CHAPTER II

REVIEW OF LITERATURE
CHAPTER II

REVIEW OF LITERATURE

1.0 Introduction

This chapter presents a report on the literature reviewed for this study. Review of existing literature provides evidence of what is already known and also a basis for formulating hypothesis for what is unknown and untested (Best 1983).

The related literature reviewed for the present research has been divided into sections given below:

1. Studies concerned with teacher education
2. Studies citing the importance of AAC systems and particularly Makaton Vocabulary Language Programme for developing language and communication in persons with disabilities.

2.1 Teacher Education

The use of augmentative communication systems in special education is a new concept in itself. If the system has been used at all, its usage has been limited within the parameters of speech therapy. Against this backdrop, the studies in the area of augmentative communication as a component of teacher education curriculum are almost non-existent. While searching for relevant studies the investigator has come across many that document the general inadequacies of present teacher education course. These have been included but the researches that pinpoint a lacuna in curriculum and resultant deficit in teacher effectiveness in the specific areas of special education have been highlighted.
A survey by Shanks and Darling (1977) of teachers’ opinion on primary diploma course in Scotland revealed that as many as 58% felt inadequately prepared for teaching intellectually slow children. 

Sharma (1982) conducted a study of foundational course for B.Ed. in different Indian Universities. Data collected from student teachers and trained teachers revealed that the course had little relevance to the needs of the school.

In their surveys Marker (1975) and Dubey (1981) point to inadequacy of teacher training syllabi and an absence of a system of periodic revision.

Studying the effectiveness of micro-teaching and planned integration training on student teachers in terms of teaching competence and attitude towards teaching, Bawa (1984) reported that exposure to micro-teaching resulted in improvement of teaching skills. Overall attitude of students participating in micro-teaching and integration based instruction became more positive towards teaching. The change was significant in terms of attitude towards educational process and pupil. The study conducted in India, applied a modular approach where the experimental group students were exposed to micro-teaching with integration oriented programme as against the control group that was only taught micro-teaching.

As special needs children are integrated into regular education, new needs in teacher training are apparent according to Guilford (1986). Focussing on situation in UK the author discusses the training of special education teacher and the pre-service education and in service training of all teachers.

A survey by Her Majesty’s Inspectors in England & Wales (1987) identified disturbing proportions of all new teachers that emerge from teacher training, feeling less than adequately prepared for important areas such as teaching children with special educational needs.
Gipps, Gross and Goldstein (1987) noted that only 31% of the teachers had any courses on teaching children with special needs in their initial training.

The role of a special educator extends beyond the boundaries of the classroom. Since special education provides for support services, the teacher must be prepared to supervise and work effectively with paraprofessional involved in the service delivery. According to Steckelberg & Vasa (1988) the teacher education programmes need to focus on the skill required by the teachers to utilize these personnel appropriately. The authors suggest incorporation of an instructional module into an undergraduate teacher education curriculum. The training module components include rationale for utilization of auxiliary personnel, legal and ethical constraints upon use; description of roles and responsibilities of teachers and auxiliary personnel and methods for supervising paraprofessionals. Steckelberg and Vasa recommend that the competencies be achieved through an intact instructional module delivered primarily in one course, and provide guidelines for appropriate placement of the module in the curriculum. Student competencies upon completion of the module are listed. The instructional methodology utilises student reading materials, lecture presentation, class discussion, class assignment and assessment of student knowledge.

Results of a survey research by Stahiman el al (1989) into the needs of early childhood special education personnel, competencies and potential training models, together with data obtained through a summer training institute for early childhood educators and special educators have implications for common and differential retraining needs through competency based approaches in early childhood education personnel preparation.

In a research conducted on teacher training and special educational needs issues, Bovair (1989) found that 93% of the student teachers felt that they were inadequately trained to meet children’s special educational needs.
But they were open to extended training. 50% showed a desire for team teaching experience.

That teachers require better initial training, better opportunities to acquire classroom and managerial skills in the light of changing demands and need for innovation has been report also by Booth et al (1989).

