Summary
&
Conclusion
SUMMARY & CONCLUSIONS

A STUDY OF THE EDUCATION MANAGEMENT SYSTEMS
FOR THE VISUALLY HANDICAPPED

1. Background:

1.1 Extent of Coverage:

According to the national sample survey (1985), there are 2,00,000 visually impaired children of school-going age in India. The existing education facilities provide education to only 16,000 visually impaired children i.e. only 8 per cent of the target group. These facilities are not only meagre, in most cases these are not effective.

1.2 Existence of Different Modes:

In our country, the three modes of education of the visually impaired viz. integrated education, semi-integrated education and residential schools are most prevalent. Residential schools and integrated education are two extremes on the continuum. Semi-integrated education which is the middle path approach has a very limited acceptance as only a few centres in the country have adopted it.

Resource mode of integrated education under which a visually impaired child stays with the family and attends a regular school where a resource room for a group of such children has been established has not been covered in the research study as the same is not prevalent in Gujarat.

1.3 Purpose of the Study:

The research study attempts to evaluate these modes of education in terms of their cost effectiveness, socio-psychological implications, effectiveness in respect of individual performance, speed and accuracy of braille, extent of social maturity, concept development and their social relevance. Its objective is to investigate effectiveness of these modes of education to establish as to which is the most appropriate mode at present.

2 Review of Literature:

The study reviews the published material pertaining to different systems of education of the visually impaired extensively. A summary of the review is presented below:

2.1 Definition and Goal of Education:

The education per se is generally defined on the basis of aims or objectives, whereas special education is defined on the basis of the educant and the mechanics or arrangement for the education.
Conclusion

All the existing modes of education have the same goal of promoting formal education of a disadvantaged group. They, however, differ in the means of achieving the same. Residential education focuses at the attainment of education through residential schools; Integrated education aims at providing education within the regular education system; whereas semi-integrated education enables the pupils to avail special residential facilities while attending the regular schools.

The aim of education, however, is giving the visually impaired child knowledge of the realities around him, the confidence to cope with these realities, and the feeling that he is recognized and accepted as an individual in his own right.

2.2 Status of Education of the Visually Impaired:

In India, education of the disabled was not accepted as a legitimate component of general education and continued to be treated as a mere welfare activity for too long. It had to wait for four decades after independence to be recognized as a component of general education.

The national policy on education (1986) for the first time considered 'education for all' as one of the cherished goals of national development. The plan of action (1987) and the draft legislation on handicapped (1988) emphasize that integrated education as well as residential schools must be continued and promoted as an integral part of the education policy.

At present, integrated education and higher education of the disabled are deemed to be educational activities as the same are covered under regular educational set-up at the state as well as central government level. Residential education still continues to be a welfare activity as the same is still covered under the welfare administration at the state as well as central government level.

2.3 History of Education:

The beginning of residential education in the world has been traced to 1785, whereas integrated education to 1868. In India, however, residential education began in 1887 and integrated education during 1958.

Amritsar, Dehradun, Calcutta, Palayamkottai, Bombay and Ahmedabad are the initial steps in the history of residential education of the visually impaired in India. The Bombay experiment, Palanpur school, Visnagar project, Ramakrishna vidyalaya are the landmarks in the process of introduction of integrated education in the country.

2.4 Advantages and Limitations of Different Modes:

2.4.1 Residential Schools: Major advantages of residential education include availability of trained teachers, individual attention, special equipment, opportunity for development of other facilities, free boarding and lodging facilities, and emphasis on plus curriculum etc. The limitations include low coverage, high cost, restricted growth, isolation of inmates, inadequate services and urban bias.

2.4.2 Integrated Education: Major advantages of integrated education include low cost, effective integration, family and community participation, better understanding of fellow sighted students, better social acceptance, familiar environment and demonstration effect. Integrated education scores better in respect of social integration, quality of vocational training, cost effectiveness.
personality development, extensive coverage and better inter-personal understanding.

The limitations of integrated education include low and declining enrolment, restricted growth of the concept, limited integration, apathy of the parents, deprivation from special equipment, difficulty in implementation in the urban areas and administrative inconvenience.

2.5 Co-existence of All the Modes:

The study establishes that integrated education as well as residential schools and combinations thereof have stood the test of time and they are bound to stay. Both the modes are relevant and desirable. These modes should not be competitive but complimentary to each other.

It is, however, essential that the criteria for selection of a mode of education should be based on the individual felt needs and convenience of the child. The segmentation should be according to nature of handicap, age, earlier exposure to education and the extent of availability of services. The education programme should be fitted to the child, and not the child to the programme.

3. Integrated Education in Gujarat

Semi-integrated education was introduced in Gujarat during 1963 at Palanpur, whereas integrated education was initiated at Visnagar during 1981. The study establishes that the period from 1981 to 1990 witnessed the consistent growth of the itinerant mode of integrated education and it has emerged as the largest programme of its kind in the country.

3.1 Nature of Organizations:

Integrated education in Gujarat is being implemented by the non-governmental blind welfare voluntary organizations. Out of 13 organizations covered in the study, 2 are residential schools, one is originally a regular educational institute, remaining 10 are blind welfare organizations which have initiated integrated education as the major activity.

3.2 Nature of Coverage:

12 out of 13 organizations have implemented Integrated education exclusively for visually impaired children and one organization has adopted the multi-category approach of covering more than one categories of disability. All the organizations excepting one have adopted itinerant mode of integrated education. The itinerant teacher provides services in term of teaching of braille, individual and family counselling, training in orientation & mobility, supply of material, and reading lessons to children.

10 out of 13 organizations cover visually impaired children of all school ages and remaining 3 confine their coverage to children below 14 years of age.

3.3 Pattern of Growth:

The study reveals the following pattern of growth:
a. The number of students has increased over the last ten years. The respondents are planning to achieve an annual growth rate of 20 per cent.

b. There is a greater enrolment of male children. The percentage of female children has remained almost stagnant at 35 per cent of the total enrolment.

c. The number of children per school and per village has remained consistent at the rate of 1.63 and 1.73 respectively. In other words, there are only 5 children for every 2 schools or 3 villages. This observation supports the contention for the promotion of itinerant mode of integrated education. Similarly the number of children per itinerant teacher has also remained static at 9 to 10 and is likely to be maintained at this level.

d. Most organizations initiate integrated education at the primary level and continue providing services of the itinerant teachers till the completion of school education.

3.4 Sources of Funding:

3.4.1 Source of Grant: There is a steep increase in the financial assistance available from the central government. Most of organizations still depend upon the public charities for the initiation and expansion of integrated education. The state government has recently established an administrative cell and the release of grant is in the process of getting streamlined.

3.4.2 Nature of Grant: The Ministry of Human Resources Development provides grant through the state government on ad hoc basis. The state government so far has not made any provision for providing such assistance from its own budget. It is merely acting as a conduit for channelizing the grants and for compiling and forwarding the grant applications.

3.4.3 Extent of Grant: The grant meets only part of the admissible expenditure. The organizations still depend upon public donations for meeting administrative and establishment expenses. Only 2 organizations have so far received assistance for establishing the resource centres.

The grant covers salary of teachers, special travel allowance, books and stationery, reader and uniform allowance and the educational material only. There is no provision of grant for meeting expenditure on establishment, group meetings, incidental items and other non-recurring expenses.

3.5 Per Capita Expenditure:

The study reveals that the direct allocable per capita expenditure on integrated education is Rs. 2,220 which is less than one-fifth of the direct expenditure of Rs. 9,760 on residential education. Thus with the same amount 9 students can be educated under integrated education as compared to 2 students under residential education.

Most organizations have not incurred any substantial expenditure on construction of buildings and creating other infrastructure etc. As integrated education does not entail any large expenditure on capital items as well as on boarding and lodging, it renders the approach comparatively cost effective.

3.6 Qualification of Teachers:

3.6.1 Lack of Qualification: The study reveals that 78 per cent of the itinerant teachers do not fulfill the criteria of minimum qualification as enunciated under the scheme. Thus such a large number of
teachers are not eligible to be covered under the scheme. As the grant-in-aid at present is being provided on adhoc basis, the government has not enforced the qualification criteria strictly. The fact, however, remains that these teachers do not fulfill the qualification criteria.

3.6.2. Special Instructors: In Gujarat, the itinerant teachers are also expected to impart training in orientation & mobility, braille, adjustment skills and craft to the students. The concept of appointing specialist instructors, which is not recognized in the scheme, has so far not been adopted in Gujarat.

