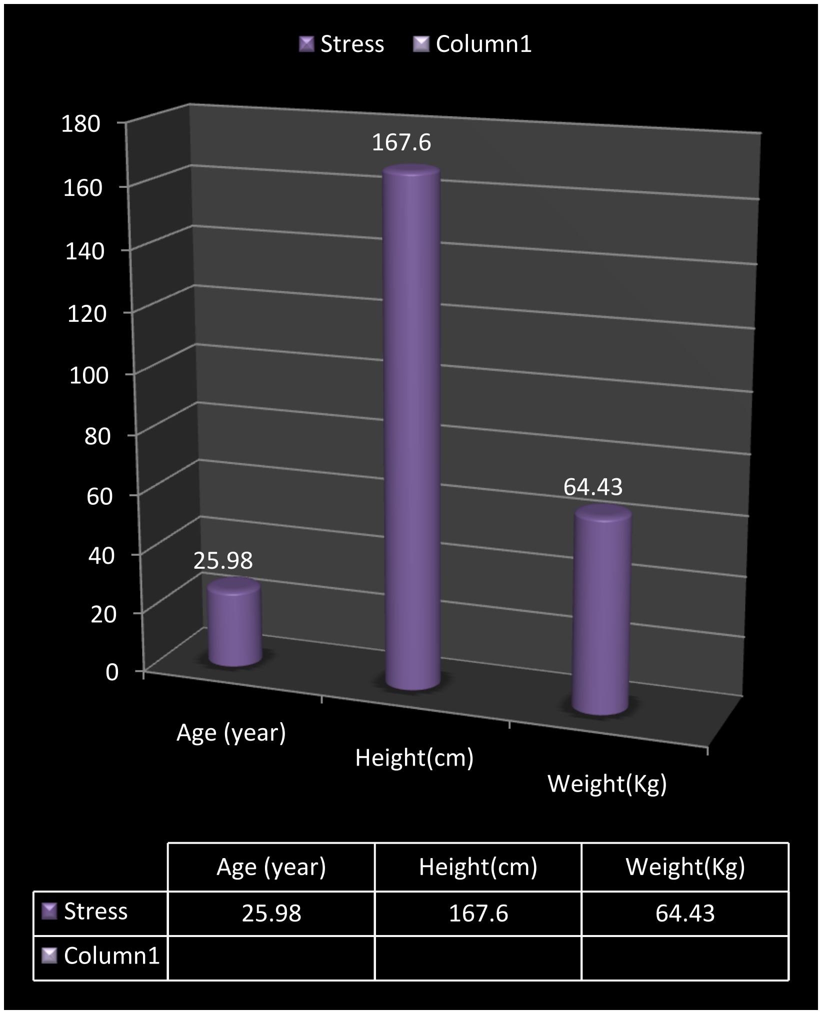



**Figure 1 shows the Mean scores of morphological characteristics of post graduate students.**

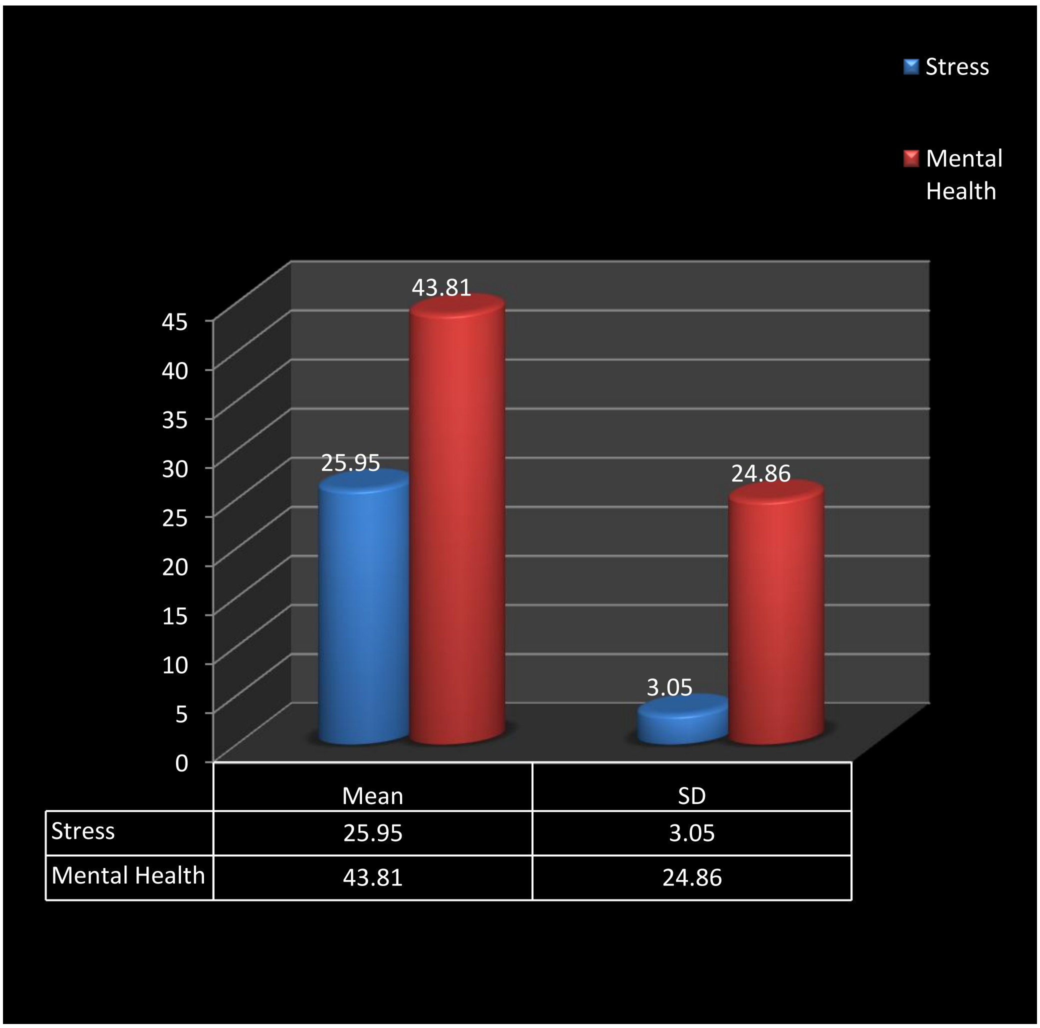
**Table -2**

**Mean score standard deviation and Co-Relation of stress on mental health of Post graduate students:**

| Target Population | Variables | Number | Mean | S.D. | Co-Relation |
|---|---|---|---|---|---|
| **Post Graduate Students** | **Stress** | 100 | 25.95 | 3.05 | -O.1572 |
| | **Mental Health** | 100 | 43.81 | 24.86 | |

Table- 2 Shows the impact of Stress on Mental Health among post graduate students. With regards to stress and Mental Health of Post Graduate Students, they have obtain the mean value of 25.95 and43.81 respectively which are given in the Table-2 reveals that there was negative impact of stress on Mental Health . That means stress negatively effects on mental health among Post graduate students.

**Figure-2**
**Mean score and standard deviation of stress on mental health of Post graduate students:**




The findings of this study will be implication for mental health professionals working with post graduate students. As mental health professionals become aware of these differences, they will be better able to structure prevention and treatment programs for students. This study will add to the body of knowledge concerning stress and its impact on mental health. The studies will also implication on stress needs to examine the within-group variability of students and provide more detailed information on differences by undergraduate and post graduate students. It will also be imperative to explore the relationships among mental health and students' time management behaviours, coping mechanisms, and support structures and how these factors might vary in different cultures. Finally, the results of the study were expected to be of great use and importance to the students as the same can be utilize in formulating the modalities in putting their knowledge acquired through developed scientific investigations, analysis and interpretation of findings to use of all type of students.

**References**

**Busari, (july2012).**"Identifying Difference In Perceptions Of Academic Stress And Reaction To Stressors Based On Gender Among First Year University Students." International Journal of Humanities and Social DisfunctionDisfunction Science Vol. 2 No. 14 [Special Issue - July 2012

**C.Ward Struthers, Raymond P. Perry and Verena H. Menec(2000) "**An Examination Of The Relationship Among Academic Stress, Coping Motivation, And Performance In College." (Volume 41, Number 5 (2000), 581-592, DOI: 10.1023/A: 1007094931292)

**Coe DP, Pivarnik JM, Womack CJ, Reeves MJ, Malina RM,(2006). "**Effect of physical education and activity levels on academic achievement in children. Medicine and Science in Sports and Exercise" 2006;38:1515-1519.

**Dr. Bhavin U Pandya,Ms. Revati C Deshpande(2012)"**A Study On Impact Of Academic Stress On Mba Students Of Gujarat Technological University." International Refereed Research Journal www.researchersworld.com ■ Vol.– III, Issue –3(3),July 2012 E-ISSN 2229-4686 ■ ISSN 2231-4172

**Elizabeth Scott, M.S.(2008)**"Stress In College: Common Causes Of Stress In College."

**Gerdi Weidner, Carl-Walter Kohlmann, ElkeDotzauer&Lawrence R. Burns (1996) "**The Effects Of Academic Stress On Health Behaviors In Young Adults."( Volume 9, Issue 2, 1996)

**Hudd, S., Dumlao, J., Erdmann-Sager, D., Murray, D., Phan, E., Soukas, N., &Yokozuka, N. (2000).**"Stress At College: Effects On Health Habits, Health Status And Self-Esteem." *College Student Journal, 34*, 217-227.

**Laura P. Womble (2000)**"Impact Of Stress Factors On College Students Academic Performance."University of North Carolina at Charlotte.

**McKean, Michelle, Misra, Ranjita(2000)** "College Students Academic Stress And Its Relation To Their Anxiety Insominia, Time Management, And Leisure Satisfaction." (2000).

**Marwan ZaidBataineh.(2013)**"Academic Stress Among Undergraduate Students: The Case Of Education Faculty At King Saud University." International Interdisciplinary Journal of Education – January 2013, Volume 2, Issue

**World Health Organization. (2003b**). The Mental Health Context: Mental Health Policy and Service Guidance Package. Geneva: WHO.

* * *

# Exercise: A Key to Significant Effect on Cardiovascular Disease & Lipid Profile

**Dnyaneshwar H Mane:** Research Scholar, Physical Education, S.R.T.M. University Nanded.

**Abstract**

Most countries face high and increasing rates of cardiovascular disease. Dyslipidemia (deranged lipid profile) is one of the major risk factor for the atherosclerosis. Atherosclerosis will lead to cardiovascular diseases like coronary artery disease, Hypertension, cardiovascular accident (stroke), peripheral arteries diseases. These diseases are the major causes of mortality and morbidity in the society which leads to major economic burden to the nation. The number of known cardiac risk factors increases everyday because of our life style (tobacco use, physical inactivity, an unhealthy diet and harmful use of alcohol) that is full of physical, psychological and mental stress and the just way for protection and treatment is pharmalogical prescription and another way is through life style modification that includes physical exercise, healthy dietary habits which have been proved by studies. This study shows that there is significant average reduction in cardiac risk with physical exercises.

**Key words:** Cardiovascular Disease, Physical Exercise, Healthy Dietary Habits

## Introduction

A lot of people today are living sedentary lifestyle. Individuals working in offices, students, firms, etc., are sitting down all the time and usually, they only get up when its break time, meal time and going to the comfort room. They are always sitting down the whole day while doing their work. They don't sweat much because they usually have air-conditioned workplace and therefore, there's no way that their body burns up the fats and calories they have stored.

But this sedentary lifestyle has its problems because when someone does not do physical activity all your muscles are no longer used, leading to poor blood circulation throughout the body, bringing along other health problems like obesity, heart disease, muscle that are atrophying, diabetes, osteoporosis and apnea during sleep. Obesity is a problem that is closely linked to lack of exercise and excess weight will result in a sedentary lifestyle, making the situation in a vicious circle.

**Methedology**

**Lipid Profile**

The lipid profile is a blood test done to assess the status of fat metabolism in the body and is important in heart disease. This includes measuring lipids (fats) and its derivatives known as lipoproteins. They are tests that have been shown to be good indicators of whether someone is likely to have a heart attack or stroke caused by blockage of blood vessels or hardening of the arteries (atherosclerosis).The blood is analyzed by the laboratory to determine the levels of:

- Total cholesterol
- Triglycerides
- HDL (high density lipoprotein) cholesterol
- LDL (low density lipoprotein) cholesterol
- Serum VLDL (very low density lipoprotein) cholesterol

**Total Cholesterol**

A combination of the Low Density Lipoprotein, High Density Lipoprotein and Very Low Density Lipoprotein and Triglyceride levels in the bloodstream is known as total cholesterol.

**High Density Lipoprotein Cholesterol (HDL)**

High density lipoproteins are small containers made of fat and protein that carry cholesterol to the liver where it is removed from the body with bile. HDL is also called good cholesterol because having a high level of HDL may decrease your risk of cardiovascular disease.

**Low Density Lipoprotein Cholesterol (LDL-C)**

Lipoproteins which are combinations of lipids (fats) and proteins are the form in which lipids are transported in the blood. The low-density lipoproteins transport cholesterol from the liver to the tissues of the body. Low-density lipoprotein (LDL) cholesterol is the "bad" cholesterol because elevated LDL levels are associated with an increased risk of coronary artery (heart) disease.

**Triglycerides**

The major form of fat stored by the body is triglycerides. A triglyceride consists of three molecules of fatty acid combined with a molecule of the alcohol glycerol. Triglycerides serve as the backbone of many types of lipids (fats). Triglycerides come from the food we eat as well as from being produced by the body.

**Very Low Density Lipoprotein Cholesterol (VLDL-C)**

Very low density lipoproteins, or VLDL, are molecules made up of mostly triglycerides, cholesterol and proteins. Very low density lipoproteins (VLDL), also known as the "very bad" cholesterol, carry cholesterol from the liver to organs and tissues in the body. It also serves as a precursor to low density lipoproteins (LDL).

**Non High Density Lipoprotein Cholesterol**

Non-HDL cholesterol is your total cholesterol minus your HDL “good cholesterol.

Formula: Non-HDL Cholesterol = Total Cholesterol – HDL Cholesterol

**Cholesterol**

Cholesterol is a waxy substance your body uses to protect nerves, make cell tissues and produce certain hormones (estrogen and testosterone). Your liver makes all the cholesterol your body needs. Your body also gets cholesterol directly from the food you eat (such as eggs, meats and dairy products). Too much cholesterol can have negative impacts on your health.

**High Cholesterol Level**

While some cholesterol is needed for good health, too much cholesterol in your blood can increase your risk for heart disease, including heart attack or stroke.
If you have high cholesterol, your body may store the extra cholesterol in your arteries. Your arteries are blood vessels that carry blood from your heart to the rest of your body. Buildup of cholesterol in your arteries is known as plaque. Over time, plaque can become hard and make your arteries narrow. Large deposits of plaque can completely block an artery. Cholesterol plaques can also split open, leading to formation of a blood clot that blocks the flow of blood.
If an artery that supplies blood to the muscles in your heart becomes blocked, a heart attack can occur. If an artery that supplies blood to your brain becomes blocked, a stroke can occur.

