Chapter 5

SUMMARY

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5.1 INTRODUCTION

Education has always been important, but perhaps never more so in man's history than today. "Education for All" and "Lifelong learning" has become the catch cry of the new millennium. It is increasingly being accepted that we have entered an information era or a knowledge society. Only by continued learning through the life span will it be possible to maintain knowledge and skill currency (Candy et al. 1994). Due to the continuous changes in technology and the volumes of new information generated through the internet and other information technologies achieving quality education for all has become more difficult. What is now required in the knowledge society, more than in previous eras, is the ability to learn more quickly to cope with the increased volume of information and to process information more effectively. This shows that there is an urgent need to equip people with learning skills so that they can manage to learn on their own.

Unfortunately, the education process carried out in our schools and colleges invariably lag behind the advances in information & communication technology. As a result, after coming out of these institutions, the students find themselves handicapped because the knowledge that they gained in these institutions become outdated by the time they enter a job and start living an active social life. Thus, it is increasingly being recognized that children need to "learn how to learn", so that they can continue learning throughout their life. This view has been highlighted by UNESCO in its report on education according to which education should help students acquire the instruments of knowledge: the essential learning tools of communication & oral expression, literacy, numeracy & problem-solving; to gain both a broad general knowledge & an in-depth knowledge of a few areas: to understand rights & responsibilities; and most importantly, to learn how to learn." Since education is a man-made process, designed to serve our changing needs, it is in need of creative invention to make it work better. More than ever before it has

become important to equip the students of present system with the skill of learning to learn.

Further, there is no doubt that the quality of a nation depends upon the quality of its citizens and the quality of its citizens depends more than on any other single factor, on the quality of their teacher. The teacher is the living ideal, the fountain head of knowledge & the potential guide to provide directive growth and development of the students of today as worthy citizens of tomorrow. However, in the course of time, need and importance of education has also changed and as a result the role and function of the teacher is also changing. Today teachers are considered as facilitators of knowledge and not dispensers of knowledge and skills. This implies that teachers are supposed to help learners to learn on their own, so that they can become independent learners and thus take responsibility of their own learning. However, self-managed learning (SML) skills are not formally taught in the classrooms of today. This may be because the teachers themselves are not aware of such skills. Moreover, this aspect of self-learning is not given due importance in the teacher training programs.

From the review of related literature it was found that no such study has been conducted in India for the development of self-managed learning skills among student- teachers or at any other level. Although the researcher did find some studies related to development of remedial instructional strategies aimed at improving certain language skills in students. The researcher spotted a few studies conducted abroad related to self- managed learning and learning to learn skills. However, researches done in the area of self- managed learning abroad have tried to find out the perception of students regarding self- managed learning and the difficulties they face in the process of self- learning. The studies were mostly conducted on self-managed learning groups that were already present in different institutions. Hardly any study has been found in which efforts have been made to develop a strategy to enhance self- learning skills. The investigator therefore felt challenged to explore the possibilities of such a study.

In the section that follows, some of the theories which helped the researcher to find a base for the present study have been presented in brief.

5.2 COMPONENTS OF EFFECTIVE LEARNING

In what follows attempt is made to explain the different components of effective learning. If the learners are to learn effectively, they have to fulfill certain prerequisites. According to Garry D. Borich (1996), effective learning has three major components namely (i) world knowledge (ii) knowledge of cognitive strategies, and (iii) knowledge of meta-cognitive strategies. As these components play crucial role in effective learning, they need to be discussed at some length.

(i) **World Knowledge :** As infants grow into childhood and adolescence, they increase their knowledge and skills. The total of all that is stored in their long-term storage form the basis for their view of the world around them. It helps them to make sense out of the various events, to understand the laws of nature, to recognize cause and effect and to form decisions about goodness, truth, and beauty. This total construct of how they see the world as Sousa (2006) observed is called the cognitive belief system. As Antony Robbins (1991) observes, it is experiences that provide the building blocks for the people's beliefs, rules and values. Experiences are all what people have recorded within their nervous system. Everything that they have seen, heard, touched, tasted, etc are stored in their long-term memory sites. People's past experiences have a lot to offer in their attempt at learning. If they believe that they are good at learning, they should have sufficient number of instances to support that belief. Limited experiences create limited life. If people want to expand their lives, they need to extend their knowledge and skills by pursuing ideas and experiences. Learning is 'marked by the learners' capacity to explore and experiment. The more their experiences, the greater is the possibility for the expansion of their knowledge and skills.

