CHAPTER 1 **THE PROBLEM : SIGNIFICANCE AND DEFINITION** PAGE

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CHAPTER 1

THE PROBLEM -

SIGNIFICANCE AND DEFINITION

1.1 The Role of Skilled Manpower in Industrialisation in India

Craftsmen Training in India today is guided by three principles. First, as industry adopts increasingly complicated modern techniques, the standard of general education required by the average craftsmen and apprentice trainee is steadily rising. Second, the low stipulates that the craft apprentice trainee shall receive his basic training in an industrial setting before he is apprenticed. Third, craftsmen training programme now cover a wider range of subjects than a few years ago. No longer does a craftsmen learn only the skill from his fore-fathers. He learns not only related theoretical instruction, shop science, shop arithmetic and blueprint reading, but he also learns of his role in India's industrialisation, the details of factory organisation and the principles of human relations.

The term 'Craftsmen' is a broad one, and the degree of skill it implies can be precisely defined. A "skilled craftsman" was defined by the manpower division of the Planning Commission as a worker who belongs to an occupation that is generally accepted as skilled and which is common to the engineering trades and found in several industries. At the lower end of the scale are blacksmiths, moulders, carpenters, and welders, while at the upper end are machinists, turners, fitters, mechanic millwright, patternmakers and

electricians. Tool and die makers, instrument mechanics, mechanics general electronics and tool designers are the most highly skilled requiring higher mental abilities along with skills. In well-developed industries, craftsmen account for nearly one-third of the working force. Ever since independence, the Government of India has increasingly made the training of skilled workers an integral part of its five-year plans. The planning of training facilities and policies has become closely linked with industrial needs which are reflected in a steadily rising demand for highly skilled craftsmen. India's economy - like those of other developing countries - is confronted with a dual manpower problem. There is abundance of unskilled labour on the one hand, while shortages of skilled categories of workers in many areas are widespread. Hence, we are confronted with two aims : (i) to increase the number of jobs, and (ii) to ensure that a sufficient number of skilled workers with proper qualifications and experience are available to permit industrial schemes to be successfully realised.

1.2 Development of Vocational Training in India

India has ben training-conscious for generations, even though large scale formal training schemes for Craftsmen made their appearance only in 1940, when the government started the 'War Technicians Training Scheme' (D G E T, May 1981). Long before the factory system of manufacturing was introduced in the middle of the nineteenth century, the concept of a trained apprentice (antevasi) was well-rooted in the craft guilds of the

sub-continent. The inentured boy received instruction from a teacher (acharya or guru) and was known as 'karmkar' upon completion of his training. He then had the status equivalent to that of the journeymen of Europe. This system was found primarily in the metal working, metal-cutting and weaving trades. By 1850, industries growing reliance on child labour resulted in the passage of an Apprenticeship Act in that year by Government of India. More concerned with preventing the exploitation of young workers, particularly orphans than establishing training practices, the Act nevertheless served as a starting point for a wide variety of schemes until a more comprehensive Act was passed in 1961 by the Indian Parliament and approved by the President of India on 12th December 1961. Until the Second World War, apprenticeship was the only system used to train craftsmen, but its application as a productive system was limited to three areas of industry; the Railway workshops, Ordnance works and few heavy industries.

The War Technicians Training Scheme of the Government of India provided the military services and civilian industries engaged in armament production, with skilled and semi-skilled workers. Three other rehabilitation schemes of the Government served as the base for the nation wide vocational training system. The Technical Training Scheme, instituted in March 1946 to train 30,000 demobilised persons in 48 engineering and building trades, using existing training centres ended in July 1950, when its facilities were merged into a composite scheme for the training of adult civilians, the Vocational Training Scheme, designed for demobilised service personnel and adopted in September 1946 ended in July 1950, having trained 39,000 persons annualy for agriculture, cottage and small-scale industries, clerical

and commercial work, and semi-professional occupations, the Apprenticeship Training Scheme, introduced in July 1947, had the object of providing ex-servicemen with facilities to gain experience of production work under factory conditions. When the scheme ended in July 1950, 1657 ex-servicemen had completed their apprenticeship. By then, a need arose in the wake of partition for training facilities to prepare displaced persons for suitable employment, and these displaced persons were trained side by side with the ex-servicemen.