**Table – 1Cholesterol Values**

| **Cholesterol** | mg/dL: | mmol/L: |
|---|---|---|
| ***Total cholesterol*** | | |
| Desirable | < 200 | < 5.1 |
| Borderline High | 200 – 239 | 5.1 - 6.1 |
| High | > 239 | > 6.1 |
| ***LDL cholesterol - the "bad" cholesterol*** | | |
| Optimal | < 100 | < 2.6 |
| Near/Above Optimum | 100 – 129 | 2.6 - 3.3 |
| Borderline High | 130 – 159 | 3.3 - 4.1 |
| High | 160 – 189 | 4.1 - 4.8 |
| Very High | > 189 | 4.8 |
| ***HDL cholesterol - the "good" cholesterol*** | | |
| Low (Undesirable) | < 40 | < 1.0 |
| High (Desirable) | > 60 | > 1.5 |

| *Triglycerides* | | |
|---|---|---|
| Normal | < 150 | 1.7 |
| Borderline High | 150 – 199 | 1.7 - 2.2 |
| High | 200 – 499 | 2-2 - 5.6 |
| Very High | > 499 | > 5.6 |

The values in the above table are indicated in milligrams per deciliter blood (mg/dL) and mill mole/liter (mmol/L). The unit mg/dL is common in the US, whereas mmol/L is generally used in the rest of the world.

**Results**

**Role of Exerciseon Lipid Profile**

Habitual physical activity has been related to reduced risk and in prevention of obesity and other related chronic diseases such as type 2 diabetes, dyslipidemia, cardiovascular disease etc. There is an inverse dose-response relationship consistently reported in the literature between physical activity and morbidity and mortality rates from obesity, cardiovascular disease and diabetes.

A protective role against cardiovascular disease in healthy individuals has also been linked to regular physical activity. Physical activity is inverselyrelated to cardiovascular disease and this appears to have a dose-response relationship.This relationship can be explained by the beneficial effect of regular exercise on blood lipid level, blood pressure, and in general cardiovascular function. More specifically, exercise training at a moderate intensity (60-75% $vo_2$ max) has been reported to have a favorable effect on HDL-C level and to cause a significant reduction in triglyceride level as demonstrated by a large number of cross-sectional and epidemiological studies.

These improvements do not occur immediately after exercise, but appear approximately 18-24 hours post exercise, and persist for the next 72 hours. It has been proposed that the exercise-induced improvements in lipid level are related to the depletion of intramuscular triglycerides that occurs with prolonged, moderate intensity exercise. Depleted intramuscular triglycerides lead to the stimulation of the synthesis or activity of lipoprotein lipase, which stimulate the hydrolysis of triglycerides from low-density lipoprotein cholesterols (LDL_C), and the transfer of exercise cholesterol to the HDL particle.Further, a reduction of cholesterol ester transferees, the enzyme responsible for the transfer of cholesterol of HDL to other lipoprotein, has been noted with acute exercise. This reduction has been shown to have an effect of increasing the HDL-C levels. A single bout of exercise has also been related to small reductions in total cholesterol and LDL-C in healthy and dyslipidemia individuals. These changes however, may be taking place partially due to the decreased plasma volume observed with exercise. Hence, a single bout of exercise is sufficient to produce significant acute improvements in the lipid profile of healthy individuals.

Further, a reduction of cholesterol ester transferees, the enzyme responsible for the transfer of cholesterol of HDL to other lipoprotein, has been noted with acute exercise. This reduction has been shown to have an effect of increasing the HDL-C levels. A single bout of aerobic exercise has also been related to small reduction in total cholesterol and LDL-C in healthy and dyslipidemic individuals. These changes however may be taking place partially due to the decreased plasma volume observed with exercise. Hence, a single bout of exercise is sufficient to produce significant acute improvements in the lipid profile of healthy individuals.

**Discussion & Conclusion**

Within the limitations of present study the following conclusion may be drawn:

Today modern man's brain has to work more than his other parts of the body. Humanity has taken up a mode of living without much physical activity. Advance in technology and inventions of machineries have changed the lifestyle of modern man, making him more sedentary. This type of living has been developed because of the influence of modern forms of entertainment such as television, video games, and computer programs. Cardiac risk factors increases everyday because of our life style. Frequent and regular aerobic exercise has been shown to help prevent or treat serious and life-threatening chronic conditions such as high blood pressure, obesity, heart disease, Type 2 diabetes, insomnia, and depression. As a result, exercise can reduce the risk of death due to cardiovascular problems anda single bout of exercise is sufficient to produce significant acute improvements in the lipid profile of healthy individuals.

**References**

Dr. Samiran Nundy, Dr. Anurag Krishna, Dr. Shirish Kumar, Dr. Anuj Sharma &Dr. Nazli Siddiqi. (26 August 2009). **lipid profile: What is lipid profile.** Retrieved fromhttp://doctor.ndtv.com/topicdetails/ndtv/tid/414/Lipid_profile.html

Health and fitness expert (n.d), **Effects of Sedentary Lifestyle to One's Health.** Retrieved October,15,2011 from. http://healthfitnessexperts.com/effects-of-sedentary-lifestyle-to-ones-health/

Jennifer Moll, (2010, December 12). Very **low density lipoproteiin choleterol:About.com Guide.** Retrieved fromhttp://cholesterol.about.com/od/lipoproteins/g/vldl.htm

Kesaniemi, Y. A., Danforth, E., Jensen, M D., Kopelman, P. G., Lefebvre, P., Reeder, B.A. (2001). **Dose-Response issues concerning physical activity and health: an evidence-based symposium.** Medicine science sport exercise. 33, pp, 351-358.

* * *

# Mental Health Status between Physical Education and Sedentary Students

**Dr. S. K. Singh:** Swami Ramanad Teerth Marathwada University Nanded (MS)
**Ms. Anu Gill:** DPE Kaythal, Hariyana

**Abstract**

The objective of the study is to find out the difference of positive and negative mental between Physical Education and sedentary students . 50 physical education and 50 sedentary students from Swami Ramanad Teerth Marathwada University had been selected for the present study. Their age ranged from 18-30 .Questionnaires were distributed physical and Sedentary students. Instructions were given to the both group students before filling these questionnaires by the researcher. To analyzed the data, t-ratios was comprised the status of mental health between physical and sedentary students. For the present study, Mental health was measured by the using General Health Questionnaire (GHQ -12) . The 12-item GHQ-12 comprises six ‘ positive ’ and six ‘negative’ items . While comprised of positive mental health ,results reveals that there was significant difference of mental health found between physical and sentry students with regards to been feeling reasonably happy (t=p<.05), however insignificant differences were found in Been able to concentrate , Plying a useful Part, Been able to enjoy and Been able to face up. While considering negative mental health, the result reveals that there were significant differences of mental health found between physical and sedentary students with regards to Lost much sleep (t=p<.05), Under strain (t=p<.05), and Yourself as a Worthless (t=p<.05), However insignificant differences were found in Couldn’t overcome, Unhappy & depressed, and Been losing confidence

**Introduction:-**

The common belief that physical education students lead to better physical and mental health then sedentary students. Physical education students actively engage in various physical and sporting activities during their studies however sedentary students not engage in various physical and sporting activities during their studies.

Wikipedia Dictionary (2010) explains the meaning of mental health as a state of emotional and psychological well-being in which an individual is able to use his or her cognitive and emotional capabilities, function in society and meet the ordinary demands of everyday life. Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity ‘defines the Constitution of the World Health Organization. This concept is very close to the definition of health according to Ayurvedic literature. Sushrut, a prominent proponent of this traditional system of Indian medicine, defines it is a state characterized by a feeling of spiritual, physical and mental well being (Prasanna atam indriya mana). The objective of the study is to find out the difference of positive mental between Physical Education and sedentary students and to find out the difference of Negative mental between Physical Education and sedentary students

**Methodology:-**

Under this heading selection of subjects, collection of data, tools of the study, administration of the test and statistical procedure have been described.

**Slection of the Subjects:-**

50 physical education and 50 sedentary students selected for the present study. Their age ranged from 18-30 years.

**Administration of the Test:-**

Questionnaires were distributed physical and sedentary students. Instructions were given to the individuals and team players before filling these questionnaires by the researcher.

**Tools of the Study:-**

For the present study, Mental health was measured by the using General Health Questionnaire (GHQ -12). The General Health Questionnaire (GHQ) is a measure of current mental health and since its development by Goldberg in the 1970s it has been extensively used in different settings and different cultures. The 12-item GHQ-12 comprises six 'positive' and six 'negative' items. Positive items included 'Have you recently felt capable of making decisions about things? while negative items included 'Have you recently felt constantly under strain? ' Items were classified in this way according to wording, with positively worded items having responses 'Better than usual', 'Same as usual', 'Less than usual' and 'Much less than usual '. Responses to negatively worded items are 'Not at all ', 'No more than usual', 'Rather more than usual' and 'Much more than usual'. Questions 1, 3, 4, 7, 8 and 12 as positively worded items. The remainder is negatively worded. Responses will be coded using an un weighted four-point Likert scale (0, 1, 2, 3). Positively worded items will later rescore so that a high score will indicative of endorsement of these items (e.g. 'better than usual '). Higher scores on negative items indicate greater distress and or difficulty.

**Colletion of Data:-**

Data was collected individually through a questionnaire from 50 physical and 50 sedentary students in swami ramanand teerth marathwada university nanded.

Analysis of the Data:

The collected data was analyzed as a whole and year wise and not in fragments i.e. institution-wise.The collected data will be checked for accuracy and completeness and was coded and entered into the Statistical Package for Social Sciences (SPSS) software version 16. Descriptive statistics for all studied variables, and t-value was used and a p-value of <0.05 was considered statistically significant throughout the study.

**Results and Discussion**

Comprised and indentified of Mental Health between physical and sedentary students. The data have been systematically analyzed in the form of Mean Scores, Standard Deviation and T-ratio.

**Table – 1**

Mean Scores and Standard Deviation of selected components Physical Education and sedentary students of positive health Positive mental health

| Demission | Students | Number | Mean | S.Ds. | t-ratio |
|---|---|---|---|---|---|
| Been able to concentrate | Physical education | 50 | 3.2 | 0.52 | 0.85 |
| | Sedentary | 50 | 3.12 | 0.42 | |
| Plying A Useful Part | Physical education | 50 | 3.1 | 0.81 | 0.57 |
| | Sedentary | 50 | 3.02 | 0.54 | |
| Capable of making Decision | Physical education | 50 | 2.8 | 0.72 | -0.71 |
| | Sedentary | 50 | 2.9 | 0.67 | |
| Been able to enjoy | Physical education | 50 | 2.98 | 0.74 | 0.31 |
| | Sedentary | 50 | 2.94 | 0.49 | |
| Been able to face up | Physical education | 50 | 2.6 | 1.04 | 1.58 |
| | Sedentary | 50 | 2.9 | 0.85 | |
| Been feeling reasonably happy | Physical education | 50 | 2.94 | 1.05 | -2.82* |
| | Sedentary | 50 | 2.64 | 0.65 | |

- Significant at .05 levels.

Table 1 shows that Mean Scores and Standard Deviation of selected components Physical Education and sedentary students of positive health Positive mental health. The mean score and standard deviation obtained from table -1.The results reveals that there was significant difference between mental health with regards to been feeling reasonably happy (t=2.82,p<.05) physical education students was found been have got more feeling happy as compare than sedentary students. However insignificant differences were found in Been able to concentrate , Plying a useful Part, Been able to enjoy and Been able to face up.

**Table-2**

Mean Scores and Standard Deviation of selected components Physical Education and sedentary studentsof Negative mental health

| Demission | Students | Number | Mean | S.Ds. | t-ratio |
|---|---|---|---|---|---|
| Lost much sleep | Physical education | 50 | 2.56 | 0.77 | -2.62* |
| | Sedentary | 50 | 2.98 | 0.82 | |
| Under strain | Physical education | 50 | 2.58 | 0.85 | -2.11* |
| | Sedentary | 50 | 2.96 | 0.96 | |
| Couldn’t overcome | Physical education | 50 | 2.96 | 0.69 | 0.96NS |
| | Sedentary | 50 | 2.74 | 1.47 | |
| Unhappy and depressed | Physical education | 50 | 2.96 | 0.86 | -2NS |
| | Sedentary | 50 | 3.3 | 0.86 | |
| Been losing confidence | Physical education | 50 | 2.74 | 0.94 | -1.58 |
| | Sedentary | 50 | 3.04 | 1.00 | |
| Yourself as a Worthless | Physical education | 50 | 2.76 | 1.18 | -2.21* |
| | Sedentary | 50 | 3.18 | 0.63 | |

- Significant at .05 levels.

Table 2 shows that Mean Scores and Standard Deviation of selected components Physical Education and sedentary students of negative mental health. The mean score and standard deviation obtained from table -1. the results reveals that there were significant differences of mental health with regards to Lost much sleep (t=2.62,p<.05), Under strain (t=2.11,p<.05), and Yourself as a Worthless (t=2.21,p<.05), which means that there physical education was found been feeling reasonably happy. However insignificant differences were found in Couldn’t overcome, Unhappy & depressed, and Been losing confidence

**Conclusion:**

Following conclusions were found in the present study.

1. Significant differences was found between positive mental health with regards to been feeling reasonably happy, However insignificant difference were found in Been able to concentrate , Plying a Useful Part, Been able to enjoy and Been able to face up.

2. Significant difference was between mental health with regards to Last much sleep Under strain and Yourself as a Worthless which means that there physical education was found been feeling reasonably happy. However insignificant differences were found in Couldn’t overcome, Unhappy and

depressed, and Been losing confidence

Finally, the results of the study were expected to be of great use and importance to the students as the same can be utilize in formulating the modalities in putting their knowledge acquired through developed scientific investigations, analysis and interpretation of findings to use of all type of students.

**Implications:**

The findings of this study will be implication for mental health professionals working with students. As mental health professionals become aware of these differences, they will be better able to structure prevention and treatment programs for students. This study will add to the body of knowledge concerning students' health outcomes. The studies will also implication on academic stress needs to examine the within-group variability of students and provide more detailed information on differences by countries and level of acculturation. It will also be imperative to explore the relationships among mental health and students' time management behaviours, coping mechanisms, and support structures and how these factors might vary in different cultures.

**References:**

Goldberg D. General Health Questionnaire (GHQ-12) Windsor, UK: NFER-Nelson; 1992.

Hudd, S., Dumlao, J., Erdmann-Sager, D., Murray, D., Phan, E., Soukas, N., & Yokozuka, N. (2000). Stress at college: Effects on health habits, health status and self-esteem. College Student Journal, 34, 217-227.

Morgan, W.P. (1984). Selected psychological factors limiting performance: A mental health model. American Academy of Physical Education Papers, 18, 70-80.

Pritchard, M. E., Wilson, G., & Yamnitz, B. (2004). What predicts adjustment among college students? A Longitudinal Panel Study. Manuscript submitted for publication.

Mori, S. C. (2000). Addressing the mental health concerns of international students. Journal of Counseling and Development, 78, 137–144.