3.7 Facilities under Integrated Education:

3.7.1 Boarding & Lodging: Integrated programmes do not provide any such facilities, whereas semi-integrated programmes provide the same.

3.7.2 Resource Centres: While all the organizations are planning to establish the resource centres, only 4 of them have established such centres so far. The central scheme provides grant for establishing such rooms. During 1990-91, 28 per cent of the grant was allocated for this purpose alone.

3.7.3 Plus Curriculum: Almost all the components of plus curriculum viz, orientation & mobility, activities of daily living, braille, family and individual counselling, and teaching of special methods have been adopted in integrated as well as semi-integrated education.

3.7.4 Summer Camps: In order to make integrated education more effective and result oriented, 85 per cent programmes are organizing summer camps for the children, parents and the class teachers. Such camps have helped to improve inter-personal relations, reading and writing of braille, use of educational aids and understanding of the salient features of integrated education.

3.7.5 Sports & Indoor Games: 69 per cent of the organizations have incorporated sports, indoor games, music and physical exercises in the programme. The occupational therapy and scout have yet not been adopted. The most remarkable achievement is adoption of pre-braille tactual activities and developing innovative tactile material.

3.7.6 Braille Production Facilities: 54 per cent organizations have already established such facilities using brailers and braille writing slates. All the respondents receive braille text books from the regional braille press at Ahmedabad. Thus adequate braille production facilities exist in Gujarat.

12 out of 13 respondents provide braille books to the students. 31 per cent provide only text books and 54 per cent provide all types of books. 2 respondents have even established braille circulating libraries.

3.7.7 Availability of Talking Books: 9 out of 13 respondents provide recorded cassettes to integrated students. Almost all the students who require cassettes have access to them. 33 per cent respondents provide only text books and the remaining 67 per cent provide all types of recorded books.

3.7.8 Availability of Educational Equipment: The use of brailers, braille kits and braille writing slates is prominent. The use of tactile maps, writing frames and relief globes is moderate. The use of models for teaching of human body parts, tactile globes, geometric devices, relief maps and auditory maps is negligible.
3.8 Summary - Integrated Education:

So far integrated education in Gujarat has been implemented by the non-governmental blind welfare voluntary organizations. All the organizations excepting one have adopted the itinerant mode of integrated education. Majority of organizations cover visually impaired children of all school going ages. There is a greater coverage of male children.

There is a steep increase in the financial assistance available from the central government. Most organizations, however, depend upon the public donations for the initiation and expansion of integrated education.

With the same amount 9 students can be educated under integrated education as compared to 2 of them under residential schools. As the former does not entail large expenditure on capital items as well as on boarding and lodging, it renders the approach cost effective.

Under integrated education, adequate infrastructure has been developed and a variety of educational aids and appliances are being provided to the students. Adequate braille production facilities have been developed and the braille material is being provided. Almost all the components of plus curriculum have been adopted in integrated as well as semi-integrated education.

The major stumbling block, however, is the qualification of the teachers. About 78 per cent of them do not fulfill the qualification criteria as enunciated in the scheme (Annexure 10). If the government applies various provisions of the scheme strictly, most of these organizations would not be eligible for grant-in-aid.

4. Residential Education in Gujarat

The origin of residential education in Gujarat may be traced to 1900 when Nilkanthrai Chhatrapati established the first school for the blind at Ahmedabad. The second school for the blind was established at Mehsana during 1915. The major growth period for residential education is 1962 to 1975. At present, there are 21 schools for the blind in Gujarat.

4.1 Nature of Organizations:

The coverage of 2 government schools and 15 non-government schools run by the voluntary organizations establishes that residential education is generally run under the auspices of the voluntary organizations.

4.2 Nature of Coverage:

4.2.1 Nature of Disability: As in case of integrated education, residential schools also exclusively cover visually impaired children. In other words, the multi-category approach of covering all the disabilities simultaneously has not been adopted in Gujarat so far.

4.2.2 Age: 47 per cent of residential schools cover only adult visually impaired, 23 per cent cover children below the age of 14, and the remaining 30 per cent cover the children as well as the adult
Conclusion

visually impaired. Thus residential schools mainly cover the adult visually impaired who are otherwise not eligible to be covered under integrated education due to higher age.

4.2.3 **Level of Education:** Residential education is not confined to any particular level of education. The number of students declines substantially at the secondary and higher levels of education. The special education is not limited to regular curriculum alone as it imparts vocational as well as professional training to the visually impaired.

4.2.4 **Enrolment of Students:** Residential education has registered an annual growth of only 1 per cent which is very insignificant as compared to that 26 per cent in case of integrated education. The enrolment of students per school has remained stagnant during the last three years at 54 only.

4.2.5 **Enrolment of Girls:** In residential schools, girls constitute 12 per cent of total enrolment which is comparatively lower than that of 35.2 per cent in case of integrated education. The latter thus provides better educational opportunities to visually impaired girls.

4.2.6 **The Teacher - Student Ratio:** It has declined from 8.66 to 7.36 which is lower than the expected ratio of 10. In case of integrated education, it is 9.48 which is higher than the expected ratio of 8.

4.2.7 **The Strength of Teachers:** Residential schools have appointed 24 surplus teachers as compared to shortage of 12 teachers in case of integrated education. The former would have to increase enrolment by 26 per cent to achieve stipulated teacher student ratio of 1:10.

4.3 **Source of Grant:**

Hardly any assistance is available from the non-governmental organizations or the central government for the maintenance of residential schools. Such schools, hostels and training centres in Gujarat are run under the exclusive patronage of various departments of the state government. These are required to solicit public donations to meet at least 25 per cent of the total recurring expenditure and the complete non-recurring expenditure.

4.4 **Per Capita Expenditure:**

The average per student direct annual recurring expenditure in case of residential education is Rs. 7,760. If estimated cost on various items of capital nature and indirect recurring expenditure is assigned, actual per capita cost would work out much higher. As such expenditure in case of integrated education is only Rs. 2,220, residential education emerges comparatively more expensive.

4.5 **Qualification of Teachers:**

Almost 50 per cent of special teachers do not fulfill the criteria for minimum requirement of qualification. Almost one-third of them have completed secondary level of education without any further education or relevant professional training. It is difficult to expect a person with only school level education to become an effective teacher.

The study reveals that only 53 per cent residential schools have appointed qualified braille teachers; only 41 per cent are providing training in orientation & mobility and activities of daily living; and 41
per cent have yet not appointed the craft instructors. Thus the training in braille, activities of daily living, orientation & mobility and vocational courses needs to be improved.

4.6 Facilities at Residential Schools:

4.6.1 Braille: As 47 per cent residential schools have so far not appointed the braille teachers, the teaching of braille has not been given prime importance and it is considered incidental to regular curriculum.

4.6.2 Craft & Sports: The teaching of craft, cricket, sports, indoor games and physical exercises also follows the similar pattern as teaching of braille. Only 25 per cent schools have introduced occupational therapy and the scout.

4.6.3 Braille Production Facilities: The encouraging fact is that 82 per cent residential schools have developed such facilities and others are planning to develop. The most popular mode of production is the use of braille slate, followed by braille machines. Almost all schools are availing braille books from the regional braille press at Ahmedabad.

4.6.4 Braille Books: The text books find first preference with residential schools followed by fiction. While all such schools provide braille books, the organizers of integrated education are comparatively more progressive in respect of providing a variety of books to the children. 70 per cent of schools are also providing recorded cassettes to the students.

4.6.5 Educational Equipment: Residential schools have acquired a variety of indigenous as well as imported educational equipment. The comparative study, however, reveals that integrated students get better exposure in this respect as compared to that of residential schools. The organizers of integrated education are more progressive and advanced in respect of adopting newer and innovative equipment.

4.7 Summary - Residential Education:

Residential schools are generally run under the auspices of the voluntary organizations, cover the visually impaired children exclusively and impart education at all levels of school education.

The average enrolment of students per school has remained stagnant during the last three years. The enrolment of girls is only 12 per cent of the total. The teacher - student ratio has declined from 8.66 to 7.36 which is lower than the expected ratio of 10.

As residential schools are required to solicit public donations to meet at least 25 per cent of the total expenditure, these are more or less charitable in nature. Residential education is comparatively more expensive than integrated education.

Almost 50 per cent of the special teachers do not fulfill the criteria for minimum stipulated requirement for educational qualification. The teaching of vocational courses and plus curriculum is not adequate. Similarly, the teaching of braille, craft, cricket, sports, indoor games and physical exercises has not been given prime importance and it is considered incidental to regular curriculum.