(ii) **Knowledge of Cognitive Strategies :** Having a sound knowledge base of the world alone may not make people effective learners. Apart from that, they should have sound knowledge about cognitive strategies. Cognitive

strategies, as Woolfolk (2006) defines, are ideas for accomplishing learning goals-a kind of overall plan of attack. They are general methods of thinking that improve learning across a variety of situations. Years of research indicates that using good learning strategies help learners' in their learning. A strategy is an art of handling any task to the best advantage. It refers to a series of well planned actions for achieving an aim. Important, although they are, they are seldom taught directly at schools. Self -managed learners need to know about them if they are to learn effectively. Sousa (2001), West et al (1991) and quite a number of other scholars have identified and highlighted a number of cognitive strategies. Some of the most important among them are chunking, bridging, rehearsal strategies, practice strategies, organization strategies, mnemonics, etc.

(iii) **Knowledge of Meta-cognitive Strategies :** Learners should have not only world knowledge and knowledge about various cognitive strategies but also knowledge about meta-cognitive strategies if they are to learn effectively. Meta-cognition involves knowledge and beliefs about the learners own cognitive processes. Meta-cognition, as Santrock (2006) defines, is cognition about cognition or knowing about knowing. Meta-cognition includes self-interrogation, self-checking, self-monitoring, self-analysis and using memory aids. Meta-cognition involves a number of strategies and tactics. These strategies and techniques are generally used when cognition fails. They help the learners in accomplishing the objectives of learning.

As self-managed learners, people need to examine and find whether they lack in any of these components. In case they find missing proficiency in any of these areas, they have to make concerted effort to build up competence in all these components. Only when they have adequate level of proficiency in all these areas, they can be effective learners.

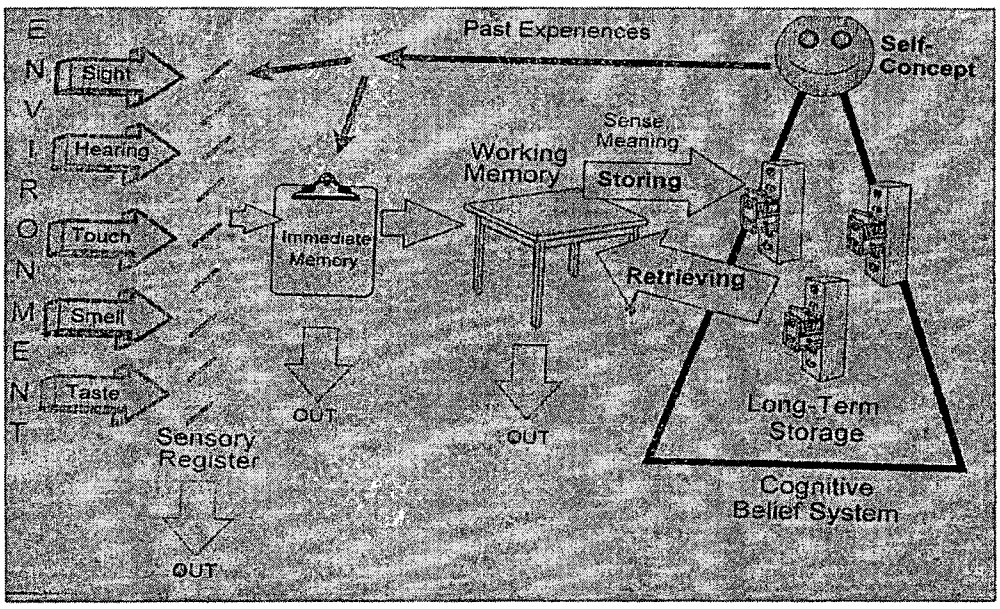
5.3 THE PROCESS OF LEARNING

In the following sections, information regarding what cognitive psychologists know about how the mind takes in information and what it does with that information once it gets there, have been explained with the help of information processing model.