1.3 Vocational Instructor Training Scheme

The introduction of the Technical Training scheme in 1940, ensured India's first supply of trained vocational Instructors. Since no facilities existed for pedagogical training, the Government resorted to a temporary expedient; a 21 day instructor refresher course under the supervision of British specialist instructors. The success of vocational training in any country depends on the recruitment and training of competent personnel. The serious inadequacy of instructors and their training methods revealed by this short course gave rise to the recommendations of the 1944 Advisory Committee that the training of instructors should be an urgent and indispensable feature of the Technical Training Scheme. When the advisory committee made its proposal for a comprehensive vocational training system, itrecommended theestablishment of a Central Training Institute for the training of instructors. In 1946, the All India Council of Technical Education endorsed this recommendation. In doing so, the Council observed that most of the vocational instructors were skilled workmen who possessed no pedagogical training of any sort. Accordingly in May 1948, a Central Training

Institute for training of Vocational Instructors was established in Koni-Bilaspur, in the state of Madhya Pradesh. It had three major objectives:-

1 to improve the efficiency of instructors already employed in Central and State Government vocational training system, as well as those from private institutions, such as Industrial Training Centres;

2 to train new instructors for existing and new institutions, both private and public; and

3 to provide instructors with a refresher course to bring them upto date with the latest production and teaching techniques.

The Koni-Bilaspur Institute started in 1948 with an intake of 45 governm ent sponsored instructor trainees for a five-and-a-half month's pedagogy course and trained 1650 instructors from 1948 to 1955 and 1370 qualified in the final examinations. The concept of the instructor training was modified to meet the new demands of the country in the later years.

1.4 Craftsmen Training scheme

After independence in 1947, the Government of India converted the training schemes for ex-servicemen and displaced persons into a composite scheme for training of adult civilians as the Advisory Committee had recommended five years earlier. 63 training centres then in existance were renamed Industrial Training Institutes (ITIs) and their 9,924 training

places switched to civilian use in April 1950. The ITI network remained under the Director General of Resettlement and Employment, under the Ministry of Labour. The day-to-day administration was however transferred to the State Governments in November 1956, following the recommendation of the Shivrao Committee appointed by the Government of India. The ITI's aim was to raise the quality and quantity of production by systematically training workers, who become operatives or craftsmen. They also ensure a steady flow of trained personnel. A subordinate purpose is to provide alternate avenues for reducing unemployment. In August 1956, the Government created the National Council for Training in Vocational Trades (NCTVT). Chaired by the Union Minister of Labour; the NCTVT is composed of representatives of Central Ministries with the vocational training schemes, state governments, employer's and worker's organisations, professional bodies and technical experts. It is assisted by sub-committees to deal with training schemes for instructors, craftsmen and other miscellaneous schemes. Several trade committees, composed mainly of industrial and training executives, periodically review the syllabus, equipment and needs of their particular trade group. The State Governments each with its own Council for Training in Vocational Trades composed of State Ministries and departments of equivalent responsibilities, work together with the central body in organising training programmes, setting up and administering the training institutes, and arranging apprenticeship and in-plant training schemes. Thus, the setting up of the NCTVT was the first orderly step to bring a broad range of vocational training schemes that frequently overlapped one another and sometimes had conflicting aims. The National Council for Training in Vocational trades (NCTVT) has been renamed in 1980, as National Council for Vocational Training (NCVT).

1.5 Central Training Institute for Instructors

The entire vocational training programmes revolve round instructor training and the efficiency of the training schemes whether in private institutions, government centres or industrial plants depends largely on the ability of the instructors and supervisory staff to impart knowledge, skill and attitude. In addition to the Koni-Bilaspur institute, a new one was established at Aundh, Pune in 1957. These two institutes were shifted to Calcutta and Bombay by the Government in 1958. The Government of India, with the assistance of the United Nations Development Programme Special Fund (UNDP-SF), established four more Central Training Institutes for Instructors at Madras, Hyderabad, Kanpur and Ludhiana in addition to expanding the Institute at Calcutta, also with UNDP-SF assistance and the Bombay Institute with the assistance from the United States Agency for International Development (USAID) between 1960 and 1963 (I L O , 1969).