About 82 per cent residential schools have developed braille production facilities and others are planning to develop the same. While all schools provide braille books, the organizers of integrated
education are comparatively more progressive in this respect.

While residential schools have acquired a variety of indigenous as well as imported educational aids, the comparative study, however, reveals that integrated students get better exposure in this regard.

5. Views of Leading Educators

Based on secondary sources of information, 28 leading educators of the visually impaired from all over India were identified. A structured questionnaire was mailed to them for seeking their responses on various aspects pertaining to education of the visually impaired.

5.1 Modes of Education:

The study establishes that only four modes of education viz. residential, semi-integrated, integrated-resource and integrated - itinerant are prevalent in the country. Various other modes viz. cooperative plan, cluster model, and multi-skilled teacher plan which have been implemented abroad are still not popular in the country.

43 per cent respondents have promoted integrated education, 33 per cent both - integrated as well as residential, and 25 per cent residential education exclusively. There is, however, a shift in the preference levels of the leading educators from residential to semi-integrated education and from itinerant mode to resource mode of integrated education.

5.2 Merits of Special Schools:

Residential schools have been rated ideal for education of the children with special needs. These have the advantage of administrative convenience, unity of command, ease of individual supervision and intensive coverage. These are emerging as laboratories for conducting experiments for evaluating latest trends and for developing new concepts. These are suitable for human resource development, carrying out research and for developing new teaching aids and methods.

Residential education is considered more expensive and less cost effective. Similarly, the respondents have negated the contention that residential schools have better infrastructure as well as health services. The psychological advantage of better acceptance of visually impaired children among other similar children has not been rated as a merit of residential education.

5.3 Merits of Integrated Education:

The respondents consider better adjustment, family participation and better acceptance of visually impaired children as the principal advantages of integrated education. It is also the only mode for mass coverage of children at a comparatively lower cost. It also has the in-built advantage of early identification, intervention, coverage and enrolment of such children.

The respondents have outrightly rejected the contention that quality of teachers under integrated education is better. Similarly, the contention that it is easier to get grant for integrated education does not find favour. They also do not consider it as the only alternative for pre-school education. The administrative inconvenience, difficulty in effective supervision and scattered nature of beneficiaries
are the major impediments in the adoption of this mode of education.

5.4 Coverage:

5.4.1 Population of the Blind: The WHO - NPCB survey (1986-89) establishes that the population of the visually impaired in India is 11 million, at the population level of 800 million, including 85 per cent curable persons. If we consider existing population level of 880 million, the estimated population during 1994 should be 13 million. Out of which 11.05 million are curable and the remaining 1.95 million are incurable visually impaired persons.

5.4.2 Special Schools: According to this study, the number of residential schools in the country ranges between 225 to 250 with an enrolment of about 10,000 children. The secondary sources of information also corroborate this range. The national average is 45 children in each residential school which is lower as compared to that 54 in Gujarat.

5.4.3 Integrated Education: Considering secondary sources of information as well as findings of this study, it may be concluded that total enrolment of visually impaired children under integrated education is 5000 in the country and 975 in Gujarat.

5.5 Evaluation of Various Modes:

Based on the statistical analysis of the rating of these variables by 19 leading educators, the following conclusions have been drawn:

5.5.1 Social Integration: The first major observation of the leading educators is that integrated education has inbuilt advantage of enhancing social integration and social acceptance of a visually impaired child. It enables the child to feel an integral part of family and have full share of family life. It enhances self esteem, confidence and social skills of the child. As he is eventually expected to live in the community, it is essential to provide education in the integrated set up rather than in a residential school.

5.5.2 Individual Need Based Education: The second major observation of the leading educators is that it is advisable to support a child-centred individual need based approach rather than adopting a blanket policy of imparting education without considering the child’s needs. The compartmentalization of education irrespective of needs of children does not find favour with the educators.

The primary importance should be accorded to the needs of the children and secondary importance to the mode of education. Which-so-ever mode fulfills the aspirations of a child and meets his individual felt needs should be promoted and adopted for that particular child irrespective of its other administrative, financial and societal merits or demerits.

5.5.3 Integrated Education - A Compulsion: Integrated education for the developing countries is not a matter of option but a compulsion, and needs to be promoted without equating it with other modes of education as a matter of choice. Even the most staunch supporters of residential education consider it as a matter of necessity.

5.5.4 Co-existence of Various Modes: Respondents prefer to promote both the educational systems simultaneously depending upon needs of children, extent of disability, socio-economic conditions and the desired quality of education.
The study establishes that integrated education is not a panacea for all the children. For a lot of visually impaired children with other disabilities; or from areas where such education does not exist; and children who could not be identified and enrolled while young, residential education is still the only option. But residential education can never fulfill ever-increasing demand for education. Due to sheer limitation of coverage of children on account of extent of disability and extent of coverage and infrastructure facilities, both systems of education are essential and need to be promoted simultaneously.

5.5.5 Lower Cost: Apart from advantage of effective social integration, integrated education also has the advantage of accomplishing the task at a comparatively lower cost. The respondents have probably rated various statements in view of the costs which can be directly attributed to the programme. The opportunity cost of residential education is comparatively higher as the infrastructure and the establishment have been created exclusively for this purpose alone. This renders integrated education more cost effective as compared to other modes of education.

5.5.6 Consistency of Management: The study establishes a higher consistency of management in case of residential education. It is evident due to unitary command and limited size of the unit of administration. It is, however, pertinent to mention that if integrated education is considered at par and in consonance with regular education, the logic of unitary command and administrative convenience can be applied in case of integrated education as well.

5.5.7 Quality of Education: The educators have raised doubts about the quality of residential as well as integrated education. The general feeling is that quality of both the modes of education needs to be improved. Integrated education has the advantage of enhancing vocational rehabilitation, whereas residential education scores better in braille, music and crafts etc. There is, however, scope for improving the quality in case of both the modes further.

5.5.8 General Tendency: The leading educators have reflected a general tendency of supporting integrated education. They have assigned lower priority to a variety of statements supporting residential education. They do not consider integrated education as a substitute to residential education. On the contrary, it is considered as complimentary and supportive to residential education.

Similarly, certain radical statements which reflect extremes of merits and demerits of either mode of education have generally not been supported.

5.6 Summary:

Integrated education is not a matter of option - it is essential as it is the only mode of mass coverage of the children at a comparatively lower cost and it has the advantage of effecting social integration. The focus of every system should be the individual felt needs of a child. Considering the strengths and roles of both the systems, leading educators conclude that both modes need to co-exist and complement roles of each other. There is, however, a scope for improvement in the quality of both residential as well as integrated education.

The United Nations have duly recognized the human rights of the disabled including the right to appropriate education. The Article 45 of the Constitution of India enjoins on the state to provide universal, free and compulsory education to all children upto 14 years of age (including the disabled).

6.1 Shift from Charitable to Educational Activities:

Historically and traditionally, residential education of the visually impaired has been a charitable activity. Blind children have been admitted to these schools on the initiative of the school authorities and parental interaction has been negligible. Whereas integrated education, a recent phenomenon, is emerging as a true educational activity encompassing all elements of early intervention, regular education, human resource development, counselling, social integration and parental involvement. A visually impaired child is covered as a student of a regular school and is not as an object of charity.

6.2 Effectiveness of Resource Utilization:

The most significant development in the field of education of the disabled in India is its inclusion in the national policy of education (1986). The policy lays emphasis on the removal of disparities and the need to equalize educational opportunity for all. The effectiveness of resource utilization in education is an essential factor for justifying enhanced resource allocation for education. As the ultimate objective is enabling the individual to get best out of his own environment and to utilize the individual potentials to the optimum level, the logic of human resource development is applicable to all children including the disadvantaged ones.

6.3 Economic Viability of Investment in Education:

The expenditure on education constitutes an important form of investment in economic development. The investment in special education and vocational training has a definite role to play in the incremental earnings of the visually impaired. It will result into adequate returns on investment which justifies promotion of education and training of such disadvantaged groups. It would not only bring about economic development, but would enhances equality. The education of the disabled thus is justified from the point of view of equity as well as social justice.

6.4 Organizational Structure:

The analysis of the existing special educational structure reveals that integrated education has a well planned organizational structure consisting of four tiers. Whereas residential education has a linear structure consisting of only two tiers—concerned state departments and residential schools. Integrated education resembles regular education in its structure and is a step toward bestowing equal educational rights on the disabled. The organizational structure of a residential school resembles to a closely held over-protected charity than an educational institution.

