

CHAPTER-III

REVIEW OF RELATED LITERATURE

- TEACHING METHODOLOGY
- TEACHING/LEARNING PROCESS
- TEACHING TECHNOLOGY
- CERTAIN NECESSARY FACTORS OF CONSTRUCTS
- CONCLUSION

CHAPTER: III

REVIEW OF RELATED LITERATURE

In this chapter the investigator reviews the related studies and enquiries pertinent to the topic. This is a fruitful source of hypothesis and it demonstrates the relationship between completed research and the topic under investigation. It guides decisions about further research and provides a context for interpreting new findings.

The review promotes a greater understanding of the problem. According to George.J.Mouly, review of related literature is a crucial step which invariably minimises the risk of the dead ends, rejected topics, rejected studies, wasted effort, trial and error activity oriented towards approaches already discarded by previous investigators and findings based on the faulty research design.

To collect the required related material, the investigator has referred Research Reports, Reports of Education Commissions, Studies, Books etc. The selected topic mainly encompasses methodology of teaching as the primary factor. Teaching process and teaching technology are related factors, which have dealt in detail by many previous studies.

As the present study is "Preparation and testing of certain Constructs in Teaching Sanskrit in Higher Education", a hitherto unexplored area, the related literature in the same field is rather scant. There are a few studies on the methods of teaching other languages which the investigator could capitalise. There are certain tools, which describe how the teaching contents are to be connected with objectives, the activities to be followed by an effective teacher and the like.

The inferences drawn from these studies are applicable in many ways in preparing a Sanskrit language-learning plan for Higher Education level.

3.1. TEACHING METHODOLOGY

Mecheachie¹ (1965) in his well designed study regarding methodologies states that investigation, organisation, variability, verbalisation, feedback, continuity and active learning are necessary for effective teaching.

Smith and Harrison² (1968) in their study about the better methods of language learning found that the history of education enquires for a general method which would solve problems of teaching, a single mastery-key which would unlock all doors. The natural method of Comenius, the psychological synthesis of Pestalozzy, the intellectual analysis of Herbart, the auto-deductive method of Montesory, the Project method and Dalton-plan have lent a few examples of efforts to discover a systematic method of teaching which should be of universal application.

Brown³ (1976) conducted an investigation regarding various activities in language education, which have close similarity in this context. These important activities in language learning are follows.

1. Questioning
2. Giving information
3. Listening and other related elements.

Brown concludes that the intention behind such activities of teaching is to bring about maximum learning with minimum effort.

Simon Borg⁴ (1994) conducted a study on Language Awareness. He discusses Language Awareness as a methodology in foreign language teaching, demonstrating that Language Awareness presumes not only linguistic awareness on the part of teachers but also an understanding of the learning and teaching processes. He argues that training content needs to be educationally rather than linguistically orientated.

3.1.1 Methodology: Studies in India

In India there are several studies regarding the importance of Sanskrit, but very few previous works had been conducted on the teaching methodologies in Sanskrit. This is almost true with other languages too.

Kamalesh Chaudhary⁵ (1958) dealt with the comparative merits of two teaching methods viz. Direct Method and Translation Method. The study was based on the hypothesis that 'there is no difference in the learning outcomes of students who acquire knowledge through direct method and through translation method'. The findings of the study did not prove the validity of the

hypothesis. The investigator concluded that 'this Experiment did not warrant an absolutely valid result due to its imperfect design.' This study was relevant in this context in view of the fact that it presupposed the urgent need for orientation in our techniques of teaching.

Ramprasad Srivastava⁶ (1964) in his study on a comparison of two methods in written English concluded the 'individual work batch' and the 'group work batch' have no differences in Means and Standard Deviation. Two methods were equally effective. Group-work minimises 90% of correction work in a group of ten students.

Aliyas Shyam Joshi⁷ (1974) conducted a study on modernising the methods of teaching Sanskrit. He concludes that, 'Now a word with the teachers of Sanskrit. The modern student is a product of the new changing world. He cannot be expected to be much interested in Sanskrit. Unfortunately Sanskrit teaching can also be made boring as it can also be made interesting.'

Chandrakala⁸ (1974) has done an experimental study of different methods of teaching Sanskrit grammar in High School classes. The objective of the study was to evaluate the functional effectiveness of Sanskrit grammar. Three alternative treatments, viz. Programmed Instruction, Lecture Method and Traditional Method were tried out. The findings are:

1. Three treatments were equally effective.
2. High achievers and low achievers learnt equally well enough through Programmed Instruction.
3. Average achievers learnt better than high and low achievers through Programmed Instruction.