Among the important provisions made for the operation of these institutes, following were pertaining to the direct training facilities:

- the CTIs will offer theoretical and practical instruction in the instructor-trainees' basic trade (discipline) and in the principles of teaching;

- three types of courses will be given to two types of trainees - long term courses for existing instructors in need of training; the same type of courses for outside candidates who opt for a career as instructor; and short term refresher courses for working instructors;

- a Model Training Institute (MTI) was added to each Central Training Institute for Instructors to serve for practical teaching.

The Koni-Bilaspur Institute began with only 45 government sponsored instructor trainees for a five-and-a-half month's course in 1948 though the seating capacity was set at 120 instructor trainees every six months. This was subsequently raised to 200. With the UNDP-SF and USAID assisted projects, the intake capacity was later raised to 244 instructor trainees for each institute.

1.6 Central Training Institutes as Advanced Vocational Training Institutes

In 1968, the total seating capacity for training of instructors was made 1152 in all the Institutes, and the duration of the course was twelve months. They have further been reduced to 1084 due to decrease in demand for such training. Out of this 1084, the number of position at the Central Training Institute for Instructors, Madras is 120. The Quadir Commitee set up by Government of India in 1975 recommended (Para 3.1.5) "that there is no urgent need for expanding the existing facilities for training of craftsmen in engineering trades, the Committee therefore recommends that emphasis should be on consolidation and improving of quality of training rather than increasing the quantity. The CTIs should be re-organised for giving advanced skills training on modular basis, under the Advanced Vocational Training System. It will then be possible for the State Governments to depute instructors for advanced training for shorter duration in one or more essential modules at a time. Accepting the recommendation of the

Quadir Committee, the Government of India has renamed five of the Central Training Institute for Instructors as Advanced Training Institutes with emphasis on advanced skill training rather than instructor training from 1982 (Giri, 1982). Thus from August 1982, the only Institute remaining exclusively for instructor training is the Central Training Institute for Instructors at Madras. There is a proposal to utilise the infrastructure facilities at Madras, for training fellows deputed by South East Asian countries in Training Methodology on behalf of the Asian and Pacific Skill Development Programme (APSDEP).

The Government of India has attached importance to the recommendations made by the Quadir Committee (1978) which has remarked that "It is a colossal waste of time, money and effort, if training programmes are started without proper accommodation, equipment and trained staff". Proposals have been accepted by the National Council in July 1982 to provide affiliation to institutes only if all the above conditions are satisfied. The training of instructors have therefore been given added importance, by the NCVT and the government.

1.7 Instructor trainees: Who are they?

Essential for understanding the C.T.I. training programme, is the background of theinstructor-trainees. The earlier phase of the programme was dominated by the Emergency Training Scheme, which was designed to turn out in a few years a maximum number of instructors, to staff the new and expanded ITIs. The training was organised for practising the potential

instructors, who were having a certificate in craftsmanship, that is a pass in ITI Examination or National Apprenticeship Examination. The lower level qualification of these early trainees called for a relatively greater proportion of upgrading skill in the programme drawn up for them than that required for later intakes. Since the CTIs are also to train instructors for apprenticeship schemes in private and public sector undertakings, the course was structured tohandle instructor-trainees of different input levels. Candidates for admission to the C.T.Is. must generally be matriculates between 14 and 40 years of age, who have good practical experience, and a sound knowledge of the trade with atleast a pass in the National Trade Certificate of the National Council for Vocational Training. There were four categories of these instructor trainees and they are:-

- regular instructors seconded for training by the state governments,

- newly appointed instructors deputed for training by state governments,

- nominees of private or public industries or institutions, and

- private candidates who choose the profession of instructor, as a career.