6.5 Limited Scope for Tutoring:

The study establishes that in most of schools, there is no scope for tutoring of visually impaired children by the sighted peers as there is hardly any interaction between the former and the latter outside the premises of the school. As in case of integrated education, there is more scope in this
Conclusion

respect, it is likely to emerge more effective in respect of enhancing their social integration.

6.6 Administrative Convenience:

As a residential school is a compact entity, it has the in-built advantage of administrative convenience, whereas integrated education which is a scattered activity emerges as a complex administrative entity. The organizers need to develop an effective management information system with informal and periodic reporting, review meetings and a system of efficient monitoring and control.

6.7 Summary:

The study establishes that it is essential to promote various education management systems as such promotion is justified from the point of its contribution to economic growth, its economic gains, its effects on quality of life, rate of return from investment in special education, its incremental earning, human capital, concept of human resource development and equity & social justice.

From the point of view of cost effectiveness, economic viability, economic gains, social desirability and political will, it is expedient to initiate and promote integrated education. With the same level of resource allocation, it would be possible to enhance coverage of visually impaired children at least four times as compared to that of residential education.

7. Comparative Evaluation of the Effectiveness of the Various Modes of Education of Blind Children

The findings of this part of primary research study are based upon coverage of 130 totally blind subjects from the fourth, fifth, and sixth grades. All are congenitally blind or have acquired blindness in the early years. All had been educated exclusively in one mode of education; 50 from integrated education; 26 from semi-integrated education and 54 from residential education.

For the purpose of comparative evaluation, five parameters of extent of coverage of special groups, level of social integration, achievement in braille reading, level of social maturity and level of concept development have been used. Subjects have been administered Tooze braille speed test, Vineland social maturity scale, Manl's test of concept development and sociometric devices to ascertain the number of blind and sighted friends, participation in active or passive activities. The findings of this part of research are based on analysis of data compiled from the administration of these tests:

7.1 Coverage of Students:

7.1.1. Gender Discrimination: The study disapproves the hypotheses that the three modes of education do not differ significantly in respect of extending equal educational opportunities to visually impaired girls. It establishes that integrated education emerges the most effective, whereas residential education the least effective in this respect.

Integrated education enrolled 48 per cent girl students as compared to that 27 per cent and 14.8 per cent in case of semi-integrated and residential education respectively. Thus integrated education extends almost equal opportunities to the visually impaired boys as well as girls and there is no evidence of gender discrimination. The overall performance reflects such discrimination with a
preference for visually impaired boys as for every 7 boys only 3 girls have been enrolled.

7.1.2 Age Group: The test of significance establishes that there is no significant difference between various modes of education in respect of average age of visually impaired students. The normative analysis, however, establishes that integrated education is more effective than residential education in respect of coverage of younger children; residential education in turn is more effective than semi-integrated education in this respect.

Integrated education enrolled 62 per cent children of below 12 years of age who are studying in 4th to 6th grades as compared to 38.5 per cent and 51.85 per cent in case of semi-integrated and residential education respectively.

7.1.3 Coverage of Congenitally Blind Children: The test of significance of null hypotheses establishes that there is no significant difference between three modes of education as regard coverage of congenitally as well as adventitious visually impaired children.

The proportion of coverage of congenitally visually impaired children is 78 per cent, 73 per cent and 57 per cent in case of integrated, semi-integrated and residential education respectively. The normative analysis, however, reveals that integrated education is more effective than semi-integrated education and semi-integrated education is in turn is more effective than residential education in this respect.

7.1.4 Level of Treatment: There is no significant difference between three modes of education as regard enrolment of such visually impaired children who had availed or who had not availed treatment at the time of onset of blindness. The study reveals that 87.6 per cent children in general had availed treatment with highest proportion of 96.2 per cent in case of semi-integrated education and lowest 80 per cent in case of integrated education. As a mode of education has no direct role to play in promoting appropriate medical intervention at the time of onset of blindness, this observation does not lead to any definite and relevant conclusion.

7.2 Family Background:

In-depth study establishes that the variation between the family background of children enrolled under different modes of education is primarily due to the location of such modes, access of child to a particular mode and the level of awareness of the family. The family background has hardly any role to play in respect of effectiveness of a particular mode of education.

7.2.1 Occupation: There is a significant difference in respect of the family occupation of the children studying under different modes of education. Integrated education is most effective in attracting children from farming community, whereas residential education in respect of children from service class.

7.2.2 Caste: Similarly, the caste or religion of a child has no influence on the selection of the mode of education. There is no significant difference between three modes in this respect. The study, however, reveals that 54.5 per cent children belong to lower castes and about 8 per cent of them come from Muslim families which follows the demographic pattern of general population in this respect.
7.3 Level of Social Integration:

7.3.1 Number of Friends:

7.3.1.1 Total as well as Sighted Friends: The hypotheses that integrated education will be more effective than semi-integrated which in turn will be more effective than residential education in terms of acceptance of visually impaired students among the friends in general as well as sighted stands rejected. The study establishes that semi-integrated education is the most effective mode in respect of fostering friendship of visually impaired children among other children. Integrated education is the least effective mode in respect of total number of friends and residential education is least effective in respect of sighted friends.

On an average, a child under semi-integrated education has 7.11 total friends as compared to 5.65 in case of residential education and only 3.96 in case of integrated education. Similarly, a child in this setting has 4.11 sighted friends as compared to 3.72 in case of integrated education and only 2.42 in case of residential education.

7.3.1.2 Blind Friends: The study establishes that residential education is more effective than semi-integrated education which in turn is more effective than integrated education as regard acceptance of visually impaired pupils among other like children. A child in the former set up has 3.24 visually impaired friends compared to 3 in case of the latter. There is no scope for an integrated child to meet, interact and develop friendship with other visually impaired children.

7.3.2 Type of Friends

7.3.2.1 Friendship with the Neighbours: Integrated education is least effective even in promoting friendship of visually impaired pupils with the neighbours. It is generally expected that this mode would promote social acceptance of a child in the neighbourhood. The study, however, establishes that an integrated child has only 1.26 friends in the neighbourhood which is lower than that 2.20 in case of semi-integrated education and 2.29 in case of residential education. Semi-integrated education emerges the most effective mode in this respect.

7.3.2.2 Fellow Students: With an average of 4.69 friends, semi-integrated education emerges most effective as regard fostering friendship of visually impaired pupils with fellow students, whereas integrated education with an average of 2.54 friends, emerges least effective in this respect.

7.3.2.3 Relatives: The development of friendship with the relatives in case of all the modes of education is extremely poor as only one out of eight visually impaired children developed such friendship. There is no significant difference between different modes in this respect.

7.3.3 Level of Participation in Activities:

7.3.3.1 Activities Per Child: Both in terms of active as well as passive activities, the performance of residential education (5.12 activities) is comparatively better as compared to semi-integrated education (4.65 activities) and integrated education (2.48 activities). The study establishes that residential education emerges the most effective and integrated education the least effective in this regard.

7.3.3.2 Nil Performance: About two-fifth of integrated children are not performing any passive activities as that compared to one-fifth and one-eighth in case of semi-integrated and residential education respectively. Thus the proportion of nil performance is highest in case of integrated education.
7.3.3 Extent of Performance: There is not even a single child under integrated education who is performing more than 4 either passive or active activities, whereas 24 percent and 19.2 percent children in case of residential and semi-integrated education respectively fall in this category.

7.3.4 Summary - Social Integration: The hypotheses that integrated education will be more effective than semi-integrated which in turn will be more effective than residential education in terms of social integration of visually impaired students stands rejected. The study establishes that semi-integrated education emerges the most effective in this respect. It is more effective as compared to other modes of education as regard acceptance of visually impaired pupils among friends and the sighted friends. Residential education emerges the most effective in respect of acceptance of visually impaired children among other like students and neighbours; as well as performance of passive as well as active activities. Integrated education emerges the least effective in respect of almost all the indicators of social integration.

Thus semi-integrated emerges the most effective as regard promotion of social integration of visually impaired pupils and that residential education exceeds integrated education, whereas integrated education emerges the least effective in this respect.

7.4 Speed and Accuracy in Braille:

The statistical tests establish a significant difference between different modes of education. Similarly, two-tailed F-test establishes that residential education is significantly different from semi-integrated as well as integrated education. The median test establishes that residential education is more effective as compared to both integrated and semi-integrated education when considered jointly.