High achievers learnt better than average and low achievers through Lecture Method and Traditional Method.

KrishnaMurthi⁹ (1975) had done a study on teaching the spoken form of second language. Regarding the effectiveness of Direct Method, he found that:

-Teachers must be energetic, alive and emphatic

- Go over lessons several times before class.
- Practises gestures and explanations.
- Show pictures at good responses.
- Make notes on the troublesome topics and compile special drills for the next day.
- Be intensely attentive when waiting for an answer.

Sharma.C.K¹⁰ (1978) conducted an experimental study of different methods of teaching Sanskrit Grammar to High school classes in 1978 with the following objectives:

1. To prepare a programme in Sanskrit grammar using Hindi as the medium of presentation.
2. To evaluate the functional effectiveness of the programme on Sanskrit grammar at high, average and low academic achievement levels.
3. To find out the relative effectiveness of three methods- traditional, lecture and programmed instruction—of teaching Sanskrit grammar separately at high, average and low achievement levels as well as to a composite group.

The findings were:

1. There was significant difference in the three methods of teaching Sanskrit grammar, the programmed instruction being the most effective.
2. The performance of the high achieving group was higher than that of the standards belonging to average and low levels of achievement in the three methods of teaching.
3. The attainment of students in the high achievement group was higher when taught by programmed instruction than when taught by the lecture and tradition methods.
4. The attainment of high achievers under the programmed instruction was higher than that of low achievers when taught by the same method.
5. Average achievers taught through the programmed instruction performed significantly higher than the average achievers taught by the lecturer method.
6. High achievers taught through the lecturer method performed significantly higher than low achievers taught through the programmed instruction.

Patnakar had done a study on pedagogic principles and methodology. Understanding its utility in present education, he developed textbooks and workbooks on the basis of the study. Shukla tested the effectiveness of Translation Method and found to be very much restricted in its applicability.

Dev.S.K¹¹ (1979) in his research work remarked that teachers were interested in lecture method. Teachers were poor in questing skill mainly because they were weak in subject matter. About 82 percent teachers did not ensure whether the students understood the concept or not. About 61 percent teachers could not effectively guide the students' ideas towards objectives of the texts and the teachers followed what had been said in textbooks. The majority of the teachers did not have creativity. The teaching success depended partly on the teacher's personal feelings towards the profession. It is the responsibility of the teacher to create study habits in students.

Mishra¹² (1979) conducted a study in 1969 on the problems and difficulties of Hindi, English and Sanskrit language teaching at Secondary stage. The major findings are follows:

- Ninety percent of teachers experienced difficulty in the explanation of prose teaching.
- More than 75 percent teachers used translation method.
- Only 32 percent teachers inspired the students for general reading.
- Nearly 10 percent of teachers were found to motive the students to note certain important language material in the class.
- Forty percent of teachers did not give practice of loud reading and less than 50 percent of teachers asked the students to memorise certain good pieces of prose and poetry.
- Very few teachers gave practices of correct pronunciation.
- Seventy five percent of teachers recommended oral and writing practice to improve correct spelling.
- Majority of teachers adopted dictation method in essay teaching.
- Nearly 90 percent of teachers adopted the method of dictation of notes.

- For grammar teaching, majority of teachers considered Inductive method as most suitable.
- Only 8 percent used Deductive method.

Oak. A.W¹³ (1986) proposes an order of priority in the language teaching methodology. The order of priority is as follows:

1) Teacher's talk 2) Reading 3) Recitation power 3) Questioning 4) Black Board works and 5) Demonstrations.

Gupta and Sheetal¹⁴ (1988) in their study revealed how to prepare and standardise steps on three abilities viz.

- Comprehension of three languages through reading and listening.
- Ability to speak and spell the words in three languages correctly.
- Ability to know the rules of grammar of these three languages.

The other aims were:

- a) to study the distribution of scores of these tests of three languages separately.
- b) to study the degree of relationship between the different tests in each language and,
- c) to find which of the three abilities was responsible for the relationships between the tests.

Four skill-sets were identified as the parameters for the three languages. Skill sets are a) Reading and understanding, b) Hearing and understanding, c) Speaking correctly, and d) Writing correctly. Fifteen tests were conducted based on these parameters.

They found that the distribution of scores of all these tests of English, Hindi and Sanskrit showed deviation from normality. In the case of Sanskrit language they found two major factors.

- a) Grammar
- b) Comprehension through reading.

The researchers also remark that the language abilities and skills influencing the achievement in the three languages taken together showed that, hearing, understanding and pronunciation play a dominant role in language learning.