Thus the levels of these instructor-trainees were diverse, many of them weak in both practical skills, and technical knowledge, their practical experience seldom exceeded six months, in any industry. The one year course drawn up in early sixties consisted of 52 weeks of training, with

no breaks other than recognised public holidays. Classes were scheduled for seven and a half hours a day, six days a week, begining at 9.00 a.m. and ending at 5.00 p.m. Thirty percent of the time is distributed to class-room (theoretical) subjects, sixtyseven percent to workshop exercises which includes practice teaching and practice workshop demonstrations. This was divided into two phases, each of which lasts for six months. Phase I covers remedial work and skill development and basic pedagogy while phase II concentrates on the technology of instruction including practice sessions. The shop distinction maintained between the remedial work and skill development aims to limit remedial work to the minimum to the main weaknesses of the trainees. The classes in the technology of instruction predominate during the second phase, classes for trade-theory, engineering drawing, craft science and shop calculations with some change of bias. The instruction was thus oriented towards both the practical application of these subjects to workshop problems and the methods employed to teach them as subjects. The essential idea during this phase is the constant application of instructional techniques to workshop practice and related instruction in order to make trainees conscious not only of how a skill is performed or a mathematical operation is applied, but how they must teach it, as instructors.

1.8 Visual Aid Training

CTIs get trainees from all over India and with the shifting of language policy each State Government had the instruction in their regional language. The question of instructor-trainees following the instruction given in English became difficult, although many trainees are bilingual in speech, their

fluency, rarely adequate. More often the blackboard work is in English or Hindi, but instruction in English is given with explanation in the regional language to the majority of the trainees in each group. This became an inevitable difficulty due to the heterogeneous nature of the instructors coming from different states. It was therefore necessary for the master trainers of the CTIs to adopt to other efficient means of teaching most of the trainers. This problem was analysed by the Staff Training and Research Institute of the Director General of Employment and Training, at Calcutta, who with the approval of the Government of India, planned a comprehensive course in Training Methodology, formerly Principles of Teaching (P O T) for the instructor trainers at the CTIs. Training in audio visual aids also called in CTIs as audio visual instruction/education, consisting of a one hour theory and two hour practical for seventeen weeks in a twelve month instructor training course, formed part of the subject training methodology. After trial, the duration was ultimately increased to two hours theory to include salient values, advantages and concepts on visual education and three hours to the actual making of the visual aids to be integrated later in the practice teaching sessions.

Most of the master trainers (Training Officers) from different CTIs were given specialised training in 1973 and 1974 at the Central Staff Training and Research Institute at Calcutta and also at the Audio Visual Centre, Kanpur in training methodology and audio visual instruction. As most of the master trainers were sufficiently experienced, it was decided to utilise their expertise, to revise the syllabus for the entire course. Thus, at the end, there emerged a uniform pattern and syllabus for the whole country

for the subjects, training methodology and audio visual education/instruction. The investigator, who was at that time the head of the audio visual centre at Kanpur was associated with the reshaping of the syllabus as an expert. This 'syllabus' is being followed for this research study, for teaching the course on 'Audio Visual Education'.

1.9 Audio Visual Education

The use of audio visual aids in instruction is by no means a new idea or a modern technique. Throughout the educational history, aids have been used by teachers, but not by all teachers and not as often as is desirable by the able and better teachers. The development and extensive use of television and motion pictures as a medium of entertainment have enhanced the value of visual learning, and subsequently, there has been an intensified interest in the audio visual instruction in training colleges and trainers' training institution. It is safe to predict that audio visual aids have limitless possibilities and their use will be restricted only by the lack of resources and resourcefulness on the part of the instructors who employ them (Ian Mckenzie, 1982). The training programmes during the World War II gave a timely impetus to the use of these interest-getting devices which cause concentration of atention and thereby accelerated learning. It has been reported by Weaver and Bollinger (1961) that by the use of audio visual aids and methods, forty percent of the instructional time was saved in military training and that it was easy to appreciate the saving if we accepted the statement of psychologists that eightyfive percent of human knowledge is absorbed through the sense of sight.

Although the instructor has numerous obligations to his trainees and multiplicity of duties to perform, the prime purpose of his efforts is to effect better learning and aid the learner in the acquisition of knowledge and skills. The instructor has learned through the study of psychology the correct approach to his instructional job. He has studied how people learn, when and how they react to varied stimuli, and what methods and devices should be used to evoke proper learning reaction. Despite this organised instruction, many instructors and trainers still cling to verbal symbolism as their only medium of instruction. Instructors continue to use speech, metaphors, similies and other methods that appeal to one sense only, that is learning. The instructor's problem is how to convey to trainees certain ideas, basic knowledge and information in the shortest possible time and in accordance with the principles of learning. Audio Visual aids thus become important and indispensable to the instructor and the trainers' trainer. Though atempts were made to prepare course materials, no one could so far develop and validate inistructional material in the area of training methodology including audio visual education for vocational instructor training programmes. The Staff Training and Research Institute, Calcutta established by the Director General of Employment and Training, Government of India, has developed some course material in many areas, but they too are still the first generation materials, yet to be scientifically based, validated and refined. Instructional materials for the instructor training programmes have never been prepared so far on a commercial basis in India. The instruction is still in the traditional pattern, relying heavily on "chalk and talk" and "dictation of notes." No attempt has so far been made to follow any systematic approach or use any multi-media package for an entire course,