A study which has direct relevance to the one proposed by this researcher is that by Styles and Pearce (1989) who decided to mount a course on 'Language and Special Needs' in the primary curriculum which would be offered as an option to IIIrd year students of teacher training course. In the 1st and 2nd year, attention is paid to techniques of helping those with problems in reading and writing, but the authors intended their course to focus on wider issues of special needs, to give student teachers the opportunity to respond to the needs to those children whom they were teaching during teaching practice and on leaving college. The researchers planned to devote half of the course to lectures and discussion where as the second half involved practical work in school, helping in child with language and learning problems. In addition, the student teachers were expected to write a case study of a child focusing on small areas of his language and learning problems and giving strategies that might ensure success. The student teachers’ comments on this training module identify very positive experience and deserve a mention. They felt that the platitude ‘Begin with the Child’ had a new meaning now for them, that merely presenting the same material at a lower level no longer seemed a viable manner of working, but by taking the lead from the child, his motivation and needs, more relevant and potentially successful learning could take place. The student teachers felt that they had ‘learned a great deal’ about the very nature of communication and the way in which a teacher can promote an environment in which a child feels confident enough to verbalise effectively.

In research project conducted by Aitkin & Mildon (1992) to study the role of personal knowledge of students of pre-service programme, both in their motivations to become teachers and in the ways in which they responded
to the in-faculty and practicum experiences, one of the objectives was to find out the aspects of teacher education programme the students deemed extraordinarily useful or detrimental to their development as teachers and to check out these impressions at various points during their teaching careers. 28 teachers including 5 men participated in the study. The results indicated an urgent need for a cohesive pre-service component to teacher education. The teacher trainees found the burden of making connection between the faculty programme and practicum too heavy. Students felt the training was inadequate for developing skills for planning, organising and teaching strategies. The students also reported a need for the practicum not only to be integrated with faculty programmes but also to be developmental.

Studying the competence model of teacher education, Thomas (1993) felt that if assessment of student’s professional progress is premised upon performance indicators, then the quality of special needs teacher training with depend on the prominence of these in the competence profile used by the training institutions and their partner schools. Among stated aims for the new training model, understanding the subject, ability to produce lesson plans, providing curriculum continuity and progression; and presenting subject content in clear understandable language and in a stimulating manner - are two aims directly relevant to special educational needs. They are the ability to set appropriately demanding expectations and to employ a range of strategies appropriate to the age, ability and level of pupil.

If students in initial training are well tutored in these areas Thomas hoped that such instruction would provide a sound basis for the start of professional development, moving on to increasing confidence and competence in service delivery based on insight into needs.

Discussing the issues and strategies for special education personnel preparation in the 21st Century, Simpson, Whelan and Zabel (1993) said that special education teachers must assume greater responsibility for at risk students. Teacher education programmes, therefore, must expand their
curricula and experiential components to address the needs of these neglected children and youth.

Frisby et al. (1991) recommended that teacher education programmes ensure that trainees acquire at least four basic skills to deal effectively with children and youth at risk: (a) knowledge of factors that create risk and the influence of these factors on children and youth; (b) knowledge of cultural and linguistic diversity and family dynamics; (c) knowledge of roles of others who are involved with at risk students and (d) ability to influence policies and implement systemic change relative to meeting the needs of students at risk.

A study that underscores the importance of teachers' skills and their role during communicative interactions with children who have cerebral palsy is that of Letto, Bredrosian and Skarakis - Doyle (1994). The researchers applied Vygotsky's concept of Zone of Proximal Development to study the acquisition of language in children who are AAC users. This concept involves the difference between child's actual level of language development as determined by independent performance and the child's potential level or language development accomplished through collaborative interaction with skilled partner. This longitudinal study found that when the cerebral palsey child was engaged in collaborative interaction with an adult partner trained to provide structured guidance, there was an increase in the child's communicative functions. The authors concluded that collaborative interaction in the context of language learning cannot be overlooked with children who have little or no functional speech. The structured guidance provided by caregivers or partners trained specifically for this purpose could enable these children to perform language behaviours of which they would not otherwise be capable.