Regarding the methods of Sanskrit, the Education Commission comments as follows:

"The Mother tongue or the Regional language which is closely related to Sanskrit, should be generally employed as the medium for teaching Sanskrit and that occasionally Sanskrit also should be employed when the direct and

conversational method is restored to." It further observes, "In teaching Sanskrit, the teachers should not only use all the modern methods and the aids, such as Direct method, Visual aids, conversation, recitation, dramatic production etc, but he should also press into service the traditional *Khandanvaya* and *Akhamksha* methods so that all these methods would ensure an active participation of the student in the process of teaching and add to his interest and rest in learning the language."

Regarding teaching techniques **Narang and Arora**¹⁵(1996) explain that for excellence in teaching one has to master over the modern methods and techniques of teaching. The Lecture method is the oldest method in teaching. This method is still used widely in American Colleges and Universities. Teaching is considered as a dynamic interaction of individuals and as a decision making one. Teaching must be deliberate and planned.

3.1.2 Methodology-Studies in Kerala

Some research works have done in the field of teaching methods in Kerala. More works have taken place in English, Hindi, Social studies and Sciences. But none of these studies have interpreted the teaching methodologies in Collage classes. The works done in Kerala the investigator could come across are given below.

KeralaSrimati¹⁶ (1983) conducted "An investigation into the methods of teaching in schools of Kerala". Some of the main findings are:

1. Parents and students must be made aware of the use of study through press, radio etc.
2. Teaching methodologies should be imparted through in-service course to teachers.
3. Facilities must be given to teachers to employ Play-way method and direct method.
4. In the teaching of *Vyakarana*, teachers must be encouraged to adopt 'Inductive-Deductive' method for teaching *sandhi*, *samasa* etc.
5. A classroom and suitable audio-visual aids like blackboard, charts, pictures, flash cards, reference books etc should be provided for Sanskrit teaching.
6. Sanskrit should be introduced as a compulsory subject with Malayalam in the place of Malayalam Second paper.

Rajan¹⁷ (1989) conducted a study in 1989 regarding the attitude towards learning Sanskrit. He pointed out that the methods of teaching were influenced by the attitude towards learning Sanskrit. The undesirable and dry methods of teaching Sanskrit language were a cause for a negative attitude towards learning Sanskrit.

Pushpavally¹⁸ (1994) also in her study on the difficulties in learning Sanskrit experienced by Secondary school students calls for further modifications of existing system. She recommended that:

1. Library facilities should be increased adding more reference books and must have adequate representation of books in all branches of Sanskrit literature.
2. More time should be allotted to Sanskrit teaching.
3. Syllabus should be simple and it should cater to the needs and aspirations of the students.
4. The cold and stepmother attitude of authorities towards Sanskrit teaching must be done away with.
5. Experts in the field of Sanskrit teaching should be appointed as subject-inspectors.
6. More scholarships should be given to Sanskrit students.
7. The printing and format of texts books should be neat and beautiful.
8. The achievement of Sanskrit students should be assessed both qualitatively and quantitatively based on their performance in classroom tasks, extra reading and co-curricular activities.

Leela P¹⁹ (1996) in her analytical study of the Instructional techniques adopted by the teachers of Sanskrit in upper primary and secondary schools of Kerala, pointed out the following suggestions for improvement.

1. As far as possible, Translation method for teaching Sanskrit prose may be replaced by Direct Method.
2. In teaching poetry lessons, use Inductive method and deductive method according to the nature of the poem.
3. In teaching poetry, more importance may be given to appreciation.
4. Teacher should have to motivate students by model recitation. Give sufficient chance for students to imitate the recitation.

5. Give sufficient training to understand the tone and expression of characters.
6. Encourage the participation of students in the Sanskrit Youth festivals and AIR programmes. Dramatisation can be used in teaching dramas.
7. Translation can be used for composition. Encouragement of simple Sanskrit, motivation to speak and correction of mistakes require immediate attention.
8. Sanskrit should be considered as an additional language in syllabus.

Unnikrishan Nair²⁰ (1996) expressed the following remarks in his research work on the 'Existing Status of Sanskrit Education in the Secondary Schools of Kerala'.

1. Handbook for Sanskrit teaching should be made available in time.
2. In-service training should be made compulsory for all teachers of Sanskrit.
3. The existing evaluation system should be fulfilled at its maximum.
4. Standard of students should be raised by the adoption of proper teaching methods.