Pearlin, L. I. (1999). Stress and mental health: A conceptual overview. In T. L. Scheid (Ed.),A handbook for the study of mental health: Social contexts, theories, and systems New York: Cambridge University Press.

Sax, L. J. (1997). Health trends among college freshmen. Journal of American College Health, 45, 252–262.

Thomas, S. P., & Williams, R. L. (1991). Perceived stress, trait anger, modes of anger expression,and health status of college men and women. Nursing Research, 4, 303–307.

Zaleski, E. H., Levey-Thors, C., & Schiaffino, K. M. (1999). Coping mechanisms, stress, social support, and health problems in college students. Applied Developmental Science, 2,127–137.

* * *

# Strategies to Overcome the Educational Development Barriers of Scheduled Caste Students

**Saurabh Kumar Singh:** Research scholar JJT,University

**Abstract**

Much have been talked about. Many steps have been taken through different plans for the disadvantaged children. Still inequality exists in the classroom performance. Some come out with excellent results, others with good. There is also a class of low achievers. Socio-cultural factors contribute to their poor performance. To eradicate these barriers strategies have been suggested by the educationists. Among them enriched curriculum engaging students in the authentic work, creating Network of Supports, Co-curricular, Extra-curricular Activities etc. are highlighted in this paper. Honest attempts have been made towards affirmative action to dissolve the causes contributing to performance inequality between the children of General Castes and Scheduled Castes at foundation level.

**Keywords:-** Disadvantaged Children, Low Achievers, Co-curricular Activities, Extra Curricular Activities, Affirmative reaction

**Introduction**

Historically, general caste students have a head-start over the scheduled caste students in terms of education, awareness, academic orientation and drive for academic fulfillment. Unequal schooling has limited the educational opportunities of disadvantaged scheduled caste children in India. In addition, these children sometimes have problems outside schools that interfere with their learning. The problem of these students may include drug abuse, delinquent gang membership, dysfunctional families, and family violence. Such students are also likely to live in neighborhoods characterized by poor social control, delinquent gangs, high rates of personal and property crimes, and widespread distribution and consumption of drugs. They also must confront a less tangible threat - the devaluation of their talents and potential. The scheduled caste children are labeled ‘problem children’ or the ‘specific needs population’, implying they are somehow intrinsically less intelligent, more needy. Social marginalization becomes a problem only when we fail to tackle this problem honestly and fairly. Perhaps more than at any other time in history, schools are being asked to recognize and address the needs of disadvantaged children who suffer from various problems, abuse and neglect. Schools are also increasingly aware that low social status may depress scheduled caste students performances regardless of family income. Academic mediocrity may place all scheduled caste students of being unable to compete in global markets.

**Review of Literature**

Though barriers are many in the field of education, particularly these do not escape from the hawk’s eye of the educationalist. They do suggest strategies for overcoming barriers to repair and reconstruct the system of education for the disadvantaged children. A good deal of research has already been done on the effectiveness of various school components. Mallenkipf and Mallville (1996: 40) opine that school facility measures to be significantly related to pupil’s achievement. These are (a) number of special staff in the school. (b) Ideal class size and (c) ideal pupil’s teacher ratio and instructional expenditures for the pupils. Martin Katzmah (1988: 40), Govindra (1992: 17-35) Das and Dave (2004: 81) and Dave (2007) have examined the relationship between the school service and students’ achievement and found relations to be positively co-related. In the present context the system of education is primarily on interaction activity between the teacher and the students. The class room teachings are based on prescribed curricula and students are to ascertain that the students perceive in proper context through the method of drilling. Siberman (2005: 40) observes monotonous curricula works as a source of failure to disadvantaged students. The same fact is reflected in a study conducted by Joshi (2002: 24-25). Cestaneda (1994) points out that the students who confuse with the curriculum develop inferiority and insecurity within themselves.

**Research Methodology**

Though many colleges are situated in the study area which is coming under Aligarh Municipal Corporation, only 5 colleges are selected on the basis of high concentration of scheduled caste students. Students from these Colleges were selected as sample respondents. All elderly scheduled caste students who were reading in different classes were consulted for data collection. However, 250 scheduled caste students interviewed for data collection. Accordingly 250 general caste students from the same educational grades with the same gender break-up were selected on a random basis for comparative analysis. Parents of both caste categories and teachers of the sample Colleges are also consulted for data collection.

**Innovative Strategies for Improvement in Educational Performance**

In recent time a number of innovative strategies have been undertaken to bring in improvement in the educational performance of the College going scheduled caste children. These approaches typically have focused on strong parent involvement, on high expectations for students, on providing challenging learning activities, and on delivering integrated human services at or near College to address families' need on a comprehensive basis. An attempt has been made here to suggest some techniques and strategies for the better educational performance of College going children in general and scheduled caste students in particular.

- **Enrichment of The Basic Curriculum**

First, colleges must find ways to introduce an STRATEGIES FOR OVERCOMING BARRIERS TO EDUCATIONAL DEVELOPMENT accelerated and enriched curriculum that will provide the scheduled caste students with the learning experiences that will enable them to reach higher standards. A challenging curriculum engages those students in Colleges by drawing clear connections between learning and the world beyond College. Often Colleges make these connections explicit through College-to-work or career and college awareness programmes. In addition, Colleges must find ways to make challenging and high-quality teaching and curriculum available to all students, including scheduled caste students. Colleges must find ways to create a network of support that ensures each student's success. This network might include peer tutoring and mentoring programmes, improve partnerships with families, and comprehensive support systems that include health and other social services. Finally, organizational arrangements ensure that all students, including low achievers (scheduled caste students), have access to high quality, academically rigorous subject matter.

- **Practical Learning**

Students are more likely to be engaged in learning when they perceive that their college work significant, valuable, and worthy of their efforts. Then students are truly engaged in academic work, they apply the concentration, effort, and thoughtfulness needed to master knowledge and skills in the major disciplines. Students who are engaged in college work invest themselves in learning to improve their competence, not just for the sake of completing assignments or earning good grades. Successful Colleges emphasize authenticity in learning activities. Students have the opportunity to ask questions and study topics they think are important, and they are allowed to influence the pace and direction of their own learning. Teachers frame tasks to have some connection to the world beyond the classroom, making them more than academic exercises.

- **Creating Personalized Networks Support t Through DBMS**

Networks of support that address students' academic and personal needs can enable at-risk scheduled caste students to persist and succeed in colleges. Strong support can foster students' sense of belonging, thus encouraging them to adopt the mission of the college. For at-risk students in particular, successful Colleges take an active role in responding to personal, emotional, and basic survival needs that frequently go unmet in traditional College environments.

- **Promoting Scheduled Caste Students in Co-curricular and Extra-curricular Activities**

Colleges are more than just place where academic learning occurs. Depending on many factors, they are also complex social environments that can be inviting or alienating. Successful programmes for at-risk students attempt to create an environment that helps students develop a sense of commitment to the College community. Students who do not identify, participate, and succeed in College activities become increasingly at risk of academic failure and dropout. In order to improve student achievement and persistence, it is suggested that the College climate must foster "investment" behaviour – Colleges must encourage students involvement in academic and extracurricular activities by stimulating their interest, increasing their personal resources (e.g. remediating skill deficiencies), and rewarding their efforts. Co-curricular activities such as academic or special interest group, theater and music groups, and sports teams have traditionally enhanced students' sense of College membership by providing them with a special "niche" in the College community. Students involved in these kinds of co-curricular activities find opportunities to shine and are less likely to become disengaged from College. Many studies have indicated an association between extra-curricular activities in general and positive academic outcomes. For example, one survey showed that high College social participation is positively correlated with high College and post-high College educational achievements. Another study of reading skills development showed that the higher students' level of involvement in organized extracurricular activities, the higher their reading achievement.

- **Providing Recognition to the Student Contributions**

For many scheduled caste students, especially those at risk of dropping out of College, developing a sense of College membership Depends on how they perceive teachers to be treating them. Students expect and want fair and decent treatment from teachers; how the College administers discipline sends important messages about respect to students. When the College's disciplinary policies seem impulsive and unfair, students are separated and the College's mission wanes. When the College's rule enforcement is consistent and teacher and student role are clearly defined, students identify more closely with the College.

In a College setting, harmonious interaction between students and teachers requires Substantial agreement about the expected norms of behavior. For Colleges to enforce the rules accordingly, all students must know what their obligations are and how to meet them. Some Colleges achieve this end by reviewing their rules in a formal meeting of the entire College community one or two times a year. In addition, disciplined Colleges respect and support appropriate behavior. They adopt rules for behavior that cover both formal and informal interactions, teach students how to observe those rules competently, and monitor compliance persistently. One way to ensure students' acceptance of the College's norms of behavior is to give them a voice in creating the College community's rule: If a College's atmosphere is one of antagonism and insensitivity in which students are continually subjected to criticism and failure, serious disciplinary problems and criminal behaviors are likely to erupt. Some teachers' and administrators' preoccupation with punitive methods of controlling student behavior contributes to an atmosphere of conflict. Safe Colleges are those where supervisory expectations. Faculty competence and staffing arrangements protect children from adult incivility.

- **Converting The Teachers Role Into Mentor For Effective Education**

Teachers seek to influence students' social and personal development, as well as their intellectual growth. To sustain a pervasive "ethic of caring," teachers must maintain continuous and sustained contact with students, responding to the students as whole persons rather than just as clients in need of a particular service. Expanding their traditional role as transmitters of knowledge, teachers help create networks of support that foster students' sense of belonging and support students to succeed in the College. Teachers should develop a new approach that involves students as producers of knowledge, rather than as passive recipients. For their part, teachers in the College need to (1) promote positive and respectful relations between them and students; (2) help students with personal problems; (3) cultivate students' ability to meet College standards; and (4) support students' efforts to find a place in society by forging appropriate links between personal goals and interests, College opportunities, and future plans. In exchange for this active commitment from the College, students behave positively and respectfully toward teachers and commit their mental and physical effort in College tasks to a level making their own achievement likely. Through effective teaching, students learn and practice self-management skills in substantively rewarding activities. Effective teaching also creates learning environments where each participant's contribution is valued, and anyone's absence is duly noticed. Appointed students to organize and direct academic activities and community events facilitate their development as participants in an orderly institution. The procedures used in Colleges constitute a 'hidden curriculum' that either fosters students' engagement and general seriousness of purpose or, alternatively, undermines their confidence and sense of responsibility.

- **Pears and Parents Participation For The Better Decision Making**

Programmes should be designed to develop two-way communication between College and home, and to involve parents in decision-making, planning, assessment, and curriculum development. By creating a climate in which parents and families are regarded as partners in learning, Colleges can make parent and family involvement a reality.

- **Family Partnership For After College Learning**

One of the most powerful contributions that families can make toward their children's success in College is to foster after-College learning. Scheduled caste families may foster home learning for College students by encouraging them with their College work and assisting children with decisions that affect their future. Family members can also exert a powerful influence not only on their children's course selection but also on their career options once they come out from high College.

Higher achievement occurs in part because students whose families are more involved in their education do more homework. Parents monitoring student's attendance, homework, and use of leisure time are especially important at the secondary level, as students become more active outside the home.

- **Assessing The Concerns And Opinions Of Family**

Colleges can bridge the distance between families and Colleges by surveying parents to find out their concerns and opinions about College. Colleges should begin planning parent involvement activities by asking parents of students what they need (e.g., information, training, decision-making opportunities) to support their children's academic achievement. Traditional homework assignments can become more interactive ones by involving family members. For example, students might collect oral histories from family members for history classes.

- **Create a Mechanism for Personalized Communication**

With parents, especially with those unable to come "in" to College, for example, a College might's appoint a home-College coordinator, provide more flexible time for teachers to visit homes, or expand opportunities for contact by providing parents with more flexible schedules with which to meet College staff. For example, Colleges can set up resource centers for parents; institute home visits hold evening or weekend meetings out in the community, etc. Personal contact is important in encouraging families to participate.

- **Give Parents a Voice in College Decisions**

Colleges can include parents and other family members in decision-making bodies, College improvement teams, or steering committees that direct College restructuring efforts. By providing regular information and making seminars and workshops available to family members, College staff often facilitate the participatory decision making process. Once family members are informed and involved, the College must listen and respond to their contributions.

**Concluding Remarks**

After 67 years of independence, time has come to take stock of our goal fulfillment, turns missed and time wasted. It can be unequivocally asserted that scheduled caste parents have been unable to reap commensurate benefit from the government policy of universal education and the extended facilities of constitutional benefits. Of course, forces of modernization to a considerable extent have dissolved the socio-cultural of the scheduled caste, which have greatly contributed for their inward looking mindset. In the sweep of globalization, the world is fast shrinking to a global village. Given the fact that the exploitative social system which has been readjusting with the changing dictates of time by reinventing and redefining itself in different forms of social inequality, it will be presumptuous to foresee a total turn-around in the social paradigm within a specific time frame. However, it may be expected that juggernaut of globalization would go a long way to bulldoze the socio-economic and socio-cultural barriers confronting the scheduled caste population, to produce a level playing field for all.

**References:**

Cestaneda 1994. Curriculum as a Source of Failure. Perspectives of Educational Opportunities and Tribal Children. New Delhi: ICSSR Abstract volume.

Das RC 2004. Impact of College Conditions in Primary Education, SIERT-Assam. In: SB Buwada (Ed.): Third Survey of Research in Education, Bhubaneswar: NCERT, pp. 78-81.

Dave PN, CL Anand, RG Wolf 2004, Pupils Achievement of the Primary Stage. In: MB Bouch (Ed.), Volume 1. Baroda: Society for Educational research and

Development, pp. 48-52.

Govindra AR, NV Varghese 1992, Quality of Primary Education, An Empirical study, Journal of Educational Planning and Administration, 9(i): 17-35.

Joshi U 2002. Plight of the Girl Child, Kurukhetra, 46 (12): 10-32.

Katzaman Mantini 1988. A Research on Tribal Education. In: S Hindwan (Ed.): Public Policy and Poor. New Delhi: Center for Policy Research, pp. 69-72.

Mallville Mc, E Mallekipf Blunt 1996, The Research Paper on College Facility Measures the Pupils Achievement. Abstract volume. In: Perspectives of Educational Opportunities and Tribal Children. New Delhi: ICSSR.

Siberman 2005. Curriculum as a Source of Failure. Abstract volume. In: Perspectives of Educational Opportunities and Tribal Children, New Delhi: ICSSR.