Studying the unique features of inclusion of learning disabled students in mainstream schools, Baker and Zigmond (1995) highlight the level of pre-service training required by the special educators to play their roles effectively in the inclusion model. In an inclusive model of service delivery, the
special teacher is required to perform the role of coteacher, coplanner and consultant. Preparation of teachers at pre-service level must focus on co-teaching and consultation skills so that special teachers have a good foundation to collaborate with general education teachers and bring in unique perspective to that collaborate with general education teachers and bring in unique perspective to that collaboration.

A survey was developed by Ratcliff and Beukelman (1995) to obtain information about the pre-service preparation of speech-language pathologists in the area of augmentative and alternative communication (AAC). Questions addressed areas of course work, practicum, research, faculty and student demographics, preparation in AAC compared to other areas of speech-language pathology and future departmental plans concerning AAC. The obtained data indicated 15% of the institutions in the USA offer more than one course devoted to AAC, 67% offer only one course devoted to AAC course, but cover AAC information in other courses, and 11% do not teach in the area of AAC. The data also indicated that (1) many faculty who teach AAC courses do not have AAC as an area of expertise, and (2) students do not appear to be obtaining an appreciable member of clinical clock hours in AAC, hands-on training with AAC technology, or exposure to interdisciplinary nature of AAC.

Discussing sex-education, a controversial but nonetheless important area of education May & Kundert (1996) said that teachers of students with special needs require to be prepared adequately to teach their students sex-education. The study surveyed 302 randomly selected special educational training programme directors / chairpersons regarding the amount and type of course work on sex-education that their students received during their special education teacher preparation and compared the response to a similar survey in 1980 by the authors. Results indicated that students, still were not receiving adequate preparation in the area of sex-education, and stressed the need for faculty involved with special education teacher preparation to address ways to include sex-education course work in their curriculum for teachers in training.
A few studies have focussed on the needs of interactive partners (teachers, parents, caregivers) in augmentative and alternative communication systems. Two papers (Faw, Reid, Schepis, Fitzgerald and Welty 1981; Schepis, Reid, Fitzgerald, Vander Pol and Welty 1982) that address the issue of staff training emphasise the critical role played by teachers in establishing the consistent use of manual signs in the environment.

Another author who emphasises the role of a skillful teacher with children who need AAC in Barbara Rush (1996). Rush, who was one of the first teachers in USA to use AAC techniques with non-verbal children, believes that communication is a social act. A teacher must have the skills to create the environment in which attempts at communication by non verbal children are encouraged. According to Rush a teacher instead of merely relying on hi-tech aids, must have he competence to involve the children in learning and manipulating language symbols. Emphasis should be on appropriate language instructions and on generative graphic systems such as Blissymbolics.

2.2 Importance of AAC Systems & Makaton

The use of augmentative communication systems with disability groups has been documented for over 25 years in the Western countries. However, in India, the practice is in infancy with the Indianised version of the Makaton Language Programme (the only augmentative communication system which has been adapted to suit the cultural needs of our people) having been introduced only about 6 years ago. While this fact highlights the importance of the present research, it also explains the absence of any significant Indian study in the studies cited below.

Bricker (1972) used 26 institutionalized mentally retarded children in matched pair design forming experimental and control groups to study the effectiveness of imitative sign training as a facilitation of word object association. The experimental group that received phase-wise training in sign imitation, sign/word pairing, sign/word and object pairing scored better on
post-test than the control group. The author concluded that making the signs had made it easier for the children to discriminate between the words and between the objects.

Cornforth, Johnston & Walker (1974) describe the early Makaton teaching programme in 4 UK hospitals with subjects who were deaf mentally handicapped adults. The end of the teaching period showed substantial gain in both receptive and expressive language. Some subjects have been reported as using signs communicatively while others as linking signs into short phrases.

Brookner & Murphy (1975) report the effect of introducing total communication into language programme for a retarded boy with severe receptive and expressive aphasia for the spoken word. His communication subsequently improved dramatically. Signing was an integrated part of the programme using reading, writing and auditory training.