According to **Somarajan P K²¹** (1996) the content of a Sanskrit textbook must be simple with suitable vocabulary for the cognitive, affective and psychomotor domains of the students. He also says that a well-prepared textbook is a prerequisite for a perfect methodology and hence for students achievement.

In an analytical study of the instructional techniques adopted in teaching Sanskrit at colleges of Kerala, **Sahadevan²²** (1996) found that, college teachers are in dire need of professional training in education.

3.2. TEACHING/LEARNING PROCESS

Several models have been evolved to describe the teaching-learning process and variables affecting it. Some of the most relevant concepts and models are reviewed below.

3.2.1. Mitzel's concept of variables

Mitzel²³ (1960) contributed the concept of classifying variables as product, process, or presage. **Product** is learning on the part of the student (change in behaviour) **Process** involves interaction between the student and teacher. **Presage** is the teacher's intelligence, level of experience, success and other

teacher characteristics. Presage is supposed to affect process and then, of course, process will affect the product.

3.2.2. Biddle's Model

Biddle²⁴ (1960) showed a relationship between specific learning activities and teacher effects. In his model, Biddle offers seven categories of variables related to schooling and student achievement:

1. School and community contents
2. Formative experiences
3. Classroom situations
4. Teacher properties
5. Teacher behaviours
6. Intermediate effects
7. Long-term consequences

Biddle also contributed a model of the transactional process of the classroom by analyzing the structure and function of the communication process.

3.2.3. John Carroll's Model of Learning Process

Carroll²⁵ (1963) proposed that teacher specific and student specific behaviours and student characteristics were the only variables needed to predict school learning. But Carroll did not include the influences of family, community, society and the world in his learning model. Carroll focuses in language and learning, relating words and their meanings to the cognitive concepts and constructs, which they create. Carroll argues that time is the most important variable to school learning. It can be mathematically represented as:

School Learning = f (time spent/time needed)

Where: Time spent is the result of two factors, viz. Opportunity and perseverance.

1. Opportunity: Opportunity is determined by the classroom teacher. The specific measure for this determination is called **allocated time**. It means the time allocated for learning by classroom teachers.

2. Perseverance: Perseverance is the student's involvement with academic content during that allocated time. Carroll proposed that perseverance be

measured as the percentage of the allocated time that students are actually involved in the learning process and was labeled **engagement rate**. Allocated time multiplied by engagement rate produced the variable, Carroll proposed as a measure of time spent, which came to be called **engaged time or time-on-task**. Carroll proposed that the **time needed** by students to learn academic content is contingent upon the following factors.

1. Aptitude: The most often used measure is IQ
2. Ability to understand the instruction presented: The extent to which they possessed prerequisite knowledge.
3. Quality of instruction students receive in the process of learning.

3.2.4. Cruickshank's Model

The model by **Cruickshank**²⁶ (1964) is more classroom-and teacher-based. He combines and expands the variables created by Mitzel, Biddle, and Flanders. Biddle's variables provides the foundation for Cruickshank's model. Flanders variables such as 'teacher talk' and 'pupil talk,' are also influenced Cruickshank. He put them all together and added additional presage variables such as pupil characteristics, properties (abilities and attitudes) and school, community and classroom climate.

3.2.5. Bloom's Mastery Learning Model

The principles of Carroll's model can be seen in **Bloom's**²⁷ (1976) Mastery Learning model. Bloom was a colleague of Carroll's. According to Bloom, in traditional schooling, **a student's aptitude for learning academic material** (IQ) is one of the best predictor's of school achievement. His research demonstrated that if time is not held constant for all learners (as it is in traditional schooling) then a student's mastery of the prerequisite skills, rather than aptitude, is a better predictor of school learning. Mastery Learning's basic principle is that almost all students can learn effectively IF:

- 1) Students are given enough time to learn normal information taught in school, and
- 2) Students are provided quality instruction.

Bloom describes *Quality Instruction* as a responsibility of teachers. He says that the teacher should do the following activities.

1. **Organisation** of the subject matter into manageable learning units.
2. **Specific objective Development** for learning each unit.
3. **Assessment measures:** Development of appropriate formative and summative assessment measures.
4. **Plan and implement group teaching strategies;** with sufficient time allocations, practice opportunities, and corrective reinstruction for all students to reach the desired level of mastery.