The study reveals that 38 percent children enrolled under integrated education do not know braille at all. Another 38 percent have very poor knowledge of braille as they are able to read only a few alphabets. Only 6 percent children under this mode of education have good speed of reading braille which is comparatively lower as compared to 38.4 percent and 40.7 percent in this respect in case of semi-integrated and residential education respectively. Thus integrated education emerges the least effective mode in respect of accuracy and speed of braille reading.

7.5 Level of Social Maturity:

All the three statistical tests viz. Tukey test, F-distribution in terms of variance within class as well as variance of means, and two-tailed F-test of comparison between two modes establish that there is no significant difference between three modes of education in respect of social maturity and independence of the students enrolled under these modes. The F-value in all the tests is much lower than the critical value of F at 0.01 level. Thus there is not even 1 percent chance that the three modes are significantly different in this respect.

The null hypotheses that all the three modes of education will be equally effective in developing independence and social maturity is retained. The study establishes that three modes of education of the visually impaired are equally effective in terms of developing extent of social maturity and independence of the students.

The research study disapproves the claim that integrated education is more effective than residential
education as well as semi-integrated education as regard developing social maturity and inde­
pendence among the pupils.

7.6 Ex… of Concept Development:

The review of literature establishes that the experience in the school environment and effectiveness of education process and level of exposure at the school would have direct bearing on the extent of concept development. Consequently, a mode of education is likely to have a bearing on the extent of concept development. The study evaluates effectiveness of a respective mode of education in respect development of conceptual understanding in terms of following components:

7.6.1 Equally Effective Components: The statistical tests establish that performance of various modes of education in respect of following four components is not significantly different. Thus all the modes have comparable performance in respect of these components.

7.6.1.1 Body Awareness: There is no difference between three modes of education in this regard. Residential education with a performance score of 25.05 scores better than other modes.

7.6.1.2 Object Awareness: There is no significant difference among three modes of education in this respect. Residential education scores better (14.53) than other modes of education.

7.6.1.3 Spatial Awareness: The statistical tests signify uniformity among children studying under various modes in this respect. Semi-integrated education with an average performance score of 15.42 has an edge over other modes of education. Integrated education with a score of 13.63 emerges the least effective mode of education in this respect.

7.6.1.4 Skill Oriented Concepts: All the modes of education prevailing in Gujarat are equally effective in developing the skill oriented concepts among the pupils.

7.6.2 Significant Difference: The statistical tests reveal that the performance of various modes of education in respect of following components of concept development is significantly different.

7.6.2.1 Time and Distance Awareness: The three modes of education differ significantly in this respect. Semi-integrated education with an average performance score of 18.11 emerges the most effective, whereas integrated education with a score of 16.52 is the least effective mode in this regard.

7.6.2.2 Measurement: The three modes of education vary significantly in their effectiveness in this respect. The normative analysis establishes that semi-integrated education with the average performance score of 11.75 has an edge over other modes of education. Integrated education with a score of 10.19 emerges the least effective in this respect.

7.6.2.3 Orientation of Environment: The study reveals a significant difference among different modes of education in this respect. Integrated education scores the lowest average score of 24.13 and emerges the least effective, whereas semi-integrated education with a score of 25.86 emerges the most effective.

7.6.2.4 Overall Concept Development: When all the 200 concepts are evaluated simultaneously, the null hypothesis that there is no significant difference among three modes as regard improving conceptual understanding and concept development stands rejected. The standard deviation of 3.031 with the coefficient of variation of 2.17 establishes lack of uniformity in this respect among the
children studying under different modes of education.

The cumulative average performance score for all the 200 concepts reveals that residential education with a score of 141.14 is most effective in respect of conceptual development of pupils, followed by semi-integrated education with a score of 140.67. Integrated education with a score of 135.63 emerges the least effective in this respect.

7.6.3 Uniformity in Performance: The performance of different modes of education is uniform in respect of concepts related to body awareness, object awareness, spatial awareness and skills oriented concepts. Residential education performs better in case of body awareness and object awareness, whereas semi-integrated education scores better in respect of spatial awareness and skills oriented concepts. When average score of all 200 concepts is considered simultaneously, residential education emerges most effective and integrated education the least effective mode in respect of conceptual development.

7.6.4 Diversity in Performance: There is a significant difference in these modes of education in respect of concepts related to time & distance awareness, measurement and orientation of the environment. The analysis of variance, however, establishes that semi-integrated education is the most effective, whereas integrated education is the least effective mode in developing these concepts.

7.6.5 Summary - Concept Development: The hypotheses that there is no difference among three modes of education as regard improving conceptual understanding and concept development stands rejected. There is significant difference between different modes of education in this respect. Residential education emerges the most effective and integrated education the least effective in this regard.

The research study disapproves the claim that integrated education is more effective than residential as well as semi-integrated education in developing conceptual understanding and concept development.

7.7 Summary: Comparative Performance Evaluation:

Based on statistical analysis of responses of children and through the use of statistical and analytical tools, the following definite conclusion can be drawn:

7.7.1 Integrated Education: The study establishes that integrated education is most effective in respect of coverage of visually impaired girls, younger visually impaired children, congenitally visually impaired children and the children from the lower castes. Thus this mode of education is effective only in respect of coverage of specific beneficiaries who are not being adequately covered under other modes of education.

Integrated education is least effective in respect of acceptance of visually impaired students among friends in general, performance of active as well as passive activities and social integration of visually impaired pupils. The success of integrated education in fostering friendship of visually impaired with sighted children is not amply demonstrated.

It also emerges the least effective mode in respect of speed and accuracy of braille reading as well as improving conceptual understanding and concept development of visually impaired children.

7.7.2 Semi-Integrated Education: The study establishes that semi-integrated education is the most
effective mode in respect of fostering friendship of visually impaired children among other children, in terms of coverage of Muslim students, acceptance of visually impaired pupils among friends, sighted friends and the neighbours. Thus it emerges the most effective mode as regard social integration of visually impaired pupils.

The performance of semi-integrated education in respect of social integration and speed and accuracy of braille is also the most outstanding.

7.7.3 Residential Education: Residential education is most effective as regard acceptance of visually impaired pupils among other visually impaired children, among relatives and fostering friendship of visually impaired children among other children, and performance of active as well as passive activities. It emerges most effective as regard improving the conceptual understanding and concept development.

It is least effective in respect of coverage of visually impaired girls, younger visually impaired children, congenitally visually impaired children and the children from the lower castes and other minorities. Thus it is most ineffective in the areas which mainly pertain to nature of coverage.

7.7.4 Comparable Performance: The study establishes that there is no significant difference between three modes as regard coverage of congenitally as well as adventitious visually impaired children under different modes of education. The three modes of education are covering children from different caste groups almost in equal proportions. Similarly, there is no significant difference in respect of extent of social maturity and independence of visually impaired students.

7.7.5 Failure of Integrated Education: Integrated education has failed to enhance social integration of the visually impaired children. Even in respect of social maturity, it has no in-built advantage over other modes of education. Its quality of education in terms of speed and accuracy of braille of the pupils and that of qualification of the teachers is miserably poor. On all the four accounts of social integration, speed and accuracy of braille, social maturity and concept development, it emerges, at present, the most inferior as compared to other modes of education.

The research study disapproves the claim that integrated education is more effective than residential education as well as semi-integrated education as regard developing social maturity and independence; and conceptual understanding and concept development among the pupils.

8. Conclusion of The Study:

A summary of the findings of the research study is based on an extensive review of literature pertaining to special education and specific human resource development, evaluation of different modes of education, analysis of view of the leading educators and comparative performance evaluation of 130 visually impaired students in terms of coverage of special groups, social integration, speed and accuracy of braille, social maturity and concept development.

8.1 Economic Viability:

The study establishes that investment on education constitutes an important form of investment in economic development. Such investment would result into adequate returns which justifies promotion of education and training of disadvantaged groups. Such investment is also justified from the point of view of economic growth, its economic gains, its effect on quality of life, human capital,
incremental earnings, and equity & social justice. Integrated education emerges economically more viable as compared to residential as well as semi-integrated education due to its cost effectiveness, social desirability and political will.

8.2 Limited Coverage:

The estimated population of the visually impaired in the country is 13 million with 11.05 million curable and 1.95 million incurable. The existing 225 to 250 residential schools cover 10,000 children and integrated education projects cover another 5,000 children with is only 6 per cent and 2 per cent of the total estimated population of the children of school-age respectively. Thus 92 per cent children have no scope for their whatsoever education at present.