Fenn and Rowe (1975) used Paget Gorman Sign System with 7 deaf cerebral palsied children who had no comprehension or expression for speech. After six months of exposure the children demonstrated comprehension of a wide range of language structures. Analysis of semantic categories used expressively indicated that they were at the first stage of normal language development. Although the order of signs in sequences appeared chaotic at first certain rules were gradually absorbed. The authors report that the children were in the initial stage of acquiring word order.

Harris - Vanderheiden et al (1975) describe the outcome of a programme teaching Blissymbols to 5 cerebral palsied children. 20 hours of training over 8 weeks produced an effective limited means of respondent and expressive communication.

Results of a survey of sign and symbol systems in schools by Kiernan and Reid (1979) show how communication develops through signs. Authors emphasise that the programme should be based on child's individual needs and should extend communicative functions through signs rather than teaching set of labels. The authors also discuss how use of a symbol system
(alone, or in association with a sign programme) can help to by pass a significant problem of mentally handicapped, which is internal planning of sequential information. Since there is no need to recall symbols, only to recognise and identify, if a child can manipulate symbols he may learn how to plan sequences.

Le Prevost (1983) report the findings of the case study in which a 10 months old baby with Down's Syndrome was put on a Makaton Programme. He mother was exposed to about 70 signs from Makaton Vocabulary and encouraged to use them with speech whenever opportunity arose within the baby's everyday environment. The baby's development was assessed every 6 months on Bayley Scales and Reynell Test of Language Development. Besides improving eye contact, alertness and responsiveness to communication directed at her, the baby learned 15 signs between the ages of 17-18 months, and since mother accompanied signs with speech, so speech in the form of very immature words, always accompanied the baby's attempt to communicate. By the age of 2 years and 8 months the bay had begun to construct 2 - 3 word sentences and was found on Reynell Test to be functioning at language level of 2 years.

Several studies (Van Biervliet 1977; Penner & Williams 1982) suggest that pairing signs with words leads to a transfer of learning and acquisition of spoken words.

A study by Reid (1984) found that not only were signs learned more quickly than words, but that children who learned signs first, subsequently found it easier to learn words. They seemed to have developed an understanding of the principles of labelling in sign, which then transferred to the spoken word.

In a single case study by Von Tetzchner (1984), a language disordered child improved his speech skills dramatically over a period of time without specific training. He acquired many spoken words after learning to sign, and there was a clear relationship between the signed and the spoken
vocabulary. The author suggested that the signs helped to differentiate speech sounds for the child, whose articulation improved considerably.

Henderson (1986) studied a group of 4 to 8 years old children with communication difficulties and mental handicaps. These children were taught the Makaton Programme with sign, symbols and speech. Formal teaching of signs and symbols was done in classroom. Informal use of signs during lunch periods, playtimes etc. was encouraged by teaching staff and their associates. Symbols were not used at informal level. Teaching of signs from stages within Makaton Vocabulary Languages Programme, was personalised for each student. Sign teaching preceded teaching of symbols from the same stage. As soon as a child was achieving symbol recognition for Stage 1 concepts, then a third strand of teaching i.e. phrase building was introduced and ran parallel with the formal teaching of signs and symbols. As results the children managed the complexity of phrase building first in signs and then in symbols. Symbol reading helped in developing reading competency.

In a later study Henderson (1990) concentrated in greater depth on the multi model approach of Makaton Programme towards achieving literacy skills in her children. She used the same method described in 1986 study but included a specific reading scheme designed with the words from Makaton Vocabulary. This scheme was presented with symbols and traditional orthography. The results indicated that children had developed the ability to read phrases which had full grammatical structures with verb tenses, endings and use of plurals.

In a similar study Carpenter (1987) evaluated the use of Makaton Vocabulary in terms of its usefulness in developing literacy skills in 19 children with severe communication and intellectual disabilities. The children were divided in two groups. One group of children of 5 - 11 years was taught 24 concepts from the Makaton Vocabulary specially selected to suit their level of functioning and the other group of 12 - 19 years was exposed to a selection of words which included some concepts from Stage 1 of the Vocabulary in
addition to social sight vocabulary and names of family members. Teaching was based on both formal and informal use of the concepts. The difference between pre and post test score on Derbyshire Language Scheme showed that manual signs and graphic symbols can be used in combination to develop skills of communication, language and literacy. Symbols offered a particular advantage in language teaching, because they provided a constant visual image and could be physically manipulated.