3.2.6. Proctor's Model of Teaching Process

Proctor²⁸ (1984) replaced the traditional overemphasis on teacher traits for the classroom success. He developed a model that incorporates both teacher and student behaviours as predictors of student achievement. It is derived from other teacher-and classroom-based models but is redesigned to emphasize teacher expectations. The most distinct feature of Proctor's model is that it rests upon a social nature and not of a teacher/student one-on-one relationship. Other models show these variables in a more subordinate manner. Proctor states that it is possible for a self-fulfilling prophecy to be an institutional phenomenon and the climate of a school can have an effect on the achievement of its learners. The attitudes, the norms, and the values of an educational faculty and staff can make a difference in achievement test scores. Factors of Proctor's model are follows:

a. School's Social Climate

Proctor's model begins with School's Social Climate with the major variables like attitudes, Norms, Beliefs, and Prejudices.

b. Student characteristics

The school climate is influenced by a number of factors related to students such as race, gender, economic level, and past academic performance.

c. Teacher attitudes & Teacher efficacy

The student characteristics also influence teacher attitudes and teacher efficacy.

d. Interaction

This variable means the interaction among the individuals involved in the

schooling process. This includes the input of administrators as well as that of teachers and students. It also includes the school's overall policy on allowing time for children to learn or promoting other forms of student-based help when needed. This could comprise **quality of instruction** (as in Carroll's model above) or **teacher classroom behaviours** (as in Cruickshank's). These behaviours have an effect on student classroom performance (especially academic learning time and curriculum coverage) and self-expectations.

If expectations of learning are high (i.e., the school has good, qualified teachers and students who can learn) and there is high quality instructional input, corrective feedback, and good communication among students, parents, and educators, then the intermediate outcomes of student learning and student self-expectation goes up. On the other hand, adverse or negative attitudes on the part of instructors and administrators will cause student self-esteem, and consequently, student achievement to spiral downwards.

e. Student's achievement level.

This is the outcome of all previous factors and variables. It is hypothesized that there is a cyclical relationship among the variables. In Proctor's model, the main concept is that achievement in a specific classroom during a particular school year is not an end in itself. It is refiltered into the social climate of the school image and the entire process begins all over again. Proctor's model implies that change can be made at any point along the way. These changes will affect school achievement, which will continue to affect the social climate of the school.

Mathur²⁹ (1988) made a comparative study of the attitude of post-higher secondary school teachers towards creative learning and teaching on the basis of age, sex and teaching experience and academic discipline. He found that:

A large number of teachers tended to have a favourable attitude towards creative learning and unfavourable attitude towards creative teaching. Age, sex, teaching experience and academic discipline did not tend to affect the attitude of teachers towards creative learning and teaching.

3.2.7. Gage and Berliner's Model

The model is classroom-and teacher-based and tries to answer the question, "What does a teacher do?" It also seeks for a precise definition of "quality instruction". **Gage and Berliner**³⁰ (1992) focuses on those variables that must be considered by the classroom teacher as she designs and delivers instruction to students. This model presents certain tasks associated with the instruction/learning process.

A teacher begins with **objectives** and ends with an **evaluation**. **Instruction** connects objectives and evaluations and is based on the teacher's knowledge of the **students' characteristics** and how best to motivate them. If the evaluations do not demonstrate that the desired results have been achieved, the teacher re-teaches the material and starts the process all over again. Classroom management is subsumed under the rubric of motivating students.

3.2.8. Huitt's Model

It is one of the most recently developed model. **Huitt**³¹ (1995) identifies the major categories of variables that have been related to school achievement. He adds variables related to **context** and **student and teacher characteristics**, some of which were the focus of the models by Proctor (1984) and Cruickshank (1985). It is an interactive model along the lines of Biddle and Ellena (1964), Cruickshank, and Laosa (1982). The model is not only school-, classroom-, teacher-, and student-based, but includes additional contextual influences as well. Huitt's model attempts to categorize and organize all the variables that might be used to answer the question, "Why do some students learn more than other students?" Huitt advocates that important context variables must be considered because our society is rapidly changing from an agricultural/industrial base to an information base. From this perspective, children are members of a multi-faceted society, which influences and modifies the way they process learning as well as defines the important knowledge and skills that must be acquired to be successful in that society.

Huitt's model shows a relationship among the following categories:

Context: Family, home, school, and community environments

Input: What students and teachers bring to the classroom process.

Classroom Processes: What is going on in the classroom

Output: This represents measures of learning done outside of the classroom. These categories appear superimposed in the model since it is proposed that they are essentially intertwined in the learning process.

a. Input and Output- This model shows Input and Output as the beginning and end of the teaching/learning process. Huitt believes that educators must first identify an end result because how you identify and measure the end product (Output) will influence the selection of important predictor variables.

b. Classroom Processes -The most direct impact on important measures of school learning are those variables related to Classroom Processes. This includes Teacher Behaviour, Student Behaviour and Others such as classroom climate and student leadership roles.

c. Teacher Behaviour -This category includes:

Planning: Getting ready for classroom interaction

Management: Getting the class under control.