The Information Processing Theory

The primary source of information concerning human learning comes from research related to information processing and cognitive controls according to which learning is a monitored, controlled, and directed cognitive activity, utilizing the information processing system of the brain for the purpose of modifying cognitive structures.

Figure 5.1 : The Information Processing Model



(Source: How the brain learns – D.A. Sousa)

Several models exist to explain learning and brain behaviour. The rapid proliferation of computers has encouraged the use of the computer model to explain brain functions and learning. The model presented in figure 5.1, which has been put forward by David. A. Sousa (2006) uses common objects to represent various stages in the learning process. The model limits its scope to the major cerebral operations that deal with the collecting, evaluating, storing and retrieving of information. The model starts with information from our environment and shows how the senses reject or accept it for further processing. It then explains the two temporary memories, how they operate, and the factors that determine if a learning is likely to be stored. The model is simple, but the processes are extra ordinarily complex.

Implications for Learning

The information processing model of how the mind works is a metaphor. This model helps us in thinking about how the minds of a learner works, thus enabling us to present content in such a form to help learners understand better and retain whatever they learn. The information processing model helps us understand how information gets into the mind, how it is stored, and how it is retrieved for use in thinking. Following are some implications of the information processing model of learning.

(i) One cannot recall information that one's brain does not retain.

(ii) How a person "feels" about a learning situation determines the amount of attention devoted to it.

(iii) The working memory can handle only a few items at once. This functional capacity changes with age. Pre-school infants can deal with about two items of information at once. Pre-adolescents can handle 3 to 7 items, with an average of five. Adolescents and adults can handle five to nine items of information, with an average of seven. Thus keeping the number of items in a learning block within the appropriate capacity limit increases the likelihood that more learning will be retained.

(iv) It is possible to increase the number of functional capacity of working memory through a process called chunking.

(v) Since the working memory is temporary and can deal with items for only a limited time (15-20 minutes) it is important to package a study block into 15 to 20 minute session which is likely to result in maintaining greater learner interest than one 40 minute study block.

(vi) Information is most likely to get stored if it makes sense and has meaning. Past experience always influence new learning. Therefore, we need to be certain that whatever we learn contains connections to our past experience.

In the next section, a brief explanation about the self-managed learning strategy has been presented.

5.4 THE SELF-MANAGED LEARNING STRATEGY

The self-managed learning strategy is an attempt by the investigator in developing learning-to-learn skills among learners in general and student-teachers in particular. Learning to learn skills or the self-managed learning skills are skills that a learner might find quite useful while going about a learning task. It will not only enhance his learning but will make the learning process an enjoyable one.

5.4.1 Assumptions of the Present Study

From the study of literature related to learning and from the researcher's own experience there are three basic assumptions based on which the present strategy has been developed. The three assumptions on which the self-managed learning strategy is based are as follows:

(1) Self-managed learning skills exist to some extent among all learners.

(2) The Self-managed learning skills are not sufficient or have not been properly developed among learners to overcome the challenges they face.

(3) Self-managed learning skills can be enhanced so that the process of learning becomes more efficient and enjoyable.

5.4.2 The Modules

The investigator prepared the SML strategy in the form of self-instructional modules. Modules or self- instructional materials are based on the principles of learning in general and self-learning in particular. Textual material in the modular form is self-contained, sequentially arranged and consists of activity packages. The text is presented in a simple language with cues to facilitate self-learning. It also includes in text exercises to promote motivation to learn, which is also helpful in making learning interactive. A module provides opportunities for self-assessment and continuous feedback. Thus, self-instructional material or modules consists of self-contained learning activity packages which promote self-learning, self-evaluation and self-enhancement through continuous feedback. It thus effectively helps in achieving the predetermined objectives.