The usefulness of Makaton Programme with adults with mental handicaps has been reported by Hooper & Bowler (1991). The authors investigated the use of Makaton within an Adult Education Centre. As part of the project, the authors exposed a set of adults, who either had spoken or signed language competence, to a specially designed Makaton training course. These adults were then expected to act as tutors and work in partnership with other adults who had severe language difficulties. The results of this peer tutoring on the communication abilities of the target group was so positive that the authors were encouraged to carry out further peer training programmes subsequent to the study.

Children and adults with autistic tendencies and varying degrees of mental handicaps can benefits from the use of Makaton Programme according to Walker (1991). Symbols are often preferred mode of communication by this group of individuals. The characteristic of concreteness and permanence in symbols appeal to the autistic. Walker also discusses the importance of using Makaton with students who have profound to severe physical disabilities, Symbols are very useful to those who are unable to produce intelligible speech and signs.

Testing the claim by Biklen (1990) that many seriously impaired individuals with autism can carry on complex conversations on a variant of topics such as current events and economics after being trained on Facilitated Communication (FC), Simpson and Myles (1995) found that while their subjects failed universally to respond to facilitative communication as per the
celebrated claims of Biklen, a large number of subjects could be facilitated for literacy and communication skills. Seeing this progress their teachers (who were specifically trained on using facilitative communication during the study) wanted to continue using FC as a system of augmentative communication. Four teachers reported that their students had shown unanticipated abilities (e.g. letter identification), three teachers noted that using FC allowed them to advance students programmes to other levels, and nine teachers appeared to have higher student expectations as a result of their experiences with FC.

Weiss et al (1996) describe a study conducted with a 13-year-old boy with autism, severe mental retardation and seizure disorder. The child was put on a facilitated communication (FC) programme. They report using three independent trials in which short stores were read to him and discussed with the help of FC, followed by a series of questions on the stories to which he responded with the aid of a facilitator who was not present during reading and discussion of the stories. Results indicated that two out of three trials, the boy provided accurate answers to questions on the stories when FC was provided by a facilitator who had not heard the stories.

Rush (1996) found total communication (combined use of sign, symbols and speech) approach helpful in fostering language development and communicating social interaction and in emphasising metalinguistics in all language activities. The author believes that symbols with their indicators and generative properties, and signing with its morphological markers, are ideal tools for teaching students about language itself. According to Rush, total communication is not curriculum or programme bound, it is an approach that needs to be available throughout the educational setting.

Schlosser (1997) in his study tested the hypothesis that convergence is inherent in language and independent of modalities including the visuo-graphic modality. The author defined convergence as systematic relationships of category levels of with respective nomenclature. The lexicons of Blissymbolics (a symbol system) and picture communication symbols (symbol
set) were compared in terms of their nomenclature at each of the taxonomic levels. The findings indicated that Blissymbolics exhibits expected nomenclature at expected category levels (superordinate, basic & subordinate) thus corroborating the hypothesis.

Addressing the issue of applying AAC technique for supporting people with challenging behaviours, Mirenda (1997) stated that AAC interventions should be among the first interventions considered for many individuals who engage in severe behaviour problems. Speech language pathologist, teachers and other communication specialists must familiarise themselves with assessment and intervention components of this technique that are most likely to result in positive outcomes. AAC interventions, according to the author, represent the actualisation of the belief that “communication and behaviour are inseparable”.

Studying the acquisition of linguistic competence through AAC, Grove (1997) discussed the role of manual signs and graphic symbols - systems like Blissymbolics in acquiring receptive and expressive language. The author studied 10 children with intellectual impairment who had been put on a manual signing programme. Some of the children spontaneously introduced changes to the citation terms of signs to reflect changes in meaning (e.g. a change to location to indicate where an action was produced; change in handshape to represent the size or shape of objects). Such processes showed an ability to manipulate form at a sub lexical level. The input to these children rarely exceeded one sign per clause, but their expressive vocabularies seem to have been large enough to present segmental contrasts and permit the use of output as input. Similarly, according to Grove, Blissymbols, offer contrasts at sub lexical level because the symbols are composed by combining small segments into larger segments.