Instruction: Guiding the learning process

d. Academic Learning Time (ALT)-ALT is one of the best Classroom Process predictors of student achievement. As stated above ALT is defined as "the amount of time students are successfully involved in the learning of content that will be tested."

e. Content Overlap- It is the extent to which the content objectives covered on the standardized test overlaps with the content objectives covered in the classroom. This variable has also been labeled as "time-on-target." The idea is simple: if an objective or topic is not taught, it is not likely to be learned, and therefore we cannot expect students to do well on measures of that content. In fact, to the extent the content is not specifically taught, the test becomes an intelligence test rather than an achievement test.

f. Student Involvement- It is defined the same way that Carroll defined engaged time or time-on-task (allocated time X engagement rate). If the students are not provided enough time to learn material or are not actively involved while teachers are teaching they are not as likely to do well on measures of school achievement at the end of the year.

g. Success- It is the percentage of class-work that students complete with a high degree of accuracy. If a student is not successful throughout the year on classroom academic tasks, that student will likely not demonstrate success on the achievement measure at the end of the year.

h. Student Characteristics- It is the second subcategory of Input. This includes all of the descriptions of students that might have an influence on the teaching/learning process and student outcome. Study Habits; Learning Style; Age; Sex/Gender; Race/Ethnicity; Motivation; and Moral, Socio-emotional, Cognitive, and Character Development all become important in the relationship of classroom processes/behaviour and school achievement.

I Context-Context include subcategories such as School Processes and Characteristics, Family, Community, Government, TV/Movies, and the Global Environment. This model aptly incorporates most of probable variables in education. Most of the studies abroad give adequate emphasis to the social and personal factors affecting the learning process.

3.3. TEACHING/LEARNING TECHNOLOGY

Davies and Glaser³² (1962) identified four steps to be adopted in teaching technology.

1. Organisation of teaching.
2. Planning of teaching.
3. Leading of teaching.
4. Controlling or managing of teaching.

They also proposed three salient features of effective teaching in connection with technology. They are Instructional objectives, Teaching strategies and Evaluation.

Alesandrini³³ (1981) came to similar conclusions when he studied different pictorial-verbal strategies for learning. "Research on the effectiveness of pictorial learning strategies indicates that learning is improved when pictures supplement verbal materials, when learners draw their own pictures while studying, and when learners are asked to generate mental pictures while reading or studying...the factor of sex was also included in the analysis due to its observed (although unexpected) effect"

Gage & Berliner³⁴ (1992) state that the use of models as learning aids has two primary benefits.

1. Models provide "accurate and useful representations of knowledge that is needed when solving problems in some particular domain"
2. A model makes the process of understanding a domain of knowledge easier because it is a visual expression of the topic.

Gage and Berliner found that students who study models before a lecture may recall as much as 57% more on questions concerning conceptual information than students who receive instruction without the advantage of seeing and discussing models.

A report of **University of Minnesota**³⁵ (1996) says that Language teaching technology should be available and accessible to all language instructors. This is crucial if instructors are to acquaint themselves with the wealth of resources available to them through technology. For teachers to utilise technology regularly, they must have reliable technical assistance and Developmental support.

Another report of the same university³⁶ (1996) of the same University opines as follows: "Videos, videodiscs, and computers can be wonderful tools for language teaching, and learning can bring aspects of culture to the classroom that could not otherwise be effectively presented. The wonders of the Internet include the ability to give students access to materials that are no longer one dimensional, to allow the students freedom in choosing authentic target language materials that they are interested in, and to get information that is up-to-date."

3.3.1. Audio-visuals in Language learning.

Several researches³⁷ have proved that the use of multimedia techniques in Language learning is highly effective. Some of the results of such researches are below:

University of Wisconsin: 200% improvement in learning vocabulary.

1. **Harvard and Columbia Universities:** 14% to 38% improvement in three-day retention.
2. **University of Pennsylvania and Minnesota:** 60% reduction of time to present a concept and much greater prospects for discussion.

According to **Davis**,³⁸ (1976) there are four steps in designing a teaching technology. They are; Planning of steps, Organisation of teaching, Communication strategies and Controlling of teaching. In the first step there includes content analysis, identification of objectives. In the second, teaching methods for achieving the objectives are described. In the third describes how to communicate the ideas to students. In the fourth points the assessment of learning objectives and feed-back to teacher and students.