* * *

# Effect of Pranayama on Respiratory and Cardiovascular Functions of Collegiate Students

**Vishwajit Thakare:** Lecturer College of Physical Education, Pusad Dist.Yavatmal
**Dr. T. K. Bera:** Principal, Bharati Vidyapeeth's College of Physical Education, Dhankawadi, Pune

**Abstract**

The purpose of this study was to investigate the Effect of Pranayama on Respiratory and Cardiovascular Function of Collegiate Students. For this study seventy male student were selected randomly from J.S.P.M. College of Physical Education, Pusad Dist. Yavatmal. The subject age group was ranging from 18 to 25 years. The subject were categorize into two equal groups, one experimental group (Group A,n1=35 ) and one control group (B,n2=35). It was also ensured that all of them were medical fit to under go the training for research project. Group A received Pranayama training while group B was treated as control. The design of the experiment has been planned in three phases. All the subject of experimental group were exposed to a two month (8 week) training of selected pranayama techniques for one hour daily in the morning 6.30 to 7.30 am. Thre variables that are Peak Expiratory Flow Rate which is measured by wrights peak flow meter, vital capacity measured by wet spirometer and Cardiovascular Efficiency measured by 12 min Run/walk test. The training of pranayama reveled that there was sigtnificant improvement in peak peak expiratory flow rate, vital capacity & cardiovascular efficiency. Overall from the result as obtained it can be concluded that eight weeks of pranayama training was effective in improving functional abilities of lungs and hear i.e. circulo-respiratory funcition.

**Key words** – Pranayama, Peak Expiratory Flow Rate, vital capacity, cardiovascular efficiency.

**Introduction**

Circulo-respiratory function is considered as most important fitness component in human. It helps to deliver essential nutrients, especially oxygen, to the working muscles of the body and to remove waste products during prolonged physical exertion. It involves the efficient functioning of the heart, blood vessels, and lungs. If a person is having low levels of cardiovascular efficiency, the heart has to work very hard during normal daily activities and may not be able to work hard enough to sustain high-intensity physical activity in an emergency or in some of the sports events. As cardiorespiratory fitness improves, the heart begins to function more efficiently. It doesn't have to work as hard at rest or during low levels of exercise. The heart pumps more blood per heartbeat, resting heart rate slows down, blood volume increases, blood supply to the tissues improves, the body is better able to cool itself, and resting blood pressure decreases. A healthy heart can better withstand the strains of everyday life, the stress of occasional emergencies, and the wear and tear of time. Cardiorespiratory endurance training also improves the functioning of the muscles and liver which enhances the body's ability to use energy supplied by food.

*Pranayama* techniques are known to improve one's overall functional ability of lungs and heart too. *Pranayama* (breathing exercise) is known to be a part of yogic techniques. Patanjali in his Yoga Sutra describes- *Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi* as eight *angas* (parts) of yoga. Amongst them, in the present materialistic world, the third and fourth part, *Pranayama* and *Asana* (Postures) are considered as very important part and prescribed by modern medicine too. Many physicians now recommend yoga to patients at risk for heart and lungs diseases, as well as those with back pain, arthritis, depression and other chronic diseases. The beneficial effects of different *Pranayama* are well reported and have sound scientific basis (Joshi *et al.*, 1992 and Raghuraj *et al.*, 1998). There are different types Pranayama and it has been found that these techniques influence cardio-respiratory and autonomic functions and also help in reducing the scores of anxiety and stress.

Therefore, to reduce the risk of various diseases and to improve work capacity one must improve the cardiovascular and respiratory function. Therefore, it has been a longstanding effort from various researchers to identify the cardio-vascular efficiency and lung function ability of adolescents. A number of approaches have been made through various faculties of medicine, in this quest, one of the significant approaches seems to be the traditional Yoga's Pranayama techniques. Various aspects that improve the cardio-respiratory endurance need to be studied and evaluated, so as to form a comprehensive program of yoga exercise for enriching one's heart and lungs function. Being a non-invasive, drugless and non-expensive technique, Pranayama methods can be promoted to the adolescents at gross levels for enhancing their cardiorespiratory fitness.

**Objectives of the Study**

This study was conducted with the following objectives in perspective:

- To assess the respiratory function of college students.
- To assess the cardiovascular function of college students.
- To prepare *pranayama schedule* for imparting training to the selected subjects with a view to improve lungs and heart function.
- To assess the impact of Pranayama on respiratory and cardio vascular function of college students through a control experiment.

**Hypotheses**

On the basis of related literature, the present investigator has formulated the hypotheses as follows:

HO1: The training programme of Pranayama would not improve respiratory function.

HO2: Pranayama training would not help to improve cardiovascular function.

**Materials and Methods**

The present study was undertaken with a purpose to evaluate the effect of *pranayama* on circulo-respiratory function in college students. The methodology followed to conduct this scientific experiment has been presented as follows:

**The Subjects**

Seventy male students (n=70) were selected randomly from the J.S.P.M. College of Physical Education, Pusad, Dist. Yewatmal (Maharashtra, India) for this study. The subject's age group was ranging from 18 to 25 years.

The selected seventy students were then again randomly assigned into two equal groups, viz., one experimental group (Group A; $n_1$= 35) and one control group (Group B; $n_2$ = 35).

Group A received *pranayama* training while Group B was treated as control. The phase-wise design of the experiment has been planned as follows:

- Phase – I: Pretest,
- Phase – II: Training or Treatment, and
- Phase – III: Post test

**Pre – Test (phase – I)**

All the subjects of experimental and control groups were exposed to different standard physiological tests viz., PEFR, Vital Capacity and 12 min. run/walk test to record the pre test data.

**Treatment Stimuli (Phase – II)**

After the completion of pre test, all the subjects of experimental group were exposed to a two months (8 week) training on selected *pranayama* practices for one hour daily in the morning from 6.30 to 7.30 except Sunday and holidays.

- Group A – Specific *pranayama* training.
- Group B – Control.

For a total period of 8-week, the researcher himself organized daily *pranayama* training programme.

**Post Test (Phase III)**

Lastly, when the treatment or training period of 8 week was completed, the posttest on the selected physiological variables was assessed (like pre-test) for all the subjects of both the groups.

**Variables Selected for the Study**

Before and after experiment, following variables on the subjects were assessed with the help of some reliable and standard tools:

| Variables | Tools Used |
|---|---|
| Peak Expiratory Flow Rate | Wrights Peak Flow Meter |
| Vital Capacity | Wet Spirometer |
| Cardiovascular Efficiency | 12 min. Run/Walk test |

**Independent Variables**

One independent variable viz., *pranayama* training had been included in this study. The composition of pranayama training intervention was as follows:

**Statistical Analysis**

Primarily, descriptive statistics have been applied to process the data prior to employing inferential statistics. Since there are three variables along with two testing programmes (i.e., pre-test and post-test) conducted for two different groups (yoga and control), the inferential statistics applied was 2 x 2 x 3 Factorial ANOVA. Further, Scheffe's post hoc test was employed to record comparative effects of yoga on peak expiratory flow rate, vital capacity and cardiovascular efficiency in college students.

**Result and Discussion**

1. Results of Scheffe's Post Hoc Test in Peak Expiratory Flow Rate of College Students

*In Peak Expiratory Flow Rate (PEFR in Lit./min.), the Ordered Means of "Pranayama training Group" (Pre:1 & post: 2) and "Control Group" (Pre:3 & post:4) as presented in Table 1.1 were 489.68, 585.35, 478.50 and 483.64 respectively (Where, 1 = Pre-test of Pranayama training Group, 2 = Post-test of Pranayama training group, 3 = Pre-test of Control group, and 4 = Post-test of Control group).*

*The statistical significance of Scheffe's Post Hoc test presented in Table 1.2 revealed that-*

- Control group did not show significant improvement in Peak Expiratory Flow Rate (CD=0.09, $p>0.05$).
- Pranayama training group showed significant improvement (CD=0.47, $p<0.01$) in Peak Expiratory Flow Rate.
- "Pranayama training" showed significant superiority over the "Controls" in improving Peak Expiratory Flow Rate (CD=0.35, $p<0.05$) (Fig. 1.1).

This result helps to interpret that the selected Pranayamas perhaps helped to train the respiratory muscles and might have improved the functional ability of inter-costal muscles. This, in turn, could help to improve Peak Expiratory Flow Rate of College Students. Thus, Pranayama has significant effects for improving Peak Expiratory Flow Rate.

**Table 1.1**

Ordered Treatment Means of PEFR Test

(Pranayama Training Group **Vs** Control Group)

| O R D E R | | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |

| | | | | |
|---|---|---|---|---|
| Means (Lit./min.) | 489.68 | 585.35 | 478.50 | 483.64 |

Where, 1 = Pre-test Score of "Pranayama training Gr."
2 = Post-test Score of "Pranayama training Gr."
3 = Pre-test Score of "Control Gr."
4 = Post-test Score of "Control Gr."

**Table 1.2**
**Scheffe's Post Hoc test for difference between Pairs of Ordered Means in PEFR**
(Pranayama Training Group **Vs** Control Group)

| (STEPS) | **3** | **2** | **1** |
|---|---|---|---|
| 4 | 0.09 | 0.35* | 0.17 |
| 3 | | 0.38* | 0.13 |
| 2 | | -- | 0.47** |
| 1 | | | -- |

Where, 1 = Pre-test Score of "Pranayama training Gr."
2 = Post-test Score of "Pranayama training Gr."
3 = Pre-test Score of "Control Gr."
4 = Post-test Score of "Control Gr."

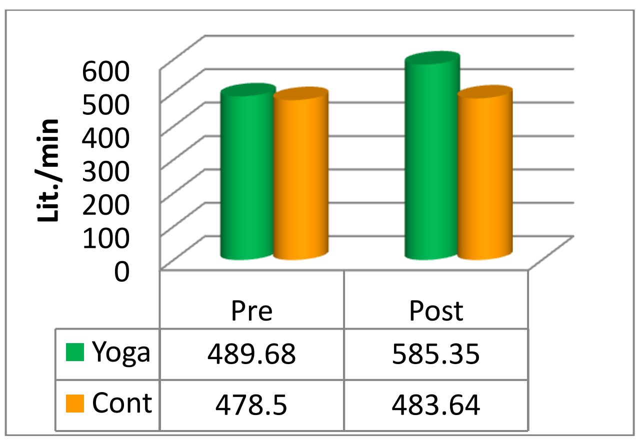



**Fig. 1.1 Pranayama for improving PEFR (Peak Expiratory Flow Rate)**

2. Results of Scheffe's Post Hoc Test in Vital Capacity of College Students

*In Vital Capacity test (Lit/Min.) the Ordered Means of "Pranayama training Group" (Pre:1 & post: 2) and "Control Group" (Pre:3 & post:4) as presented in Table 2.1 were 4.13, 6.87, 4.20 and 4.48 respectively (Where, 1 = Pre-test of Pranayama training Group, 2 = Post-test of Pranayama training group, 3 = Pre-test of Control group, and 4 = Post-test of Control group).*

*The statistical significance of Scheffe's Post Hoc test presented in Table 2.1 revealed that-*

- *Control group* did not show significant change in *Vital capacity* (CD=0.16, p>0.05).
- *Pranayama training group* could show significant improvement (CD=0.32, p<0.05) in *Vital capacity*.
- "*Pranayama* training" showed better result than the "Control" in Vital Capacity (CD=0.24, p<0.05) (Fig. 2.1).

This result helps to interpret that the selected pranayama practices could train the muscles involved in respiration and, therefore, regular pranayama practices might have improved the working ability of these muscles. Thus, muscles involve in respiration gradually get stronger, which in turn improved overall vital capacity of the selected College students. Thus, pranayama has significant effect in improving *Vital capacity* of College Students.

**Table 2.1**
Ordered Treatment Means of Vital Capacity
(Pranayama Training Group **Vs** Control Group)

| | ORDER | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Means (Lit/min.) | 4.13 | 6.87 | 4.20 | 4.48 |

Where, 1 = Pre-test Score of "Pranayama training Gr."
2 = Post-test Score of "Pranayama training Gr."
3 = Pre-test Score of "Control Gr."
4 = Post-test Score of "Control Gr."

**Table 2.2**
**Scheffe's Post Hoc Test for Difference Between Pairs of Ordered Means in** Vital Capacity
(Pranayama Training Group **Vs** Control Group)

| (STEPS) | **3** | **2** | **1** |
|---|---|---|---|
| 4 | 0.16 | 0.24* | 0.10 |
| 3 | | 0.27* | 0.09 |
| 2 | | -- | 0.32* |
| 1 | | | -- |

Where, 1 = Pre-test Score of "Pranayama training Gr."
2 = Post-test Score of "Pranayama training Gr."
3 = Pre-test Score of "Control Gr."
4 = Post-test Score of "Control Gr."

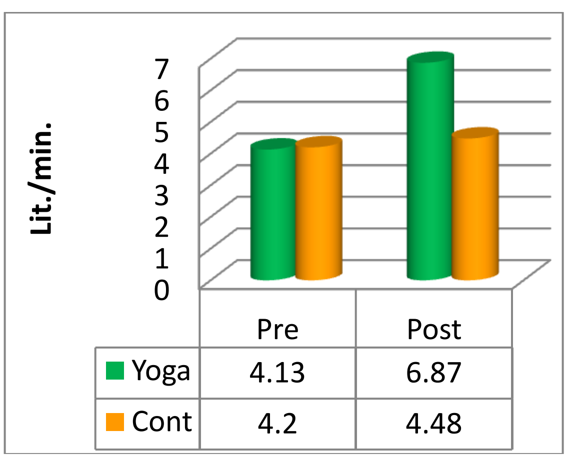


**Fig. 2.1 Pranayama for improving vital capacity**

3. Results of Scheffe's Post Hoc Test in Cardiovascular Efficiency of College Students

In Cardiovascular Efficiency test (meters) the Ordered Means of "Pranayama training Group" (Pre:1 & post: 2) and "Control Group" (Pre:3 & post:4) as presented in Table 3.1 were 2324.60, 2745.28, 2296.75 and 2345.43 respectively (Where, 1 = Pre-test of Pranayama training Group, 2 = Post-test of Pranayama training group, 3 = Pre-test of Control group, and 4 = Post-test of Control group).

The statistical significance of Scheffe's Post Hoc test presented in Table 3.2 revealed that-

- *Control group* did not show significant change in *Cardiovascular Efficiency* (CD=0.11, p>0.05).
- *Pranayama training group* could show significant improvement (CD=0.32, p<0.05) in Cardiovascular Efficiency.
- "*Pranayama* training" showed better result than the "Control" in Cardiovascular Efficiency (CD=0.25, p<0.05) (Fig. 3.1).

This result helps to interpret that although the selected pranayama practices could train the respiratory muscles, they might have opened micro circulation in cardiac muscles and, therefore, cardiovascular efficiency of the selected College students might have improved. Thus, pranayama has significant effect in improving Cardiovascular Efficiency of College Students.

**Table 3.1**
Ordered Treatment Means of Cardiovascular Efficiency
(Pranayama Training Group **Vs** Control Group)

| ORDER | | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Means (Meter) | 2324.60 | 2745.28 | 2296.75 | 2345.43 |

Where, 1 = Pre-test Score of "Pranayama training Gr."
2 = Post-test Score of "Pranayama training Gr."
3 = Pre-test Score of "Control Gr."
4 = Post-test Score of "Control Gr."

**Table 3.2**
**Scheffe's Post Hoc Test for difference between Pairs of Ordered Means in** Cardiovascular Efficiency
(Pranayama Training Group **Vs** Control Group)

| (STEPS) | **3** | **2** | **1** |
|---|---|---|---|
| 4 | 0.11 | 0.25* | 0.12 |
| 3 | | 0.29* | 0.10 |
| 2 | | -- | 0.32* |
| 1 | | | -- |

Where, 1 = Pre-test Score of "Pranayama training Gr."
2 = Post-test Score of "Pranayama training Gr."
3 = Pre-test Score of "Control Gr."
4 = Post-test Score of "Control Gr."