Additionally, Blissymbolics have explicit rules governing symbol combinations which offer contrastivity at the level of sentences, thus helping
the children master several elements (e.g. interrogatives relative clauses and verb conjugation) of linguistic structures.

Koul and Harding (1998) evaluated the ability of individuals with severe or global aphasia to identify and produce graphic symbols using a software programme that turns a microcomputer into an electronic communication device. Subjects were trained to identify single symbols and two-symbol combinations from different grammatical categories. Subsequently they were trained on production of simple subject verb and subject-verb-object construction using symbols correctly identified in the first phase. Results indicated that all subjects identified noun symbols with a greater degree of accuracy than symbols representing verb referents. Symbol production varied across subjects. The most frequently observed errors on the symbol production task were omission or incorrect selection of the symbols for the verb referents. The authors concluded that graphic symbols can be an effective tool in intervention programme for individuals with severe and global aphasia.

Gandell & Sutton (1998) highlight the hi-tech aspect and its benefits for AAC users in their study. They compared a face to face and telecommunications conversation between a speaking partner and a multiply handicapped adult who uses Blissymbolics as his main method of communication. Blisscom software was used in telecommunications setting. The authors found differences and similarities in patterns of utterance functions that suggest that the telecommunications mode may provide a context in which the AAC user can exert greater control over the interaction and may encourage more symmetrical use of utterance functions. The author believed the findings to have implications for assessment, intervention and development of communication skills in persons who have deficits in communication.

Almost all the literature pertaining to effectiveness of AAC, reviewed by the investigator, indicated an assumption by the researchers that the interactive partners (teachers and caregivers) of AAC users would be
trained on the usage of the AAC systems. Two papers (Reid et al 1981; Fitzgerald et al 1982) address the issue of staff training and point to the critical role played by caregivers in establishing consistent use of signs in the environment. Bryan and Joyce (1986) recommend that the attitudes of caregivers and their competence in use of manual signs, should be taken into consideration before starting AAC usage. Willems, Lombardino, McDonald and Owens (1982) emphasise the need for establishing consistent use of total communication across environments, and for providing resource materials as sources of reference.

The related literature reviewed and cited in this chapter, though by no means exhaustive, provided the investigator sufficient basis to formulate the hypotheses for the study.

2.3 Hypotheses

The following hypotheses were proposed by the investigator:

1. Training and practice of AAC System will enhance student teacher’s ability to develop language and communication skills in learners with severe to moderate mental handicaps.

1.(a) The mean score on general communication skills of experimental group student teachers (with training on AAC system) will be significantly higher as compared to that of control group teachers.

1.(b) The student teachers of experimental group will have significantly higher mean score on skills for development of semantics (in learners with severe to moderate mental handicaps) as compared to that of control group student teachers.

1.(c) The mean score on skills of development of syntax obtained by student teachers of the experimental group will be significantly higher as compared to that obtained by student teachers of the control group.
1. (d) The obtained mean score on skills for development of pragmatics by student teachers of experimental group will be significantly higher as compared to that by student teachers of the control group.

2. Use of AAC system will enhance the language and communication skills in learners with severe to moderate mental handicaps.

2. (a) Gain from pre to post test on semantics skills by learners of experimental group will be significantly higher than that of learners of control group.

2. (b) Gain from pre to post test on syntax skills by experimental group learners will be significantly higher as compared to that by learners of control group.

2. (c) Gain from pre to post test on pragmatics skills by experimental group learners will be significantly higher as compared to that by learners of the control group.

3. The student teachers of experimental group will have a positive attitude towards training and practice of AAC system for development of language and communication skills in learners with mental handicaps.

3. (a) The posttest scores of student teachers of experimental group will have a significant positive correlation with their scores on Reactions Scale.