Menon M B³⁹ (1984) had done a work on evolving a multimedia approach for teaching at Post Graduate level. The main objectives of the study were:

1. To develop a multimedia strategy in organising a course in Educational Technology for PG and Research students.
2. To validate the strategy in terms of student performance in criterion tests and discussions, and their attitude towards the strategy.
3. To study the relationship between achievement and intelligence; and achievement and English reading comprehension.
4. To study the feasibility of the strategy.

The findings were:

1. In the initial year, around 90% PhD students and MSc. Students scored 60% and above marks in the comprehension criterion test.
2. In the subsequent year, around 90% of students scored 75% and more marks. An improvement trend was witnessed with regard to discussion sessions.
3. At different stages of implementation of the strategy, the student's attitude towards multimedia learning went on increasing in a favourable direction.
4. During the period of try out of the strategy for two years, the relationship between intelligence and academic achievement found no significance. The relationship between English comprehension and academic achievement was found significant at 0.01 level.

Mohanthy Jagannath⁴⁰ (1989) in his book "Educational Technology; A Plead for Little media", remarks that the use of all modern media, methods and material for maximising the learning outcomes. These include various methods of teaching, audio-visual aids and materials for effective and efficient teaching-

learning process. They also include software and hardware, big media and little media. In all ages education has its technologies starting from black board to textbooks, from Socratic Method to Discussion Method, from counting beads to computerised instruction. These media can improve the quality as well as quantity of education.

Big media imply more complex and costly devices of instruction such as television, films, video and computer. These are expensive and require highly skilled and trained personal for production and utilisation of programmes. Little media means the less costly and less complex media like radio, tape recorder, film-strips, slides, transparencies, maps, charts etc. Teachers require training and retraining for improving their competency in using the apt media.

Kumar⁴¹ (1996) in a study in curriculum, methods and textbook, found that the multimedia approach which incorporates a variety of instructional modes in a teaching situation, appears to be a promising one. He concludes that multimedia approach is an effective educational technology for learning.

Extracts of the conclusions drawn from some published researches (1996) are as follows.

1. Visuals explaining a concept or a phenomenon should be from the point of view of the learner.
3. Visuals bridge the gap between the high rate of thought of the listeners and low rate of speech of the presenter.
4. Learning from a visual or a series of visuals is much better if the attention of the viewers is drawn to what he should observe at a particular instant.
5. Special effects and optical effects used in films do not bring about significantly better learning than otherwise.
6. The fact that colour adds to the attractiveness of an audio-visual does not necessarily mean that it improves learning. Learners, however, prefer colour versions.
7. Visuals contribute much more to learning than the audio channel. Even so, the audio channel is a must because it clarifies and supplements the visuals.
8. Motivation to learn and to observe phenomena is greater if the learning process is made audio-visual.
9. Active learner-response and participation is the key to meaningful learning. Use of audio-visuals should promote interactivity.

10. Increasing the number of relevant cues and reducing the number of irrelevant cues in terms of the concepts to be learnt facilitate learning. Media should, therefore, be employed to highlight only the factors that directly contribute to the accomplishment of the task.

Greater the number and the involvement of senses of perception, better the learning. Variety of media is an approximation to direct experience.

3.4. CERTAIN NECESSARY FACTORS OF CONSTRUCTS

In a study, **Yamamoto**⁴² (1963) identified the following variables as prerequisite for teaching success.

1. Intelligence and verbal abilities
2. Interests
3. Attitudes to education and teaching.
4. Biographical Data (age, sex, marital status etc)
5. Personality factors.
6. Previous academic records.
7. Creativity.

Dwivedi⁴³ (1968) made a study regarding the development of the study of Sanskrit in Madhyapradesh. The investigator prepared a questionnaire and sent it to 1156 institutions, both in Government and Private, all over India imparting Sanskrit education at various levels. Considerable amount of data was collected from records and books available in libraries and Government departments. Major findings are noted below.

1. In the absence of provision for training, teachers in Sanskrit schools and colleges remained untrained and so poor coaching was imparted to students.
2. The subjects taught were *Navya Vyakarana, Kavya, Darshana, Purana, Itihasa, Karma Kanda, Pracheena Vyakarana, jyothisha, Ayurveda* and Religion.
3. Most institutions either did not have a library or had a poor one.
4. The major problems faced in Sanskrit Education were lack of encouragement and in information.
5. In order to improve the situation it was felt that abilities, especially teaching abilities, have to be developed in Sanskrit teachers to conduct comparative linguistic studies.