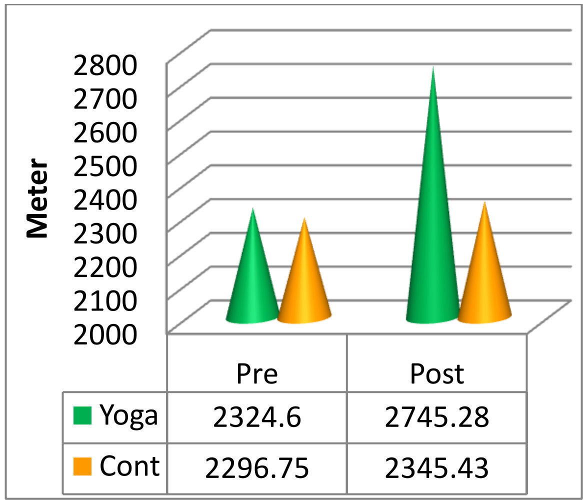



Fig. 3.1 Pranayama for improving cardiovascular efficiency (12 min run walk)

**Conclusion**

This study, on the basis of the results, warrants the following conclusion:

- 8 weeks pranayama training was found effective in improving peak expiratory flow rate.
- The pranayama training showed significant improvement in vital capacity of students.
- Eight weeks of pranayama training was effective in enhancing cardiovascular efficiency.

Overall from the results as obtained it can be concluded that eight weeks of pranayama training was effective in improving functional abilities of lungs and heart i.e. circulo-respiratory functions.

**Selected References**

Bharshankar, J. R., Bharshanker, R. N., Deshpande, V. N., Kaore, S. B., & Gosavi, G. B. (2003). Effect of yoga on cardiovascular system in subjects above 40 years. *Indian J Physiol Pharmacol*, *47*(2), 202-206.

Castillo, Garzon, M. J., Ortega, Porcel, F. B., & Ruiz, Ruiz, J. (2005). Improvement of physical fitness as anti-aging intervention. *Med Clin*, *124*, 146–155.

Chen, W., Srinivasan, S. R., Li, S., Xu, J., & Berenson, G. S. (2007). **Clustering of long-term trends in metabolic syndrome variables from childhood to adulthood in Blacks and Whites: The Bogalusa Hearth Study.** *Am J Epidemiol*, **166,** 527-533.

Hasselstrom, H., Hansen, S. E., Froberg, K., & Andersen, L. B. (2002). Physical fitness and physical activity during adolescence as predictors of cardiovascular disease risk in young adulthood. *Int J Sports Med*, *23*, 27-31.

Jonker, J. T., De, Laet, C., Franco, O. H., Peeters, A., Mackenbach, J., & Nusselder, W. J. (2006). Physical activity and life expectancy with and without diabetes: life table analysis of the Framingham Heart Study. *Diabetes Care*, *29*, 38–43.

Joshi, L. N., Joshi, V. D., & Gokhale, L. V. (1992). Effect of short term pranayama practice on breathing rate and ventilator functions of lung. *Indian Journal of Physiology & Pharmacology*, *36*(2), 105-108.

Katiyar, S. K., & Bihari, S. (2006). Role of pranayama in rehabilitation of COPD patients – a randomized controlled study. *Indian J Allergy Asthma Immunol*, *20*(2), 98-104.

Khanam, A. A., Sachdev, V., Guleria, R., & Deepak, K. K. (1996). Study of pulmonary and autonomic functions of asthma patients after yoga training. *Indian J Physiol Pharmacol*, *40*(4), 318-324.

Madanmohan, Udupa, K., Bhavani, A. B., Vijayalakshmi, P., & Surendiran, A. (2005). Effect of slow and fast pranayamas on reaction time and cardiorespiratory variables. *Indian J Physiol Pharmacol*, *49*(3), 313-318.

Malina, R. M. (1996). Tracking of physical activity and physical fitness across the lifespan. *Res Q Exerc Sport, 67*, S48-S57.

Mokdad, A. H., Marks, J. S., Stroup, D. F., & Gerberding, J. L. (2004). Actual causes of death in the United States, 2000. *JAMA*, *291*, 1238–1245.

Myers, J., Prakash, M., Froelicher, V., Do, D., Partington, S., & Atwood, J. E. (2002). Exercise capacity and mortality among men referred for exercise testing. *N Engl J Med*, *346*, 793–801.

Raghuraj, P., Ramakrishnan, A. G., Nagendra, H. R., & Telles, S. (1998). Effect of two selected yogic breathing techniques on heart rate variability. *Indian J Physiol Pharmacol*, *42*, 467-472.

Ruiz, J. R., Rizzo, N., Wennlof, A., Ortega, F. B., Harro, M., & Sjostrom, M. (2006a). Relations of total physical activity and intensity to fitness and fatness in children; The European Youth Heart Study. *Am J Clin Nutr*, *84*, 299–303.

Sandeep, B., Pandey, U. S., & Verma, N. S. (2002). Improvement in oxidative status with yogic breathing in young healthy males. *Indian J Physiol Pharmacol*, *46*, 349-354.

Strong, W. B., Malina, R. M., Blimkie, C. J., Daniels, S. R., Dishman, R. K., Gutin, B., Hergenroeder, A. C., Must, A., Nixon, P. A., Pivarnik, J. M., Rowland, T., Trost, S., & Trudeau, F. (2005). Evidence based physical activity for school-age youth. *J Pediatr*, *146*,732–737.

Udupa, K. N., Singh, R. H., & Settiwar, R. M. (1975). Studies on the effect of some yogic breathing exercises (pranayama) in normal persons. *Indian J Med Res*, *63*, 1062-1065.

* * *

# महाराष्ट्रातील हवाई साहसी क्रीडा संस्थांचा अभ्यास

**डॉ. शिवाजी ज्ञानदेव भिंताडे**: शरदचंद्रजी पवार महाविद्यालय, जेजुरी

**प्रस्तावना:**

हवाई साहसी क्रीडा म्हटले की हा श्रीमंताचा खेळ आहे असे वाटते, सहज अनुभता येणार नाही असे वाटते याचे कारण हवाई साहसी क्रीडा प्रचार आणि प्रसार सर्व सामान्यापर्यत पोहचलेला नाही. तरी देखील सहभागी होणारांची संख्या वाढत आहे. हवाई साहसी क्रीडामध्ये साहित्य महाग असले तरी ते भाडयाने घेता येते. त्यामुळे खर्चात बचत होते. यातील महागडे क्रीडा प्रकार हे प्रामुख्याने आर्मी, नेव्ही, एअर फोर्स कधील अधिकारी, उच्च पदस्थ व्यक्ती व श्रीमंत खेळाडूच या क्रीडा करतात. या क्रीडा प्रकारच्या विविध स्पर्धादेखील सहभागी होण्यासाठी खूप खर्चिक असतात. आंतरराष्ट्रीय स्तरावर सहभाग घ्यावयाचा असेल तर त्याचा खर्च लाखाच्या पटीमध्ये येतो. त्यामुळे अनेक खेळाडू पॅरासेलीग, पॅराग्लायडीग करतात. काही क्लब या माध्यमातून व्यवसाय करतात. त्यामध्ये प्रशिक्षण देणे, साहित्याचा पुरवठा, साहित्य, साधनांची निर्मिती देखील करतात. त्यामुळे परदेशातून येणारी महाग साधने, साहित्य न घेता भारतीय बनावटीचे साधन साहित्य कमी दरात मिळू शकते. अशा प्रकारे विविध संख्या आपले कार्य चालवितात.

**महत्व:**

आधुनिक युगात युवकांनी या साहसी क्रीडा प्रकारात सहभाग घेणे आवश्यक आहे. आपत्तीकालीन परिस्थीती, देशाची संरक्षण दलासाठीची गरज, सकारात्मकतेची भावना रूजविण्यासाठी, मोठया संख्येने सहभागाची आवश्यकता आहे ते खालील प्रमाणे.

- संघभावना विकसित करणे, ध्येय आणि उददिष्टे निश्चीत करणे, युवकशक्तीचा योग्य वापर करण्यासाठी.
- नेतृत्व, गुण, कौशल्य मुले आणि युवकांच्यात वाढीस लागण्यासाठी.
- नैसर्गिक आणि मानवनिर्मित आपत्तींचा सामना करण्यासाठी तयार असणे.
- राष्ट्राच्या सामरिक गरजामध्ये हवाई दलाचे योगदान पाहता युवकांना प्रोत्साहन देण्यासाठी.

**उद्‌दिष्टे:**

- हवाई साहसी क्रीडा म्हणजे काय हे अभ्यासणे.
- हवाई साहसी क्रीडा मधील सहभागाचे फायदे अभ्यासणे.
- हवाई साहसी क्रीडा संस्था भुमिका पहाणे.
- हवाई साहसी क्रीडासाठीच्या साधन, साहित्याबाबत अभ्यास करणे.
- हवाई साहसी क्रीडा मधील सुरक्षा व संरक्षणाविषयी माहिती घेणे.

**संदर्भ साहित्याचा मागोवा:**

- विविध प्रकारची मासिके, संशोधनांचा आढावा.
- हवाई साहसी क्रीडाबाबतच्या पुस्तकांचा मागोवा.
- विविध प्रकारची वर्तमानपत्र, संकेतस्थळांचा मागोवा.

**संशोधन पध्दती:** सर्वेक्षण पध्दती आणि क्षेत्रीय संशोधन पध्दती.

**नमुना निवड:**

- १२ संस्था,
- २६१ सभासद
- १० हवाई साहसी क्रीडा तज्ज्ञ.
- १० पालक

**माहितीचे मिळविण्याचे स्त्रोत:**

१. प्राथमिक स्त्रोत: प्रश्नावली, मतावली आणि मुलाखती.

२. दूय्यम स्त्रोत: विविध ग्रंथालये, अहवाल, परिक्षणे, क्रीडा स्थळांना भेटी, संकेतस्थळे इ.

**संशोधनाच्या मर्यादा:**

हा अभ्यास महाराष्ट्रातील हवाई साहसी क्रीडासाठी मर्यादित आहे. हा प्रातिनिधीक सर्वे आहे.

**हवाई साहसी क्रीडा आणि मनोरंजन:**

अनेक प्रकार आहेत. हे सर्व प्रकार सृष्टीक्रमानुसार प्रमुख तीन विभागात विभागालेले आहेत. त्यातील हवाई साहसी क्रीडा प्रकारांचा आपण विचार करत आहोत.

**हवाई साहसी क्रीडा:**

- ग्लायडिंग
- पॅराग्लायडिंग
- ऐरोमॉडेलिंग
- पॅरासेलींग - जमिन, समुद्र किनारे, पॉवर बोटच्या माध्यमातून
- पॅराग्लायडिंग
- पॅरामोटरिंग
- पॉवरहॅन्स ग्लायडिंग
- हॉट एअर बलुनिंग
- रकाय डायविंग

**हवाई साहसी क्रीडा संस्थासाठी मान्यता:**

1. License by Director General of Civil Aviation.
2. Physical fitness as per standard ratio. (www.maharashtratrourism.gov.in)

वरील संस्थाची मान्यता घ्यावी लागते व शारीरिक क्षमता देखील योग्य त्या प्रमाणात असावी लागते. महाराष्ट्रात हवाई साहसी क्रीडा करण्यासाठी तशी कोणतीही परवानगी लागत नाही असे दिसते. त्यामुळेच अनेक ठिकाणी या साहसी क्रीडा केल्या जातात. काही ठिकाणी स्थानिक पोलिसांची परवानगी घेतली जाते.

हवाई साहसी क्रीडा प्रकारात देखील सुरक्षिततेसाठी दर्जेदार साधन साहित्य, प्रशिक्षित प्रशिक्षक यांना लाईफ सेव्हिंगसाठीचे अभ्यासक्रम करावे लागतात. त्यामुळे सुरक्षितता राखण्यासाठी मदत होते. यासाठी विविध कौशल्याचा सराव करून, जमिनीवरील सराव व हवेत जास्तीत जास्त सराव करून मगच वैयक्तिक हवाई क्रीडासाठी मान्यता दिली जाते.

**महाराष्ट्र शासनाच्या विचाराधीन असलेले काही उपक्रम:**

- आपत्कालीन परिस्थितीचा सामना करण्याचे प्रशिक्षण.

- जीवरक्षक अभ्यासक्रम राबविणे.
- सर्व संस्थाच्या नेतृत्वगुण विकासासाठी किमान गरजा पूर्तता करणे.
- एरो स्पोर्टस्, माऊंटेनिअरिंग व अलाइड स्पोर्टसाठी प्रशिक्षण सुविधा करणे.
- साहस क्रीडांना पर्यटनाशी जोडण्याचा विचार.

ॲडव्हेंचर पार्क तसेच जिल्हा क्रीडा संकुलांमध्ये क्लायम्बिंग वॉल, साहसी खेळांच्या इतर सुविधा यासाठी सुमारे दहा कोटींची तरतूद करावी, अशी मागणी मसुद्यात विचाराधीन असून पॅराग्लाडिंग, रॉक कलायम्बिंग, सायकलिंग आदींसाठीही दोन कोटी रूपयांच्या तरतुदीसाठी आग्रह धरण्याचा विचार आहे.

- सामग्रीसाठी पन्नास लाखांपर्यत अनुदान.
- शिवछत्रपती राज्य क्रीडा साहसी पुरस्काराचा विचार.
- राज्य ॲडव्हेंचर स्पोर्ट्स सेन्टर उभारणार. (महाराष्ट्र टाईम्स, पुणे जानेवारी २०११)

**हवाई साहसी क्रीडा प्रकारा मधील धोके :**

प्रामुख्याने शास्त्रीय ज्ञानाचा अभाव हा फार मोठा धोका आहे. तांत्रिक दृष्टया हे क्रीडा प्रकार अवघड स्वरूपाचे आहेत. साधन साहित्याच्या दुरूस्ती अथवा देखभालीच्या अभावाने होणारे धोके, पूर्वतयारी, नियोजन अभाव आढळल्यास धोका संभवतो. हवेचा अभ्यास, या संदर्भातील शास्त्रीय सिद्धांताला अनुसरून कृती न केल्यास धोका संभवतो, हवेचा वेग, दिशा, दिशा बदल याबाबतचे बारकावे न अभ्यासल्यास किरकोळ अपघातापासून ते मृत्यू पर्यत काही घडू शकते. यामध्ये प्रामुख्याने पुरेसा अनुभव नसताना एखादे साहस केल्यास ते धोका ठरू शकते. हवाई क्रीडासाठी लागणारा प्रदेश हा अडचणीचा असेल तर धोका संभवतो. धोका स्वीकारताना त्याबरोबर नशीबाची साथही हवी असते. हवेतच असताना यंत्रात बिघाड झाल्यास अशा धोक्यापासून कशा प्रकारे बचाव करता येईल याचे पुरेसे प्रशिक्षण नसेल तर अपघात टाळता येणार नाही. जमिनीपासूनच्या उंचीचा अंदाज यंत्राच्या आधारे करता न आल्यास, टेकऑफ पासून लॅन्डींग पर्यत कधीही धोका संभवू शकतो. विविध विक्रम प्रस्थापित करण्याच्या हव्यासापोटी अनेकांनी आपला जीव गमावलेला आहे. देशात आणि परदेशात देखील यास अपवाद नाही.