8.3 Gender Discrimination:

The evaluation of different modes of education establishes that in residential schools, girls constitute 12 per cent of total enrolment which is comparatively lower than that 35.2 per cent in case of integrated education. The evaluation of performance of students reveals that integrated education enrolled 48 per cent girl students as compared to 27 per cent and 14.8 per cent in case of semi-integrated and residential education respectively. Thus integrated education extends almost equal opportunities to the boys as well as girls and there is no evidence of gender discrimination. The overall performance, however, reflects gender discrimination with a marked preference for boys as for every 7 boys, only 3 girls have been enrolled.

8.4 Variation in Unit Cost:

The statistical analysis reveals that direct allocable per capita expenditure on integrated education is Rs. 2,200 which is less than one-fifth of the direct expenditure of Rs. 9,760 on residential education. Thus with the same amount 9 students may be covered under integrated education as compared to 2 students under residential education and it renders the former mode of education comparatively more cost effective and economical.

8.5 Growth Period:

The origin of residential schools may be traced to the year 1900 and that of semi-integrated education to 1963 and integrated education to 1981. Integrated education witnessed consistent growth during 1981 to 1990, whereas residential schools from 1962 to 1975. The latter has remained stagnant for the last 20 years and the former has tremendous potential for growth. During the period of research study (1989 to 1992), residential schools registered an annual growth of 1 per cent which is insignificant as compared to that of 26 per cent in case of integrated education during the same period.

8.6 Collective System Failure:

The study also reviews the historical, social, administrative and financial perspective of each mode. It was due to feelings of pity, compassion and charity that residential schools were established and supported. Similarly, to enhance the quantitative coverage and to improve the extent of social
The study also establishes that residential education is not suitable for mass coverage of visually impaired children as it is very expensive and results into isolation of the beneficiaries. In case of integrated education which is the only mode of en-masse coverage of such children, the quality of education, at present, is extremely poor.

The major stumbling blocks in case of integrated education are lack of requisite qualification of the itinerant teachers, extremely poor quality of braille reading and its failure to enhance social integration of visually impaired children. In case of residential schools, the major impediments are stagnant enrolment of students, declining teacher-student ratio, charitable outlook and lack of vocational training.

Thus the existing approach to education has not achieved the desired objectives of imparting quality education to a large number of visually impaired children.

8.7 Failure of Integrated Education:

Integrated education has failed to enhance social integration of visually impaired children. Even in respect of social maturity, it has no in-built advantage over other modes of education. The quality of integrated education in terms of speed and accuracy of braille of the pupils and that of qualification of teachers is comparatively inferior. In respect of all the four parameters of social integration, speed and accuracy of braille, social maturity and concept development, it emerges the least effective as compared to the other modes of special education.

The research study disproves the claim that integrated education is more effective than residential as well as semi-integrated education in developing conceptual understanding and concept development among the pupils. Similarly, it has failed in enhancing social integration of visually impaired children. Even in respect of social maturity, integration has no definite advantage over other modes of education.

8.8 Scope for Improvement:

The study proposes that educational services under all the three modes of education viz. integrated, semi-integrated and residential need to be improved. The deciding factors for selecting a particular mode of special education would, however, be the individual needs and location of the child. The guiding principle should be to extend educational opportunities to a child according to his individual felt needs and other physical, environment and socio-economic constraints.

The most revealing aspect of the study is that the quality of itinerant teachers, regular teachers and the extent of support services need to be improved to enhance the quality of integrated education. There is also scope for improving facilities at residential schools. Such schools should be managed as educational institutes and not as charitable entities.

The study establishes that among the three modes of education of the visually impaired prevalent in Gujarat, and to some extent, prevalent all over the country, each mode has specific advantages for
selected visually impaired children and no single mode meets the needs of all visually impaired children optimally. Consequently, educators of the visually impaired all over the country are supporting the system of selective educational placement which considers individual felt needs of each visually impaired child and extent of availability of any mode of education in the neighbourhood.

8.9 Complementary Roles:

The most valuable observation of the research study is that even integrated education which is now finding favour at all levels of educational administration has not delivered the desired results in respect of enhancing coverage, promoting social integration, and achieving quantitative and qualitative progress in the field of education of the disabled. Similarly, the research study concludes that residential education has not proved very effective in respect of quality of braille, self care and other specific aspects of this mode of education. The study establishes that the only option at present is promotion of all the systems of education as complementary and supportive to each other.

All the three modes of education must not compete with each other. The delivery of services can be improved if these modes of education play complementary and supportive roles to each other.

8.9.1 Role of Residential Schools: Based on the findings of the study, it may be proposed that residential schools should admit only such children who can not otherwise be enrolled under integrated or semi-integrated education due to the extent of disability, geo-scatter of children, non-availability of integrated education facilities and such other reasons. These schools should also become the preparatory centres for visually impaired children for preparing them for integrated education subsequently. For the severely handicapped, multi-handicapped blind and such other children, residential education is the only panacea.

8.9.2 Role of Semi-integrated Education: It should assume the responsibility for human resource development by conducting appropriate training of resource and itinerant teachers. Such centres may also assume the responsibility of production of braille material and dissemination of relevant and suitable information pertaining to new developments in the field of education of the visually impaired.

8.9.3 Role of Integrated Education: It should expand its services in the areas of child screening, early identification, early intervention, child and family counselling, promotion of comprehensive eye care among children, evaluation of children for deciding the suitable mode of education for each child, promoting pre-braille services and enhancing integration among the children of residential schools as well.

Thus all the modes of education should become complementary and supportive to each other. Each mode should be assigned a definite and clear responsibility of promotion of appropriate need-based component pertaining to education of each visually impaired child.

8.10 Thought for Future:

8.10.1 Right Direction: The coverage of education of the disabled in the national policy on education (1986) and plan of action (1987); shifting of integrated education from the Ministry of Welfare to the Ministry of Human Resource Development during 1987; involvement of National Council for Educational Research and Training in the programme implementation; implementation of the project on integrated education of the disabled with the participation of UNICEF; and initiation of teacher training courses under national institutes and universities are the steps in the right direction.
8.10.2 Continuance as Special Education: Even if quality of itinerant teachers is improved, better amenities are provided at residential schools and the existing human resources are upgraded, education of the visually impaired would continue to be treated as a special activity. A visually impaired child would continue to be treated as a special being - deserving public charity in case of residential education, availing special inputs in case of integrated education, and residential accommodation and special resource services in case of semi-integrated education. Thus all the modes of education of the visually impaired are promoting their education as ‘special’ education.

Even after 107 years of existence, residential education covers only 6 per cent; and integrated as well as semi-integrated education, after 40 years of existence, cover only 2 per cent visually impaired children in India. The improvement in quality of services and human resources may merely improve quality of educational services and may enhance coverage of visually impaired children only marginally. The existing approach to education of the visually impaired needs to be altered drastically for enhancing the coverage significantly i.e. reaching the unreached; and for improving the quality of education for reaching the reached better.

8.10.3 Shift from Special Education to Regular Education: To achieve the cherished objective of ‘Education for All’, it is essential that education of the visually impaired and other disabled should be promoted as regular education through the existing regular schools as a regular educational activity. Only point of departure would be providing child preparatory services to newly identified visually impaired children. The existing integrated education programmes and residential schools may assume the responsibilities of early screening & identification and child preparation respectively.

8.10.4 Education as Education: The study makes a very bold observation that in the near future the only viable and practical option would be promoting education of the visually impaired like that of any other child; involving the regular schools not only for admission of visually impaired children but for extending to them regular educational facilities; bringing education of the disabled under the umbrella of regular educational services; and enabling a visually impaired child to seek admission to a nearby regular school merely as a child - and not as a visually impaired child.

8.10.5 Constitutional Right: Education must always be promoted as education per se. Education of the visually impaired, for that matter of any disadvantaged group, is education. It must be promoted as education and not as a charity or welfare activity. A visually impaired child must be projected, treated and considered as a student at par with any student of his age and calibre and not as an object of charity, pity or compassion. Education of such a child should be considered at par with other fellow students.

The constitutional right of universal and compulsory primary education should encompass all the children irrespective of their physical or mental capacities. It is, however, essential to make adequate provision for providing appropriate support services for compensating the physical, mental, societal or environmental deficiencies so that the child may compete with his normal counterpart. It would thus require selective placement and promotion of all the modes of education, with a planned shift from residential to semi-integrated and then to integrated education, and ultimately to normal education.