In the present study, the investigator prepared the self-managed learning strategy in the form of six modules in order to achieve the aim of developing learning to learn skills or self-managed learning skills among student-teachers. The SML strategy has been prepared by the investigator by taking into consideration the different theories of learning, the components of effective learning and the theory of how people learn or the information processing theory. The six modules of the strategy pertain to the six different skills which has been identified and included in the present study by the investigator.

The self-managed learning skills which have been included in the present study are as follows:

(1) Goal Setting Skill
(2) Information Location Skill
(3) Information Processing Skill
(4) Information Storing Skill
(5) Information Retention Skill
(6) Information Retrieval Skill

5.5 RESEARCH QUESTIONS

1. What skills are required to manage ones' own learning?
2. Which are the different techniques required to master the skills of self-managed learning (SML)?
3. Can a well structured and well planned strategy be prepared to equip an individual with self- managed learning skills?
4. How far will such a strategy help an individual to manage ones' own learning?
5. What will be the opinion and reaction of the learners towards the prepared strategy?

5.6 STATEMENT OF THE PROBLEM

Evolving a Strategy for Developing Self-Managed Learning Skills (SML) Among Student-Teachers

5.7 OBJECTIVES OF THE STUDY

The study has been designed to attain the following objectives:

(i) To identify various skills, sub-skills and techniques required for managing one's own learning.

(ii) To develop a strategy for enhancing self-managed learning skills among student-teachers.

(iii) To evaluate the effectiveness of the strategy in terms of

- (a) Student-teachers' performance in the achievement test.
- (b) Student-teachers' reaction towards the SML strategy.
- (c) Expert's opinion towards the strategy.

5.8 HYPOTHESIS OF THE STUDY

The prepared strategy will enhance the self-managed learning skills of the student-teachers.

5.9 SCOPE OF THE STUDY

The present study is an attempt towards evolving a strategy for helping student-teachers to pick up learning to learn skills. However, since learning is a life-long process, every individual has to continue learning throughout his life span. Everyone irrespective of age, sex, nationality and occupation need to continue learning. So the study has a widespread relevance for all those who need to manage their own learning.

5.10 DELIMITATIONS OF THE STUDY

Though every effort has been taken to make the study as generalisable as possible, it has few minor limitations.

1 The study was limited to the B.Ed. students of Kerala state.

2 The study was delimited to the six skills for self-managed learning, identified by the researcher viz. Goal setting skill, information location skill, information processing skill, information storing skill, information retention skill and information retrieval skill.

5.11 METHODOLOGY OF THE STUDY

Since the nature of the study is developmental cum experimental the methodology of the present study has been divided into two parts namely:

PART-I Methodology of developing the strategy

PART-II Effectiveness of the strategy

5.11.1 Part-I: Methodology of Developing the Strategy

The major objective of the present study was to develop a strategy for enhancing SML skills among student-teachers. Therefore, in the first phase of the research, the investigator read critically all the available literature related to learning theories and pedagogy. Based on this study, the assumptions of the study, the requirements of the study and the principles based on which the strategy should be developed were determined.

Further, the various skills, sub-skills and techniques required for developing self-managed learning skills among student-teachers were identified and finalized with the help of experts in the field of education. In the next step, each of the sub-skill and techniques were in turn, broken down into its components and presented in a logical order in the form of flow charts. It was decided that the strategy would consist of six units, each pertaining to the development of one of the gross skills identified by the researcher. The gross skills which were identified for managing ones' own learning are as follows:

(1) Goal Setting Skill
(2) Information Location Skill
(3) Information Processing Skill

(4) Information Storing Skill

(5) Information Retention Skill

(6) Information Retrieval Skill

Once the components were identified and presented in logical order in the form of flow charts, the instructional objectives in behavioural terms were determined. Finally, the modules were prepared. The prepared material was then reviewed (in the light of the objectives of the study) by experts in the field of education. It was further tested on five student-teachers (different from the sample). The modules were edited and organized keeping in view all the observations made by the experts and the student-teachers and the insight obtained by conducting the pilot study.

The design following which the strategy was finally developed is presented in what follows:

(i) ***Learning objectives***: This section gives an idea about the objectives that need to be achieved by the learner at the completion of the module. It tells about the skills and techniques to be learnt in that particular module.