स्ट्रॉग वीड, क्रॉस वीड, नॉर्मल वीड, थर्मल वीड इ. हवेच्या दिशा संबंधी संज्ञा वापरतात. व्हेरीय मीटर, ऑल्टीओ मीटर, वींड मीटर, वॉकी टॉकी, विविध हर्नेस, कॅरेबीनर, संरक्षण साधने यांचे आद्ययावत ज्ञान नसल्यास अनेक अपघातास निमंत्रण मिळते.

**संशोधनामुळे खालील गोष्टी निदर्शनास आल्या :**

- जागतिक विक्रम करणारे स्त्री व पुरूष खेळाडू महाराष्ट्रात आहेत.
- पद्मश्री पुरस्काराने सन्मानित खेळाडू आहेत.
- लिम्का बुक ऑफ वर्ल्ड रेकॉर्ड मध्ये नोंद असणारे खेळाडू आहेत.
- पॅग्लायडींग या साहसी क्रीडा प्रकारासाठी कायद्यात तरतूद नसल्यामुळे कोणतेही संरक्षण, मान्यता नाही (Pune Mirror, २६ April २००८)
- हवाई साहसी क्रीडा करताना अपघात देखील झालेले आहेत. त्यात काहींना आपला जीव गमवावा लागला आहेत. काहींना गंभीर दुखापती झालेल्या आहेत.
- पॅरासेलींग, पॅराग्लायडींग, पॅरामोटरिंग, हॅन्ग ग्लायडींग, पॅराग्लायडींग हे हवाई साहसी क्रीडा प्रकार जास्त प्रचलित आहेत.

- हवाई साहसी क्रीडा प्रकारातील महिलांचा सहभाग अत्यअल्प आहे.

**संदर्भ :**


- Adventure Sports (Oct 2003) Magazine article "3rd Time's a Charm",
- Dr. Brymer, Eric: (13 July 2009) "The element of Risk was an important factor among Participants in "extreme" Sports".
- Fink, Conras C. (2004), Sports Writing - The Lively Game. Surjeet Publication.
- Goma-i-Freixanet, M (2004), "Sensation Seeking and participation in Physical Risk Sports". On the psychobiology of personality. http:books, google.co.uk
- Indian Lima book of Records (2004), Adventure Section, page - 35)
- Indian Lima book of Records (2005), Adventure Section,
- Kallsch, K. R. (1979) 'The role of the outward bound educational process, Wisconsin, Three Lakes.
- M Gama-i-Freixanet (2004), "Sensation seeking and participation in physical risk sports".
- Zweig, P. (1974). The Adventure: The fate of adventure in the western world.
- www.adventuresportsonline.com


* * *

ISSN 0975-5020

# मुंबई विद्यापीठांतर्गत येणाऱ्या वरिष्ठ महाविद्यालयांचा सांघिक क्रीडा स्पर्धा सहभागाचा अभ्यास

**विनोद अनंत शिंदे**: शारीरिक शिक्षणशास्त्र विभाग, पुणे विद्यापीठ, पुणे
**सोपान एकनाथ कांगणे**: चंद्रशेखर आगाशे शारीरिक शिक्षण महाविद्यालय, पुणे

**१. प्रस्तावना**

स्वामी विवेकानंदाच्या मते, 'आपल्याला जीवन घडविणारे 'माणूस' निर्माण करणारे चारित्र्य घडविणारे, चांगले विचार आत्मसात करविणारे शिक्षण हवे. प्रत्येक व्यक्तितील दिव्यत्व प्रकट होण्यासाठी त्याच्या विषुब्ध चारित्र्याची निर्मिती हे शिक्षणाचे एक प्रमुख ध्येय आहे.' विवेकानंदाच्या या मतानुसारच आजची शिक्षणपध्दती ही काळानुरूप आणि समाजाच्या बदलत्या गरजानुसार बदलत अनेक स्थित्यंतरानंतर शिक्षण व्यवस्थेला ्जचे स्वरूप प्राप्त झाले आहे.

**१.१ मुंबई विद्यापीठाचा इतिहास**

१८१९ मध्ये माउंटस्टुअर्ट एल्फिन्स्टन हे मुंबईचे गर्व्हनर म्हणून आल्यानंतर एत्तदेंशीयांच्या शिक्षणाला खऱ्या अर्थाने प्रारंभ झाला. १८१५ मध्ये ख्रिस्ती मिशन बॉम्बे एज्युकेशन सोसायटी स्थापना करून अनाथ ख्रिस्ती मुलांसाठी शाळा काढल्या होत्या. १८२० मध्ये एल्फिन्स्टन यांच्या पुढाकाराने एत्तदेंशीयांच्या शिक्षणासाठी 'द स्कुल बुक ॲण्ड स्कुल कमिटी' केंद्र शाळा पुस्तक आणि शाळा मंडळी, स्थापना केली. मराठी भाषेचा उदय होण्यास हेच विद्यालय कारणीभूत ठरले. १८३० पर्यत मुलांच्या आठ व मुलींच्या तेरा शाळा स्थापन झाल्या. १८२० मध्ये चर्च मिशनरी सोसायटीने मुलांच्या शाळा सुरू केल्या. स्क्वॉटिश मशिनरी सोसायटी, १८२२ पासुन शाळा सुरू केल्या. १८२७ पर्यंत त्यांची संख्या ८० झाली. दि. १८ जुलै १८५७ रोजी मुंबई विद्यापीठाचा सिनेट किंवा व्यवस्थापक मंडळ नेमले गेले.

मुंबई विद्यापीठ हा ज्ञानाचा आणि ज्ञानवंताचा सर्वोत्तम अविष्कार आहेच. पण ते खरोखरच एक अपूर्व ज्ञानगडी आहे. ज्ञानगडीच्या काही दालनांचा साक्षात्कार आपल्याला घडला तरी अजुनही काहीतरी आपल्याला अज्ञात असलेले या गाभाऱ्यात शिल्लक असेल असेच सतत वाटत राहते. हे असे वाटते आणि वाटत राहते हिच कदाचित नव्या शोधाची प्रेरणा असेल का? प्रेरणेला प्रतिसाद देण्याची उमेद आपण दाखवावी आणि अज्ञान ते ज्ञान करण्याच्या प्रवासात पुन्हा एकत्र झोकून द्यावे असे वाटते. अशी उमेद जागविण्याएवढे मुंबई विद्यापीठ हे खरेच 'विश्व विद्यापीठ' आहे असे वाटते.

**१.२ मुंबइ विद्यापीठ क्रीडा विभाग - इतिहास**

दिडशे वर्षाची वैभवशाली परंपरा असलेल्या या विद्यापीठाने पदव्युत्तर स्तर, सामाजिक स्तर, सांस्कृतिक स्तर व खेळ या क्षेत्रात राष्ट्रीय व आंतरराष्ट्रीय स्तरांवरती यशस्वी अशी वाटचाल अविरतपणे चालू ठेवली आहे. मुंबई विद्यापीठ क्रीडा विभागाची स्थापना १० जून १९५८ साली झाली. मुंबई विद्यापीठ 'क्रीडा संकुल' मरिन लाईन्स येथे आहे. जवळजवळ ५ एकर मध्ये या क्रीडा संकुलाचा विस्तार आहे. या क्रीडासंकुलाच्या शिलान्यास प्रसंगी त्यावेळी असलेले महाराष्ट्र राज्याचे मुख्यमंत्री मा. यशवंतराव चव्हाण व मुंबई विद्यापीठ कुलगुरू मा. श्री. के. शंकर नारायण आदी मान्यवर उपस्थित होते.

ISSN 0975-5020

**१.३ क्रीडा स्पर्धांचे आयोजन**

अखिल भारतीय विद्यापीठ फेडरेशन यांच्या नियमाला अनुसरून मुंबई विद्यापीठ आंतर महाविद्यालयीन स्पर्धेचे आयोजन केले जाते. आंतर महाविद्यालयीन स्पर्धेचे आयोजन व्यवस्थित व्हावे आणि ग्रामीण भागात खेळाचा प्रसार व प्रचार व्हावा यासाठी खालील प्रमाणे स्पर्धा आयोजित केल्या जातात;

अ) पाच विभागीय स्पर्धा:- मुंबई शहर (विभाग क्र.१), मुंबई सबरबन आणि उपनगर (विभाग क्र. २), ठाणे (विभाग क्र. ३), रायगड (विभाग क्र. ४), रत्नागिरी आणि सिंधुदुर्ग (विभाग क्र. ५), या पाच विभागांमध्ये स्पर्धांचे आयोजन केले जाते.

ब) एक विभागीय स्पर्धा:- विद्यापीठ स्तरावर या स्पर्धांचे आयोजन केले जाते. वरील स्पर्धा दोन प्रकारे घेतल्या जातात १) वैयक्तिक पुरूष/महिला क्रीडा स्पर्धा, २) सांघिक पुरूष/महिला क्रीडा स्पर्धा.

प्रत्येक वर्षी विद्यापीठातर्फे आंतर महाविद्यालयीन खेळ व क्रीडा स्पर्धांमध्ये जास्तीत जास्त खेळातील स्पर्धांमध्ये प्राविण्य मिळविणाऱ्या महाविद्यालयास, खालसा महाविद्यालयाच्या व्यवस्थापन समितीने प्रायोजित केलेला 'गुरूनानक देव सर्वसाधारण नैपुण्य चषक' दरवर्षी प्रदान केला जातो. तसेच निरनिराळ्या महाविद्यालयीन विद्यार्थी विद्यापीठाचे प्रतिनिधत्व राज्य, राष्ट्रीय व आंतरराष्ट्रीय स्तरांवर करतात व विद्यापीठाचा गौरव वाढवून पदक प्राप्त करतात. अशा पदक प्राप्त विजेत्या खेळाडुंचा विद्यापीठाचे कुलगुरू व इतर मान्यवरांच्या हस्ते विद्यापीठ ब्लेअर व ट्रॅकसूट देऊन गौरव करण्यात येतो.

**२. संशोधन पध्दती**

प्रस्तुत अभ्यासासाठी वर्णनात्मक संशोधनातील सर्वेक्षण पध्दतीचा अवलंब केला आहे.

'मुंबई विद्यापीठाशी संलग्नित महाविद्यालयांच्या सांघिक क्रीडा स्पर्धा सहभागाचा अभ्यास' या संशोधन विषय अभ्यासासाठी आवश्यक ती माहिती संकलित करण्यासाठी १) विद्यार्थ्यांची मते, २) महाविद्यालय प्राचार्य, विद्यापीठ शारीरिक शिक्षण संचालक – मुलाखत, ३) प्रत्यक्ष भेटी आणि निरीक्षण, ४) अहवाल नोंदी इ. साधन सामग्रीच्या आधारे माहिती संकलित करण्याचा प्रयत्न करण्यात आला व पुढील कार्यपध्दतीने माहिती गोळा करण्यात आली. १) सन २००१-०२ ते २०१०-११ या शैक्षणिक वर्षातील मुंबई विद्यापीठ शारीरिक शिक्षण विभागाकडून मुंबई विद्यापीठ आंतर महाविद्यालयीन क्रीडा स्पर्धांमध्ये सहभागी होणाऱ्या महाविद्यालयांची माहिती संकलित करण्यात आली.

त्यानंतर महाविद्यालयांतील प्राचार्य, शारीरिक शिक्षण संचालक, विद्यापीठ शारीरिक शिक्षण संचालक यांची समक्ष भेट घेऊन संशोधन विषया संबंधी माहिती संकलित करण्यात आली. तसेच महाविद्यालयातील विद्यार्थ्यांकडून आंतरमहाविद्यालयीन स्पर्धा व स्पर्धा आयोजन व सहभागी होताना येणाऱ्या समस्यांवर आधारित त्यांची मते जाणून घेण्यात आली.

विद्यापीठ शारीरिक शिक्षण विभाग तसेच महाविद्यालय शारिरीक शिक्षण विभाग यांच्याकडून वार्षिक क्रीडा अहवाल (वर्ष वृत्त) उपलब्ध करण्यात आले व क्रीडा सहभागाबद्दल माहिती संकलित करण्यात आली.

**३. संकलित केलेल्या माहितीचे विश्लेषण**

प्रस्तुत संशोधनात संशोधकाने मुंबई विद्यापीठाशी संलग्नित महाविद्यालयांच्या सांघिक क्रीडा स्पर्धा सहभागाचे संख्या शास्त्रीय विश्लेषण केले आहे. यासाठी संशोधकाने शेकडेवारी या संख्याशास्त्रीय साधनाचा वापर केलेला आहे.

ISSN 0975-5020

**कोष्टक क्र. १**

एकूण सांघिक पुरूष व महिला क्रीडा स्पर्धा सहभाग व प्रतिशत प्रमाण

| वर्ष | पुरूष सहभाग संख्या | % | महिला सहभाग संख्या | % |
|---|---|---|---|---|
| २००१-०२ | १३९६ | १०.२० | ६५४ | ४.९५ |
| २००२-०३ | १२७८ | ९.३४ | ६९१ | ५.२३ |
| २००३-०४ | १३५८ | ९.९२ | ७४८ | ५.६६ |
| २००४-०५ | १३४७ | ९.८४ | ७१४ | ५.४० |
| २००५-०६ | १३०२ | ९.५१ | ७३२ | ५.५४ |
| २००६-०७ | १४२१ | १०.३८ | ७३८ | ५.५८ |
| २००७-०८ | १३८६ | १०.१३ | ८५५ | ६.४७ |
| २००८-०९ | १३८२ | १०.१० | ७९० | ५.९८ |
| २००९-१० | १४०० | १०.२३ | ८०६ | ६.१० |
| २०१०-११ | १४१२ | १०.३२ | ७८७ | ५.९५ |

वरील कोष्टकावरून असे दिसून येते की, वरील दहा वर्षापैकी सन २००६-०७ या शैक्षणिक वर्षामध्ये सर्वात जास्त पुरुषांचे १४२१ संघ सहभागी झाले होते व सन २००७-०८ या शैक्षणिक वर्षात सर्वात जास्त महिलांचे ८५५ संघ सहभागी झाले होते. त्यांचे प्रतिशत प्रमाण अनुक्रमे १०.३८% व ६.४७% एवढे आढळले. तर सन २००२-०३ या शैक्षणिक वर्षामध्ये सर्वात कमी पुरूषांचे १२७८ संघ सहभागी झाले होते व सन २००१-०२ या शैक्षणिक वर्षात सर्वात कमी महिलांचे ६५४ संघ सहभागी झाले होते. त्यांचे प्रतिशत प्रमाण अनुक्रमे ९.३४% व ४.९५% एवढे आढळले.