8.10.6 Elimination of Welfare Oriented Agency: Education of visually impaired children should be responsibility of the regular schools under the patronage of the state department of education. Residential schools may also provide training to the regular teachers and produce and distribute braille as well as recorded material. Thus one tier of the existing organizational structure in case of education of the visually impaired i.e. project implementing agency, which is generally a blind welfare
organization, needs to be eliminated. Such agencies should assume responsibility of child prepara-
tion, motivation of the parents and organizing school admission. The agencies should hold the child
by the hand and lead him to the regular school. From there on education of a visually impaired child
should be the responsibility of the regular school.

8.10.7 Withdrawal of Special Provisions: In the near future, a disabled child should walk to a nearby
regular school like any other child. He should face the school environment and to be exposed to the
same educational curriculum like any other child. He should have access to child preparatory services
and special educational and mobility material. In other words, education of the disabled should be
handled by the regular educational institutions without any special provisions and without the
education being "special".

9. Contributions of the Study

No systematic research study has been carried out in the country on evaluation of the existing
management systems of education of the visually impaired. The proponents of residential education
generally clamour for the existence and growth of such education with the contention that quality
education can be imparted only through this mode of education. The initiators and organizers of
integrated education generally claim that the only panacea for en-masse coverage of visually impaired
children is this system of education. These claims are generally based on emotional feelings and
individual bias for a particular system of education and not on the basis of any systematic research.

9.1 Performance Evaluation:

This study attempted to evaluate performance of different systems of management of education of
the visually impaired in a systematic and scientific way.

9.1.1 In-depth Study of Different Modes of Education: The study attempted to carry out in-depth
study of residential as well as integrated education through a pre-designed questionnaire. For
evaluating performance of these modes of education, the study evolved a variety of indicators viz.
nature of organizations, nature of coverage, sex-ratio, teacher-student ratio, source and extent of
funding, per capita expenditure, cost effectiveness, quality of human resources, extent and quality of
infrastructure, extent of innovations, and scope for expansion etc.

In the study, management oriented, cost efficiency based, and quality-oriented systematic indicators
have been used for evaluating performance of different management systems of education of the
visually impaired. These indicators could be easily used for such performance evaluation of other
categories of disabled persons and for other locations.

9.1.2 Responses of Opinion Leaders: The study made a systematic attempt of seeking responses
of leading educators of the visually impaired, analyzing the same using statistical tools and evolving
a variety of indicators of performance evaluation. The study evolves a variety of parameters for
evaluating comparative performance of different modes of education. These parameters include:
importance of social integration, individual felt needs, middle path approach, cost effectiveness,
consistency of management and quality of education. There is a scope for identifying similar other
indicators and using the same for research studies for other categories of disability, combinations
thereof, and for other geographical locations.
9.2 Adaptation of Performance Tests:

A significant contribution of the study has been the development of the BMA adapted Tooze braille speed test which is the maiden attempt on adapting a braille speed test in the country. The test which has been adapted in Gujarati can, henceforth, be easily adapted for other regional languages. Similarly, as a part of research study, Mani's test on concept development has been translated into Gujarati and used systematically for evaluating the extent of concept development among visually impaired students. The study also modified the Vineland social maturity scale for its administration to visually impaired children. Thus the research study has promoted the development and use of a variety of performance tests for the evaluation of performance of visually impaired children.

9.2.1 The BMA Adapted Tooze Braille Speed Test: The review of literature and a detailed analysis of various braille tests establishes that the Tooze braille speed test (Annexure 11) is the most relevant and appropriate test for carrying out a comparative study of the performance of visually impaired children in respect of the speed and accuracy of braille reading as well as basic perceptual activities. Considering qualities of the target group, the test has been duly adapted, field tested and modified accordingly.

This test could be conveniently used by the braille teachers, itinerant teachers and resource teachers for evaluating performance of visually impaired children in respect of speed and accuracy of braille all over Gujarat. The adapted test could easily be translated into other regional languages for its application to visually impaired children all over the country.

The Adult Training Centre for the Blind, Ahmedabad has already started using the test for the evaluation of performance in respect of speed and accuracy of braille of the students enrolled in the primary classes. The promotion of the students to the fifth standard depends upon their performance in the test. The test is being used for organizing competition in braille reading at the primary school level. The organizers of integrated projects in Gujarat are also planning to adopt this test for the evaluation of the students in respect of speed and accuracy of braille.

9.2.2 The Vineland Social Maturity Scale: The Vineland social maturity scale (Indian adaptation) has been identified as the most appropriate instrument for comparing the extent of social maturity of visually impaired children enrolled under different modes of education. It measures the differential social capacities; provides an estimate of social age and social quotient; and shows high correlation with intelligence. As the target group knows Gujarati language only, it has been translated into Gujarati.

9.2.3 The Mani's Test of Concept Development: It is the most appropriate assessment tool for assessment of conceptual understanding. It has been recently developed specially for visually impaired children in the age groups of 6-8 years and 10-13 years. The research study has translated the test battery into Gujarati following the underlying principle that the translation must not alter the meaning conveyed by the original concept.

Thus the study has successfully and systematically modified all these tests for their effective administration to visually impaired children who know Gujarati language only. Henceforth, these test can be easily adapted and translated into other local languages.
9.3 Bibliography:

The research study includes an exhaustive and elaborate bibliography. Almost all the books, articles, brochures, thesis and other such material pertaining to education of the visually impaired published after 1950 have been compiled. All the material which has been acquired and is now available with the researcher has been listed in Annexure 1 as “references”. The remaining material about which reference has been found but the material could not be acquired, the listing has been done in the same annexure as “bibliography”. This material would definitely serve as an excellent reference material for other researchers pursuing research pertaining to education of the visually impaired.

9.4 Teachers Training:

The study establishes that the biggest drawback in integrated education are poor quality of braille, low level of concept development and lack of social integration of visually impaired children; extremely poor quality of itinerant teachers; and lack of acceptance of the concept by the state governments, regular educators and and administrators of the educational institutes. Similarly, almost three-fourth of the itinerant teachers do not fulfill requirements for minimum educational qualification.

To overcome this problem, the researcher has already initiated a one year recognized diploma for the secondary teachers of the blind with the recognition of the National Institute for the Visually Handicapped, Dehradun and under the auspices of the Blind Men's Association, Ahmedabad. This is the first recognized course for the itinerant teachers in Gujarat. In the first batch, 16 students have already been admitted. At this rate, backlog of teacher training would be cleared in five years. This is the first tangible contribution of this research study.

9.5 Preparatory Course:

The study establishes that quality of integrated children in respect of speed and accuracy of braille, social integration and social understanding and maturity is extremely poor. This generally results from the fact that every identified visually impaired child is enrolled into regular education straight-away without any child preparatory services. As advocated by Stein (1993) it is desirable that every blind child must be prepared adequately in respect of self care, orientation and mobility, self confidence, primary braille, concept clarity and general understanding. The child should be taken to school after he is adequately prepared to face the school environment.

The concept has already been shared by the researcher with the organizers of integrated education. The concept has already initiated a debate over the subject, There is likelihood of a state level seminar to be organized during September, 1994 under the auspices of the National Association for the Blind, Gujarat branch to discuss the concept at length. The NAB Valsad branch has already decided to initiate the preparatory services for the visually impaired children from August, 1994 which is second tangible contribution of the research study.

9.6 Educational Equipment:

The study established extremely poor quality of braille of integrated students and lack of availability of educational equipment to the students of residential schools. The study recognizes an immediate need for providing good quality personal braille writing devices for the students. The National Institute for the Visually Handicapped, Dehradun has recently developed inter-point braille frame under the
auspices of Science & Technology Mission for the Handicapped. This educational aid is very simple, effective and enables a visually impaired child to emboss inter-point braille effectively on both sides of paper. The researcher has arranged free distribution of these frames to all the students of 5th standard and above studying all over Gujarat.