Language skills, Teaching abilities and efficiency and memory are some of the important factors of constructs in education identified by the researchers.

Debnath⁴⁴ (1971) conducted a study on teaching efficiency in 1971. He recognised that the following important factors constitute efficiency of teaching:

1. The knowledge of the subject matter.
2. Sincerity in teaching.
3. Mastery on the method of teaching.
4. Academic qualifications.
5. Mode of exposition.
6. Sympathetic attitude towards student's discipline.
7. Student's participation.
8. Proper use of aids and appliances in teaching.
9. The art of questioning.

He established some related factors affecting efficiency of teaching. They are Professional training, Intelligence, Interest on teaching, Friendliness, Democratic behaviour, Ability to judge reactions of others, Possession of all round information, Age, Experience and Academic achievement.

In studying Sanskrit, memory can be considered as a successful learning technique.

Soman.N.E⁴⁵ (1976) has done a research work in this matter. According to him, the use of memory is a learning/teaching technique for Sanskrit literature and culture. He pointed out four kinds of memories.

1. Rote memory tradition.
2. *Sastric* material.
3. Relevance of memory in metaphysical knowledge.
4. Presentation of theoretical models.

His main conclusions were:

1. Rote memory techniques and metaphysical memory techniques were intimately connected with *Sastric* material.
2. The culture of memory was not merely apart of learning process, but it was intimately involved with the art of living itself.
3. In the Western countries 'Active feed back' had become a major technique. Active Feedback had been used in India beginning with the learning of Vedas. Debate techniques were the core of an active feedback, learning situation and require excessive development of creative intellect and memory process.

Feed back, continuity and active learning were important factors in teaching/learning process. Students have to practice works and see the results of their practice and gain information from the results. Students get the opportunity to feedback in active learning and hence it is superior to passive learning. Discussion technique may help to develop critical thinking.

According to **Tanner⁴⁶** (1978) there are three models if disciplines.

1. The Psycho-dynamic model
2. The Group dynamic model
3. The Personal-Social growth model

Teaching methodology should help to come out discipline from within.

Wilga M. Rivers⁴⁷ (1981) has done a work on teaching foreign language skills intended particularly for the use in class rooms. The study expresses ten concerns over language teaching constructs. These concerns are:

1. Structured practice.
2. Teaching sounds.
3. Listening comprehension.
4. Learning the fundamentals of the speaking skill.
5. Various approaches to teaching communicative skills.
6. Reading skills.
7. Writing skills.
8. Cultural understanding.
9. Principles and techniques of testing.
10. Technology.

Jain P C⁴⁸ (1984) conducted an investigation in diagnosis of language errors and programme of Teaching Sanskrit. The study was carried out with the following objectives.

1. To identify the errors in Sanskrit, their types, the causes of errors and to suggest a programme for remedial teaching.
2. To identify the nature of errors committed by students in Sanskrit in class.
3. To prepare tools for diagnosing the errors.
4. To find out the fundamental cause of errors.
5. To suggest a remedial programme on the basis of the nature and cause of diagnosed errors.

The examination papers of Sanskrit of the Rajasthan Secondary Examination Board were critically analysed for two years. The major findings of the study were-

1. Most Sanskrit teachers were untrained and so they were not able to create student's interest in the subject.
2. The marks obtained for Sanskrit were not included for awarding grades. So they did not take much interest in the subject.
3. Student's knowledge of grammar was not satisfactory.
4. Adoption of translation method, poor techniques adopted by teachers and inadequate study of students resulted in low achievement.
5. Lack of practise of pronunciation in the class, absence of homework and inadequate home support resulted in poor performance.
6. Teaching of Sanskrit as a third language was not according to the syllabus and hence the objectives of Sanskrit teaching were not achieved.

CONCLUSION

The studies reviewed above clearly suggest the need for improvement in teaching methodology and the adoption of better classroom practises. Though the practical adaptability of technology in the traditional colleges in Kerala is under question, constructs such as methods, use of existing teaching facilities and a common observation of variables in teaching process are yet worth studying for Sanskrit education. The above studies built adequate framework for the need of reorienting class planning in a more purposive way. The studies surveyed above give a theoretical base for building curriculum constructs for Sanskrit education in college level. Several researchers dealt the factors like impact of technology and learning process variables in very detail so that further emphasis on that direction can be meaningfully limited and the insight from it can be reasonably used for developing and experimenting better classroom management practises. Hence the need for methodological integration in the subject matter of learning should be placed high priority. This obviously starts with taking stock of the existing Sanskrit teaching practises.

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