**४. निष्कर्ष**

- असे दिसून येते की, मुंबई विद्यापीठ आंतर महाविद्यालयीन सांघिक क्रीडा स्पर्धेमध्ये महाविद्यालयीन पुरूष संघांचा सहभाग हा महिला महाविद्यालयीन संघांच्या सहभागापेक्षा जास्त होता.

**संदर्भ सूची**

अपर्णा शंकर अभ्यंकर, (२०१२). स्वामी विवेकानंद विशेषांक, पुणे : आदित्यदिप प्रकाशन.

ग.भा. गोगटे. शारीरिक शिक्षण तत्वे व स्वरूप, पुणे.

वि. गो. वखारकर, (१९७३). महाराष्ट्रातील शारीरिक शिक्षणाची वाटचाल, औरंगाबाद.

डॉ. सुरेश देशपांडे, (२००७). मुख्य संपादक शारीरिक संक्रमण, त्रैमासिक, अमरावती.

डॉ. जयंत दिघे, (२००६). मुंबई विद्यापीठ शषराचे भूषण, मुंबई : मुद्रक जॅक प्रिंटस.

बन्सी, बिहारी पंडीत, (१९८९), शिक्षणातील संशोधन अभिकल्प, (प्रथमावृत्ती), पुणे : नुतन प्रकाशन.

भिंताडे, वि. रा. (२००६). शैक्षणिक संशोधन पध्दती, (सुधारित आवृत्ती), पुणे : नुतन प्रकाशन.

आगलावे, प्रदिप. (२०००). संशोधन पध्दती शास्त्र व तंत्रे, नागपूर : विद्या प्रकाशन.

* * *

# 'मैला आँचल' और भारतीय ग्रामीण परिवेश

**प्रा. शांतीलाल नाथालाल राबळ**: डॉ. तात्यासाहेब नातू कला महाविद्यालय, मार्ग ताम्हाणे, ता. चिपळूण, जि. रत्नागिरी.

हिंदी उपन्यास का एक नया रुप हमारे सामने पॉचवे छठे दशकोमें आता है। जिसे 'ऑचलिक उपन्यास' कहा गया है। यद्यपि हिंदी उपन्यासो में ऑचलिकता का तत्व पर्याप्त पुराना है। प्रेमचंद, वृंदावन लाल वर्मा, नागार्जुन आदि की रचनाओंमें और पहले से ही मिलता है, पर ऐसे उपन्यासों को ऑचलिक कहने तथा उसकी महत्ता पर लेखकों और आलाचकोंका ध्यान आकृष्ट करने का श्रेय फणीश्वरनाथ रेणू औरे उनके मैला ऑचल (१९५४) नामक उपन्यासको है। उपन्यास की भूमिका मे लेखक ने लिखा है - ''वह है मैला ऑचल एक ऑचलिक उपन्यास पूर्णिया —————। मैने इसके एक हिस्से के एक ही गाँव को पिछड़े का प्रतीक मानकर इस उपन्यास का कथा क्षेत्र बनाया है।''१

अंचल का अर्थ है जनपद या क्षेत्र । जिन उपन्यासोमे किसी विशिष्ट प्रदेश के जनजीवनका समग्र बिंबात्मक चित्रण हो, उन्हे ऑचलिक उपन्यास कहॉ जा सकता है।

कुछ लोग उसे नायक विहीन उपन्यास कहते है और अधिक ऑचल को ही उसका नायक मानते है।

ऑचलिक उपन्यास स्वातंत्र्योत्तर कालकी महत्वपूर्ण देन है। ऑचल विशेष को बिंब बनाकर भारतीय जनजीवन (विशेषतया ग्रामीण जनजीवन) का वृत्त, संमग्र और प्रामाणिक यथार्थ उद्घाटित करना ऑचलिक उपन्यास की शक्ति और उपलब्धि है। प्रेमचंद के पश्चात हिंदी उपन्यासोमे भारतीय गाव की मिट्टी से फिर कथा साहित्य को जोडा तथा साहित्य के कथ्थ और शिल्प मे नवीनता उपस्थित की।

परिवेश लगभग अमूर्त शब्द है इसकी व्याख्या करते हुये कभी कभी वातावरण और कभी कभी सामाजिक, आर्थिक, राजनीतिक स्थितियों तक सीमित होकर लोग रह जाते है। किंतु यह शब्द बहुत व्यापक है। इसकी तुलना व्याप्ति में आकाश से की जा सकती है। इसके अंतर्गत वह सब कुछ आ जाता है। जिसके साथ हम किसी विशेष देशकाल में अवस्थित होते है। इतना ही नही पूरी परंपरा, पूरा वर्तमान, और भविष्यकी संपूर्ण परिकल्पना परिवेशके अनिवार्य अंग है।

''उपन्यासकार के लिए परिवेशका (विशेष) महत्व है एक प्रकार से वह उसका आधार है। वह न केवल अपनी रचना का सारा कच्चा माल वहॉ से जुटाता है वरन् अनुभव के विभिन्न स्तरोंके बीच से अपनी रचना दृष्टि विकसित करता है।''२ उपन्यासकारके लिए परीवेशकी व्यापकता की व्याख्या करते हुए डॉ. रघुवंश लिखते है कि - ''एक लेखक के लिए परिवेश उसका सहा हुआ जीवन है जो वस्तुत: उसके युग का रुप है। समस्त स्थानीय, देशीय, राष्ट्रीय और यहाँ तक कि अन्तराष्ट्रीय घटनाक्रम उसका परिवेश हो सकता है। जितना कुछ उसके अनुभव अंतर्गत वर्तमान देशकाल में समेटा जा सकता है उसे परिवेश माना जा सकता है, किसी भी दृष्टि, शैली और स्तर का लेखक अपने परिवेश से मुक्त होकर यथार्थ जीवन का उपन्यास का नही हो सकता।''३

किसी कृति की महत्तका मूल्यांकन उसकी काल सापेक्षता का विशेष संदर्भ ही हो सकता है। इसलिए डॉ. रामदरश मिश्र का यह कथन सर्वथा सही है कि ''ऑचलिक उपन्यास की गति एक दिशा मे नही चारों दिशाओमें होती है। वह स्थान की अपेक्षा समयमे जीता है।''४

डॉ. शिवप्रसाद सिंह का यह कथन सर्वथा उचित है कि, ''आँचलिक लेखन के पक्ष की सबसे बडी दलील यह

हो सकती है कि, आँचलिक जीवन की अभिव्यक्ति उसकी अनिवार्यता है। वह अपनी रचनाओमें वातावरण का महत्व स्वीकार करता है। यह वातावरण न केवल लेखक को बल्कि पाठक को भी निरंतर प्रभावित करता रहता है। इसलिए आँचलिक लेखक का यह विश्वास होता है कि, वह अपने को अधिक प्रभावपूर्ण ढंग से तभी व्यक्त कर सकता है जब उसका वातावरण उसकी जनता और स्थान उसके माध्यम से उसके भीतर अपनेको अभिव्यक्त कर सके।''५

फणीश्वरनाथ रेणु का जन्म ४ मार्च १९२१ को पूर्णिया जिले के सक छोटेसे गाव आरोही हिंगला में मध्यमवर्गीय परिवार में हुआ।

रेणुके साहित्यिक जीवन की शुरुआत १९५३ में हुई। उनकी प्रथम कृति मैला आँचल का लेखन पूरा होने के पश्चात उसके प्रकाशन की समस्या थी बाद में भलेही रेणुको अपने इस उपन्यास को सर्वाधिक ख्याति प्राप्त हुई और १९५४ ते १९७७ के बीच इसके नौ संस्करण हुए ।

रेणुजी अपने आँचल और परिवेश के एक अभिन्न अंग थे। उन्होने किसान जीवन का यथार्थ सचमुच भोगा हुआ था। उनका जीवन और कृतित्व आपस में इतना घुला मिला हुआ था कि, उसे अलग करके देखना संभव नही है।

शिवकुमार मिश्र का कथन है कि, - ''प्रेमचंद से उलटा रेणुमें परिवेश प्रमुख है और तमाम दूसरी बातों के साथ मनुष्य और उसकी समस्यांओको उभारता है।''६

रेणुने मैला आँचल उपन्यास को दो खंडो मे विभाजित किया। पहला खंड स्वतंत्रता के कुछ वर्षो पूर्वका और दुसरा स्वतंत्रता के बाद का है।

आँचलिक परिवेश के निर्माण के लिए अनेक भौतिक अभौतिक तत्वोंका योग होता है जिनमें कुछ प्रमुख है जिन्हे तीन वर्गो में रखा जा सकता है।

१) भौगोलिक प्राकृतिक परिवेश।

२) कालिक परिवेश।

३) सामाजिक - सांस्कृतिक परिवेश।

देश काल और परिवेश से संबंधित इन तत्वोंका मैला आँचल उपन्यास के परिप्रेक्ष्य मे सम्यक विवेचन प्रस्तुत है।

१) भौगोलिक प्राकृतिक परिवेश :- भौगोलिक परिवेश उस स्थान विशेष की प्राकृतिक बनावट के बाहरी प्रभावों का द्योतक होता है अर्थात उस स्थान की प्राकृतिक विशेषता क्या है?, कैसी है? प्रकृति के विभिन्न उपादान, नदी, पर्वत, जंगल, सागर, पेड, पौधे, जमीन, बाढ-सुखा, वर्षा आदि ने वहाँ के निवासियोंके जीवन तथा जीवनगत समस्योंको किस प्रकार और किस हद तक प्रभावित किया है।

मैला आँचल मे मेरीगंज की, भौगोलिक स्थिति का वर्णन लेखक इन शब्दों में करता है, ''रोतहट स्टेशन से सात कोस पूरब, बूढी कोशी को पार करके जाना होता है। बूढी कोशी के किनारे-किनारे बहूत दूर तक ताड और खजूर के पेडोंसे भरा हुआ जंगल है। इस आँचल के इसे नबाबी तडबन्ना कहते है... तडबन्ना के बाद ही एक मैदान है, जो नेपाल की तराई से शुरु होकर गंगाजी के किनारे खत्म हुआ है। लाखो एकर जमीन वंध्या धरती विशालाअंचल उसमें दूब भी नही पनपती है। बीच मे बालूचल और कही कही बेर की झाड़ियाँ। कोस भर मैदान पार करने बाद पूरब की ओर काला जंगल दिखाई पड़ता है। वही है मेरीगंज की कोठी।''७

मैला आँचल में प्राकृतिक सौंदर्य के बीच लहलहाते खेत, कमल के सरोवरो, पोखरों, वनों और बागोंके समृध्द वर्णन है। कमला नदी का चित्रण इस प्रकार किया- ''गाँव कें पूरब एक धारा है जिसे कमला नदी कहते है। बरसात मे कमला भर जाती है बाकी मौसम मे बडे बडे गड्डोमें पानी जमा रहता है। मछलियाँ और कमलोंके फुलोंसे

भरे हुअे गढ्ढे।''८

**२) कालिक परिवेश -**

उपन्यास एक गतीशील दर्पण है जिसमे कालधारामे प्रवाहमान गत्यात्मक जीवन प्रतिबिंबित होता है मानव जीवन और मानव समाज सतत गतिशील तथा सतत परिवर्तनशील है। परिवर्तनशील का सबसे अधिक प्रभाव सामाजिक वातावरणपर ही पड़ता है । रीतिरिवाज और परंपराए बदल जाती है, वेशभूषा, खानपान राजनैतिक विचार धाराए आदि मे परिवर्तन दिखाई देने लगते है।

मैला ऑचल में आसन्न वर्तमानकालिक वातावरण का निर्माण गॉव में मलेरिया सेंटर, चरखा सेंटर के खुलने, महंत की मृत्यु की बाद चुनाव बादमें राजनैतिक आर्थिक, सामाजिक स्थितियोंका सफल चित्रण हुआ है।

**सामाजिक - सांस्कृतिक परिवेश**

ऑचलिक उपन्यास में लोकभाषा, लोक कहावते और मुहावरे, लोकोत्सव, लोकगीत, लोककथाए, अंधविश्वास, जादूमंतर, भूतप्रेत संबधी विश्वास आदि का सामूहिक प्रभाव आंचलिक जीवन के वैशिष्टय का कारण बनता है।

रुढिगत समाज की स्थिति के संदर्भ मे के कहा है कि, - ''दरार पड़ी दिवार यह गिरेगी इसे गिरने दो, यह समाज कब तक टिका रहेगा।''९ यह विश्वास भी समाज को जागृती प्रदान कर रह था। ''आर्थिक दृष्टि से मैला ऑचल के जमीनदार किसानोंको अनाज देने के बदले एक कोरे कागज पर अँगूठे के निशान लेते हैं और फिर डेढ गुना, दोगुना, तिगुना तक बसूल कर लेते है।''१० मैला ऑचल में जातियव्यवस्था, रुढी-अंधविश्वास, आचार-विचार अवसरोंपर गाने जानेवाले लोकगीत आदि पहलूओं को उकेरा गया है।

भारत का हर गॉव एक मेरीगंज है। संभवत: इतने बृहत उद्देश्य की प्राप्ति केवल एक इकहरी कथासे नही हो सकती, इसलिए रेणुने एक मुख्य कथा के साथ अनेक प्रासंगिक कथांओं को गूँथ दिया है।

रेणुजी के उपन्यास का भूगोल बिहार प्रांत है। तथापि उनकी कथावस्तु और पात्र बिहारसे बाहर भी जाते है। इसका कारण ये है कि, उन्होने उपन्यांसोमे जिन समस्योंका चित्रण किया है वे बिहार की ही नही संपूर्ण भारत की है।

''गॉव और उसके परिसर को केंद्र बनाकर लिखे गए मैला ऑचल की, कथा मे प्रजातांत्रिक क्षितिज की, तमाम धुंधली रेखाओं को एक नितांत निरपेक्ष और तरल सरल दृष्टिसे जिन बारीकियों के साथ अंकित किया गया है उनके कारण हमारी ऑखों के सामने हिंदुस्तान के आगत अनागत दोनों ही साकार हो उठे है।''११

यह निर्विवाद सत्य है कि उत्तर भारत के ग्राम्य क्षेत्र का इतना प्रभु विष्णु चित्रण हिंदी के किसी अन्य उपन्यास में उपलब्ध नही है।

''मैला ऑचल के संबंध में कहा गया है कि, मेरीगंज की ही नहीं मैला आँचल की कहानी सात लाख गॉवोंकी कहानी है।''१२

रेणुजी के उपन्यासो में केवल बिहार का ही भूगोल नही धडकता समूचे भारत के भूगोल की धडकन सुनाई देती है। उनका रचना संसार अपनी एकदेशीयता के बावजूद सार्वदेशिक है।

हिंदी के ऑचलिक उपन्यास भारत के अन्य भाषाओं के उपन्यास कंधे से कंधा मिलाकर चल रहा है। बंगला के माणिक बंधोपाध्याय, ताराशंकर मराठी के श्री. ना. पेंडसे ('गारंबीचा बापू') माडगुळकरजी का ('बनगरवाडी'), चि. त्र्य. खानोलकर का ('चानी') गो. नी. दांडकर का ('पडघवली') और डॉ. आनंद यादव का ('गोतावळा') उपन्यांसो में ऑचलिक उपन्यास का परिवेश उजागर हुआ है।

**संदर्भ सूची -**


०१) 'मैला आँचल' - फणीश्वरनाथ रेणु (भूमिकासे)

०२) आधुनिकता और सृजनशीलता डॉ. रघुवंश पृ. १३०

०३) आधुनिकता और सृजनशीलता वही पृ. १३०

०४) हिंदी उपन्यास एक अंतर्यात्रा - डॉ. रामदरश मिश्र, पृ. १८९

०५) आधुनिक परिवेश और नवलेखन - डॉ. शिवप्रसाद सिंह पृष्ठ ११५-११६

०६) साहित्य और सामाजिक संदर्भ - डॉ. शिवकुमार मिश्र पृष्ठ १५२

०७) 'मैला आँचल' - फणीश्वरनाथ रेणु - पृ. १२-१३.