nor the trade testing procedure adopted by the National Council is geared to understanding the fundamental concepts, principles and theories embodying various technical skill operations and related knowledge as applicable to real life situations. No attempt has so far been made to prepare objective oriented training and testing. The problem that exists is effective instructional planning, implementing instruction using variety of instructional strategies and media to suit the needs, and effective objective based evaluation of the learning. Dilineating this problem further would mean that there exists a major need of improving the instructional process of teaching and learning. Improving this would mean that there exists a major need of improving the instructional process of teaching and learning. Improving this would mean following innovative strategies which will cause significant improvement in the instructor training programmes to better the instructor trainee's (a) understanding of the basics and their applications in real situations, (b) following the instructional methods and strategies in his work, (c) positive attitude toward innovative methods of instruction such as multimedia packages, (d) utilisation of self study materials. Solutions to these problems lie in developing effective instructional materials. Multi-media self instructional packages for teaching the course on Audio Visual Education to the instructor trainees undergoing instructor training programme could be one such effective material. This necessitates identification of various principles and factors that aid productive individualised learning, develop the course materials for the entire course on audio visual education, validate the course materials by teaching the instructor trainees through the multimedia packages thus developed, and study the effects on the trainees'achievement, attitude toward the strategy, and their language ability. The problem

is thus:

Validation of multi-media package for teaching a course on audio visual education.

1.10 Purpose of the study

The purpose of this study was therefore development of a multi-media package for teaching a course on audio visual education to the instructor trainees, and study the effectiveness of the package in terms of achievement of instructor trainees and their attitude towards the multi-media package developed.

1.11 Objectives of the study

The specific objectives of the study were:

1 To develop a multi-media package to teach a course on Audio Visual Education for the instructor training programme in the Central Training Institute for Instructors, Madras.

2 To study the effectiveness of the multi-media package in terms of achievement of instructor trainees.

3 To study the effectiveness of the multi-media package in terms of the attitude of the instructor trainees toward the multi-media package.

4 To study the relationship between the instructor trainee's 'achievement' and his 'English language ability' through which the course was administered.

5 To study the feasibility of the multi-media package in terms of (a) cost and (b) time for the instructor training programme.

1.12 Operational definition of terms

Instructor Trainee

An instructor undergoing training at the Central Training Institute for Instructors in order to qualify to train craftsmen and apprentices.

Central Training Institute for Instructors (C.T.I.)

An institution established by the Government of India conducting programme for training of craft instructors in different disciplines who become trained instructors in the Industrial Training Institutes, Industrial Training Centres and Industries Training Apprentices.

National Council for Vocational Training (NCVT)

The Council set up by the Government of India composed of representatives of Central Ministries dealing with the vocational training schemes, state governments, employer's and worker's organisations, professional bodies and technical experts to deal with the policy matters, curricula, and the

training schemes. It also conducts examinations (trade tests) and awards certificates to successful craftsmen, apprentices and instructors for the whole country.

Instructor Training Programme

The programme for training of instructors for the vocational training schemes conducted at the Central Training Institutes who train the craftsmen undergoing training at various Industrial Training Institutes in the country.

1.13 Summary

This chapter has thus described the craftsmen training scheme and the craft instructor training scheme in our country, the problem and its significance, the importance of the audio visual education in the instructor training programme, the purpose and objectives of the study and the operational definition of important terms used in this report. The next chapter will deal with selective review of literature on aspects related to the present study. The review is made with a view to identify factors that contribute to learning through different instructional strategies with particular reference to individualised learning and multi-media packages. Studies on effects of instruction by a given medium on the learner's attitudes have also been included in the review. These factors will be used in developing the instructional strategies for individualised skill learning using multi-media package.