10. Limitations of the Research Study:

This is a comparative study on evaluation of effectiveness of the education management systems for the visually handicapped. It reviews the available literature on the subject very extensively, compiles detailed information regarding salient features and performance of different modes of educations, and seeks views of leading educators in a pre-designed questionnaire. It also conducts a primary, analytical, descriptive and non-experimental research on effectiveness of various modes of education by administering a pre-designed and pre-tested questionnaire to 130 blind students. The study, however, has the following limitations:

10.1 Limited Target Group:

The study covers the following:

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<th>S.N.</th>
<th>Parameter</th>
<th>Coverage</th>
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<tbody>
<tr>
<td>1</td>
<td>Evaluation of Integrated Education</td>
<td>13 Organizations</td>
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<tr>
<td>2</td>
<td>Evaluation of Residential Schools</td>
<td>17 Schools</td>
</tr>
<tr>
<td>3</td>
<td>Views of Leading Educators</td>
<td>19 Persons</td>
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<td>4</td>
<td>Effectiveness of Children</td>
<td>130 Children</td>
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</table>

On the face value, the coverage of different target groups looks inadequate. As analysis of variance, coefficient of correlation, Tukey's test and other statistical test have been used extensively, it would have been expedient to cover a larger target group. The limiting factor, however, is that the total population of the subject itself is very small.

In fact, all the integrated education programmes, residential schools and semi-integrated education programmes which meet other requirements of the study have been fully covered. Similarly, all the children who fulfill criteria of the research study have been covered. In reality, the coverage of the subject is cent per cent. The fact, however, stands that the study covers a very small subject which might have adversely affected the inferences of the study.

10.2 No Locus of Control:

The research study aims at establishing effectiveness of different modes of education through performance of students in respect of a variety of parameters. Administration of an internal - external locus of control scale would have ascertained the degree to which the respondent attempted to look for the solution of the problems, or attributed his successes and failures to himself or to sources outside himself (McGuinness).

To compensate for the locus of control, the study adopted the test of concept development which uses a variety of components. The test uses 200 concepts and has a coefficient of stability of 0.94.
systems of education.

10.5 Exclusion of Academic Performance:

The study considers extent of coverage of special groups, level of social integration, achievement in braille reading, level of social maturity and concept development as parameters for evaluation of performance of children. Due to non-availability of evaluation records, system of oral examination at primary level, and policy of mass promotion at lower levels inhibited inclusion of academic performance.

To some extent, the academic performance has been covered through the braille reading test and inclusion of academic-oriented concepts in the concept development test. The inclusion of any test on academic performance would have established comparative effectiveness of different management systems in terms academic achievements. It is desirable to continue research in this dimension as well.

10.6 Analysis of Variance:

10.6.1 Normative Analysis: In case of evaluation of integrated education (Chapter II) and residential schools (Chapter III), only normative analysis in terms of arithmetic mean, mode and standard deviation has been done. Most of inferences are based upon analysis of frequency tables and percentage analysis.

Evaluation of integrated as well as residential systems of education is merely investigative and supportive to the subsequent primary research. While analyzing responses of the leading educators, appropriate test of significance through the use of Chi-square test has been carried out. The test of significance has been used to decide whether the variation within the class is statistically different or not. Similarly, in case of primary research on evaluation of performance of children, a variety of statistical tests as explained in chapter on methodology have been used.

It is desirable to use relevant statistical tools to establish whether there is any significant difference between performance of residential or integrated education in respect of various parameters enumerated in questionnaires 1 and 2.

10.6.2 Restricted Use of Pearson Coefficient of Correlation: The statistical analysis of the rating of 50 variables by 19 leading educators has been done to establish merits and limitations of different modes of education. As statistical analysis has been done using "Systat" computer software, it is possible to draw "correlation matrix" for all the variables. The study has, however, confined correlation analysis to only three sets of four variables each. It analyzes the components of compartmentalization of mode of education, need for promotion of integrated education, and cost of education. It is desirable to identify other major components and analyze the extent of correlation using this statistical tool.

10.6.3 Restricted Use of Tukey's Test: This is the most ideal test of non-additivity for choosing between alternative possibilities for the scale of measurement for the criteria. The test has been successfully used for establishing differences between different modes of education in respect of social maturity. Due to paucity of availability of data regarding value of K and mean standard error, Tukey's test could not be used for other parameters of performance evaluation of visually impaired
Conclusion

Further research is advisable for compiling the requisite statistical information and for applying this test.

10.7 Management Perspective: Only a Review:

The major focus of the research study is comparative evaluation of different education management systems for the visually impaired. The inferences of the study in respect of cost effectiveness, economic viability, economic gains, and social desirability are based on review of literature. No primary research study has been carried out in this respect.

10.7.1 Organizational Structure: An attempt in chapter V has been made on studying the organizational structure in case of integrated as well as residential education. It is desirable to evaluate different modes of education after analyzing the existing organizational structure and management information systems for establishing effectiveness of different modes of education.

10.7.2 Cost Effectiveness: While evaluating the existing modes of education, an attempt has been made to establish unit cost of each mode and to examine the comparative cost effectiveness. The inferences are based on the financial details provided by the respondents and no attempt has been made to cross check the validity and authenticity of such details. It is desirable to conduct a detailed study on cost structure of different modes of education. It is essential to evolve actual as well as opportunity cost of each mode of education.

10.7.3 Level of Systemic Linkages: An attempt has been made on exploring systemic linkages in case of residential education while reviewing the literature on management perspective of education (Chapter V). This component did not find reference in the questionnaire based evaluation study of integrated education (Chapter II) and residential schools (Chapter III). It is desirable to conduct a systematic research on evaluating systemic linkages of the organizational structure in case of different modes of education to establish programme effectiveness.

Thus there is a need for conducting further research on systematic evaluation of management perspective of different modes of education to establish as to which mode is comparatively superior in respect of economic viability, social desirability and organizational structure.

10.8 Summary:

The study makes an attempt on evaluation of the education management systems for the visually handicapped by conducting an extensive review of literature, elaborate questionnaire based evaluation of different modes of education, seeking responses of leading educators and administering a structured questionnaire to 130 visually impaired children for their performance evaluation. The study, however, depends on responses of a limited target group, does not incorporate locus of control, and uses unadjusted data as no adjustment for chronological age and intelligent quotient has been carried out.

The study excludes parents, peer group and teachers from the purview of systematic evaluation. It also excludes academic performance from the purview of evaluation of individuals in respect of a variety of parameters. There is a scope for more extensive use of statistical tools of analysis of variance, test of significance, Tukey's test and Pearson coefficient of correlation. Similarly, it is desirable to incorporate various components pertaining to management perspective of the research study to render the study more management oriented.
10.9 Justification:

With all these limitations, the research study is very extensive, elaborate and evaluates the effectiveness of different education management systems on the basis of a variety of parameters. It uses a variety of statistical tools for the evaluation of the same parameters. The study is a maiden attempt on evaluating the education management systems for the visually impaired in the country. The findings of the study would, hopefully, go a long way in improving qualitative and quantitative coverage of visually impaired children in the country.

11. International Opinion:

Important Note: After the researcher had finished analysis of data, had drawn inferences based on the statistical results, and concluded findings of the research study, he receives a document entitled 'Salamanca Statement of Principles, Policy, and Practice in Special Needs Education and Framework for Action on Special Needs Education adapted in the World Conference on Special Needs Education: Access and Quality' held at Salamanca, Spain on 7-10 June, 1994.

11.1 Salamanca Declaration:

The Salamanca Declaration on Special Needs Education completely supports the contention of the researcher. The declaration states that there is an emerging consensus that children and youth with special educational needs should be included in the educational arrangements made for the majority of children. This has led to the concept of "inclusive schools". The challenge confronting these inclusive school is that of developing a child centred pedagogy capable of successfully educating all the children, including those who have serious disadvantages.

The merit of such schools is not only that they are capable of providing quality education to all children; their establishment is a crucial step in helping to change discriminatory attitudes, in creating welcoming communities and in developing an "inclusive society".

11.2 Comparison with the Study:

The Salamanca declaration is in consonance with the major conclusion of the research study that education of the disabled should be handled by the regular educational institutions without any special provisions and without the education being 'special'. The study also proposes a child centred pedagogy which has been advocated by the declaration also.

Another aspect of the declaration that for too long, the problems of the people with disabilities have been compounded by a disabling society that has focused upon their impairments rather than their potential is in consonance with the observations of the research study. The Salamanca declaration also relies upon the concepts of fundamental rights to education, individual needs of children, wide diversity of such needs and characteristics, client centred pedagogy, improving efficacy of educational system and cost effectiveness of entire system. All these components have been adequately considered while evaluating comparative performance of different systems of education in this research study as well. In fact, most of these components have been considered as parameters of evaluation of different systems.

The study concludes that the education programme should be fitted to the child, and not the child to the programme. It advocates promotion of regular education of the visually impaired which is truly in consonance with the international opinion.