०८) 'मैला आँचल' - फणीश्वरनाथ रेणु वही पृ. १५

०९) 'मैला आँचल' - फणीश्वरनाथ रेणु वही पृ. २२३

१०) 'मैला आँचल' - फणीश्वरनाथ रेणु वही पृ. १५५

११) हिंदी के आँचलिक उपन्यास सिध्दांत और समीक्षा - डॉ. बंशीधर पृ. ८५

१२) हिंदी उपन्यास और यथार्थवाद - डॉ. त्रिभुवन सिंह, पृ. ४४५


* * *

# हिन्दी रामकाव्य परंपरा और उसकी प्रासंगिकता

**डॉ. अनिल सिंह**: अध्यक्ष, हिन्दी विभाग, एस. बी. कॉलेज, शहापूर.

वाल्मीकि द्वारा रामायण की रचना भविष्य के लिए अविरत परम्परा बनकर इतनी सशक्त हो गई कि इस चरित्र पर अनन्त साहित्य की सहस्त्रों वर्षो से निर्बाध सर्जना हुई। अपने आप में वही जिज्ञासा घूम-फिर कर आप भी उसी आदि प्रश्न पर केंद्रित है। वाल्मीकि ने जिस असीम राम की व्याख्या भी उसी आदि प्रश्न पर केंद्रित है। वाल्मीकी ने जिस असीम राम फी व्याख्या को देव-भाषा (संस्कृत) की गुरु-गम्भीरता के प्रयोग में ज्ञानी और स्वाध्यायी शिष्ट वर्ग में ही समा कर रखा था, उसमें एक आंदोलनकारी परिवर्तन तब आया जब लोक हितकारी जिज्ञासा को समाज की साधारण मानव भाषा में लम्बे अंतराल के बाद सोलहवीं शती में निगमागम के तत्वज्ञाता महाकवि तुलसीदास ने अशिक्षित-निरक्षरों के लिए भी सहज सुलभ कर दिया। इससे इक्ष्वाकु राम व्यापक और विराट राम हो गए। वाल्मीकि और तुलसी रामाख्यान के दो ऐसे बिन्दु बने जिनके अंतराल के बीच इस चरित्र के विषय में देश की भाषाओं में इतना कुछ लिखा गया जिसकी गणना अथवा संकलन अपने आप में अति कठिन कार्य है। ऐतिहासिक दृष्टि से देखें तो वाल्मीकि ने राम के जिन चरित्रों को जनमानस के सामने रूपाधित किया है वह अपने आप में मुक्मल है। वाल्मीकी ने जिस राम का चरित्र हमारे सामने रंखा है वह राम उस समय की संस्कृति, मानवता के उच्च मूल्यों के प्रतिरूप है। 'रामत्व' की पूर्ण पहचान उस समय के वास्तविक अस्मिता को भी उजागिर करते हैं।

कथा साहित्य सृजन का महत्वपूर्ण माध्यम है। राम की कथा भारतीय परंपरा की लम्बी अवधि में एक महत्वपूर्ण आख्यान होते हुए भी, दर्शक है। वाल्मीकी रामायण के राम कही न कही हमें भावायोंचित गुणों के साथ प्रेम दिखाई देता हैं। डॉ. योगेन्द्र प्रताप सिंह की मान्यता है - ''इतिहास या पुराकथा को सृजन का आधार बनने वाला कवि केवल पुरागाथाओं का ही कथन मात्र नही करता। कथा भी साहित्य सृजन के लिए आधार है, उपयोगी माध्यम मात्र है। इसलिए श्रेष्ठ कथाकाव्य के अध्ययन के संदर्भ में हमारे लिए देखना यह आवश्यक रहता है कि कवि अपनी किस सृजन के लिए आधार है, उपयोगी माध्यम मात्र है। इसलिए श्रेष्ठ कथा काव्यों के अध्ययन के संदर्भ में हमारे लिए देखना यह आवश्यक रहता है कि कवि अपनी किस सृजन कुशलता द्वारा इतिहास को अपने वर्तमान का अंश बना लेता है। अतीत का इतिहास कवि के वर्तमान या आगत भविष्य का रूप कैसे धारण करता है। यह कवि की सृजनगत कुशलता से निर्मित भाविक सामर्थ्य का पक्ष है-जिसे हम आज पाठकीय समीक्षा के रूप में देखते हैं। कविता कवि के काव्य पाठ की सामर्थ्य से संबध्द होकर युगों-युगों की यात्रा करती रहती है, जिसे कहना चाहे तो कह सकते है, वह कभी मरती नहीं। और इन कृतियों में मानव जाति सनातन काल से चली आती हुई वर्तमान कालिक समस्याओं का समाधान खोलने का प्रयास करती है। गोस्वामी तुलसीदास कृत ''श्री राम चरित मानस'' को अन्य संदर्भो के साथ-साथ सृजन की इस विचित्रतापूर्ण कुशलता से अपने को निरंतर जोड़े हुए अपनी प्रतिभा सामर्थ्य से भी रामकथा के माध्यम से, अपने अतीत वर्तमान तथा आगत काल को उससे जोड़ने में निरंतर तत्पर रहते हैं।'' [२]

वाल्मीकि मानवता के सत्य से परिचित होते हुए मानव कल्याण की भावना भी उनमें देखी जा सकती है। यही तृष्णा विश्व कल्याण के लिए मानों उन्हें व्याकुल करती रही हो। यदि हम इतिहास उठाकर देखे तो पाते है कि भारतीय संस्कृति को गौरव प्रदान करने में आदि काल से ही धर्मात्मा, वीरों का इतिहास उनके चारित्रिक गुणों से ओत प्रोत है। देव और धर्म संस्कृति सें अवरोध और विनाश की लहर पैदा करने वाले रावण के और राक्षसों का नाश रामचन्द्रजी के पराक्रम और सुशासन से संभव हो पाया। राम के पराक्रमी और महान चरित्र को रेखांकित करते हुए श्रीराम मेहरोत्रा ने

लिखा है-''राम उत्तम और श्रेष्ठ पुरुष के गुणों के ऐसे समूह थे, जिसमें मानवता की उच्चता के नाम से कोइ न केवल कल्पना करना चाहता है वरन् आचरण में भी इनकी कामना करता है। राम में इतने सारे गुणों का भंडार एक साथ होता है, उन्हें असाधारण बनाता था। ऐसे गुणोंवाला महापुरुष इतिहास तो बनाता ही है, किन्तु इसके इतिहास-चरित्र का श्रवण, मनन, चिन्तन, पठन, पाठन समाज को उस आदर्श का ज्ञान बनाए रखता है जिसके आचरण से भविष्य का व्यक्ति अपना जीवन सुखी और सम्पन्न रखने के साथ अपने मन के जिस संवेग को शान्त करने की जिज्ञासा में गुरुश्रेष्ठ नारद के समक्ष 'कोन्वस्मित साम्प्रत लोके' के द्वारा मात्रा को ६७ गुणोंवाले ऐसे पुरुषोत्तम राम का परिचय नारद ने दिया जिसका विस्तार 'राम तुम्हारा चरित्र स्वयं ही काव्य है, की भावाविभूति में रामायण नाम का वह महाकाव्य बना जो चौवीसहजार श्लोकों में प्रवाहित होकर रामचरित का अक्षुण महासागर बना। यदि किसी व्यालि में इन गुणों में एक, दो अथवा चार भी हों तो वह महान बन सकता है, एक साथ इतने गुणों की बात तो उसे पुरुषोत्तम ही बना देगी। राम सरल मानव के इन सभी गुणों के दृष्टांत थे।''[३]

आधुनिक युग की, वैचारिक भूमि हेतु राम-काव्यही एक तरह से कथात्मक विकास का सबसे सशक्त माध्यम है। भारतीय परम्परा प्रयोगों को एक सूत्रता देने में रामचरित मानस और अन्य प्रबन्ध काव्यों की सार्थकता देखी जा सकती है। राम का समस्त जीवन एकांत साध्य न होकर प्रासंगिकता को वैचारिक परिप्रेक्ष्य के उद्घाटित करता है। राम तत्कालीन समाज में व्याप्त आतंक और अत्याचार को पूरी कर्तव्यनिष्ठा और सौम्य व्यवहार से मिटाने मे सफल रहें। संजीवनी का संचार करने वाले राम मानवता के सर्वोत्तम उदाहरण कहे जा सकते है।

मानवी संबंधो के आर्दश रूप चाहे माता-पिता, भाई-भाई, स्वामी-सेवक, पति-पत्नी, राजा-प्रजा उन तमाम संबंधों का आर्दश रूप बड़ी सफलता से 'रामचरित मानस' में स्थापित हुआ है। तुलसी ने अपने समय की सामजिक विकृतियों और स्थितियों को बड़े करीब से देखा था। रामचरित्र मानस द्वारा उन्होंने कदाचित ऐसे ही जीवन आदर्श को उपस्थित किया जिसमे संपूर्ण मानव समाज का कल्याण हो सकें। भक्ति, ज्ञान और कर्म का महान संदेश देनेवाला रामचरित मानस के सन्दर्भ में डॉ. एम. रोधन ने ठीक ही लिखा है-''विश्व बन्धुत्व और विश्व परिवार की परिकल्पना को सार्थक करने के लिए गोस्वामी जी के सिद्धान्त आज भी हमारा दिया निर्देशन करते हैं। राम के आदर्श चरित्र द्वारा गोस्वामी जी ने जिस धर्म अथवा आदर्श जीवन शैली को हमारे सामने प्रस्तुत किया है, वह प्रत्येक देश अथवा राष्ट्र के सामुदायिक विकास के लिए अनुकरणीय है। आज की पतनशील स्थिति में तो वह और भी प्रासंगिक उपादेय और मूल्यवान बन गयी है। सांप्रदायिक संघर्षो को मिटाने, समाज को संगठित करने, भारतीय संस्कृति को बचाने, भारतीय जन मानस में आत्मविश्वास जगाने और राष्ट्रीय अस्मिता लयबद्ध करने के लिए उन्होंने जो वैचारिक क्रान्ति की, उसका आज के प्रसंग में विशेष महत्व है। उन्होंने मनुष्य में आचरण को ही उसकी उच्चता या न्यूनता का मानक माना। आज भी हम अपनी समस्या का समाधान 'रामचरित मानस' में ढूँढते हैं। आचार्य रामचन्द्र शुक्ल के अनुसार, आपने दृष्टि विस्तार के कारण ही तुलसीदास जी की उत्तर भारत की समस्त जनता के ह्रदय मंदिर में पूर्ण प्रेम प्रतिष्ठा के साथ विराजमान हैं। इस प्रकार 'रामचरित मानस' भारतीय संस्कृति, भारतीय वाङ्मय और भारतीय भाषा का मेरु दण्ड हैं।''[४]

रामकाव्य प्रागौतिहासिक युगसे आज तक के जन मानस को हर दृष्टि से प्रस्तावित और आन्दोलित करता है। पुराण और संस्कृत ललित वाङ्मय, बौद्ध राम-काव्य, जैन राम-काव्य, तुलसी पूर्व हिन्दी राम-काव्य, वीरगाथा काल के राम, मधुर उपासना और राम काव्य, स्वामी रामानन्द का भक्ति-आंदोलन, तुलसी के राम, तुलसी दासोत्तर

रामकाव्य आदि सम्प्रदायों मे रामकाव्य की परम्परा निरन्तर गतिशील और व्यापक रूप में दृष्टिगत होती है। आधुनिक काव्य-दृष्टि और जीवन-मूल्यों की स्वीकृति के सन्दर्भ में प्रेमचन्द माहेश्वरी ने लिखा है-''आधुनिक सन्दर्भ में रामभक्ति से आशय संशय से मुक्ति तथा लोक मंगल की चेतना है। जहॉ रामकथा मन को संशय से मुक्त कर निर्विकार बनाती है, वहॉ 'दशरथ अजिर बिहारी' राम को सगुण ब्रह्म के रूप में स्थापित कर लोक मंगल का स्वरूप-विधान भी करती है। अत: आज का आलोचन तुलसी के प्रतिमानों का अनुसंधान करता हुआ भक्ति-तत्व, लोक मंगल, सामाजिक चेतना, सौन्दर्य-बोध तथा समन्वय वाद की ओर इंगित करता है। अलौकिक-अति प्राकृत तत्वों के ग्रहण तथा प्रतिपक्षी पात्रों के प्रति असहिष्णु प्रवृत्ति के रहते हुए भी तुलसी के मानस की आधुनिक सन्दर्भ में एक विशिष्ट प्रासंगिकता है।''५ आज के वर्तमान युग में हर कोई उन्हीं आदर्शों की खोज में रत दिखाई देता है। आज्ञाधारी पुत्र, राजसुख त्याग देनेवाला आज्ञाकारी पुत्र, आदर्श भाई,एक पत्नी व्रती आदि विविध रूपो को निरन्तर खोजने में प्रयास रत है। यह राम के द्वारा ही संम्भव है, चाह कर भी दूसरा कोई  ऐसा नहीं कर सकता। राम कथा के महत्व को कालखण्ड की सीमाओं चाहकर भी बद्ध नहीं किया जा सकता और सीमाओं में बाँधे जाने का प्रयास भी नहीं किया जाना चाहिए। रामकथा का विस्तृत फलक सार्व कालिक, सार्वदेशिक रहा है और आने वाले दिनों में भी रहेगा। तुलसी के शब्दों में कहा जा सकता है–

''निज प्रभु मय देखहि जगत, केहिं सन कौन विरोध''

**सन्दर्भ :**

१. राम कौन-श्रीराम मेहरोत्रा, पृ.-२४
२. तुलसी की कालवयता और इतिहास का संकट - योगेन्द्र प्रताप सिंह, पृ.-२६
३. राम कौन-श्रीराम मेहरोत्रा, पृ.-३२
४. वर्तमान परिप्रेक्ष्य में राम काव्य की कृपादेयता - डॉ.एम.शेषन-पृ.-४१
५. हिन्दी रामकाव्य का स्वरुप और विकास - प्रेमचन्द महेश्वरी - पृ.-३३
६. रामकथा - फादर का मिल बुल्के।
७. रामचरित्र मानस, गीता प्रेस-गोरखपुर

* * *