(ii) ***Introduction*** : This section gives an overall idea about what has been presented in the module so that the learner gets a bird's eye view of what he/she is about to learn in that module.

(iii) ***Content with activities and exercises***: In this part of the module, the actual content in the form of the various concepts related to that particular skill along with examples, activities and exercises have been presented. Exercises for practice have been presented after each concept. At the end of each content in every module, some activities have been presented. If the activity has a specific answer, an answer key has been provided at the end of the activity. The activities which ask about the learner's opinions or situation, do not have answer keys.

(iv) ***Test yourself***: Throughout the modules, questions to check the understanding of the contents just learnt have been presented in the form of Test Yourself

sections. The answers to these questions have been provided at the end of the module.

(v) ***Summing up*:** In this section the summary of the entire content presented in that particular module has been presented. This gives an opportunity to the learner to revise the content just learnt.

(vi) ***Reflections*:** At the end of each module, there is a section on reflection. A number of questions related to that module are presented here. In this section, the learner writes whatever comes to their mind regarding the question at hand. These questions have no specific answers and are left to the learner's imagination.

(vii) ***References*:** Readymade references in the form of books or websites have been provided at the end of each module so that the learner may enrich oneself with extra knowledge regarding a particular skill or concept.

5.11.2 Part-II: Effectiveness of the strategy

5.11.2.1 Research Design

To find out the effectiveness of the developed strategy the Experimental method of research was adopted. The design selected for the present study was pre-test-post-test equivalent group design.

5.11.2.2 Independent variable

In the present study the independent variable is the experimental treatment i.e. the Self-Managed Learning strategy which was developed by the investigator.

5.11.2.3 Dependent variable

In the present study, the dependent variable is the achievement of the student-teachers in the SML skills which will be measured with the help of an achievement test.

5.11.2.4 Sample

The sample consisted of forty student-teachers of a co-educational government aided B. Ed college, viz. Titus II Teachers College, from Tiruvalla district in Kerala. The

sample were randomly selected on the basis of the 'Table of Random Numbers' and were systematically divided into two groups: Experimental Group (EG) and Control Group (CG). Each group consisted of twenty students.

5.11.2.5 **Materials and Tools used for the study**

For the purpose of the present study the investigator used the following materials and tools:

(i) The Self-Managed Learning (SML) strategy, in the form of six self instructional modules, each covering a different aspect of learning viz. Goal Setting Skill, Information Location Skill, Information Processing Skill, Information Storing Skill, Information Retention Skill and Information Retrieval Skills.

(ii) An opinionnaire for each of the six modules to find out the reaction of the student- teachers towards each module.

(iii) An opinionnaire for the entire strategy to find out the opinion of the student-teachers towards the strategy as a whole.

(iv) Pre-test based on the Self- Managed Learning strategy

(v) Post-test based on the Self- Managed Learning strategy

5.11.2.6 **Procedure for validation of the strategy in brief**

The experimentation phase consisted of a pre-test, implementation of the strategy, post-test and collection of data regarding the reaction of student-teachers and experts towards the prepared strategy. After the pre-test was taken to find out the student-teachers level of achievement with regard to knowledge, understanding and skill about self- managed learning, the student- teachers were given orientation regarding the content of the prepared strategy and the procedure to be adopted while using the strategy. Then each student- teacher was given a copy of the prepared material to enable them to work independently. In this way each of the unit was completed. At the end of each unit, before passing on to the next unit, a unit test for that unit was taken. After completion of all the units, a post- test was taken to find out the

achievement of the student- teachers. This was followed by collection of data regarding the opinion of the student- teachers and experts regarding the strategy.

5.12 DATA ANALYSIS AND INTERPRETATION

The data collected for finding out the effectiveness of the strategy was analyzed using qualitative and quantitative methods.

Statistical techniques used for data analysis

Statistical analysis of the data collected was undertaken using procedures appropriate for the purpose of the study. The statistical techniques used for the analysis of the data for the present study were:

- Mean
- Standard Deviation
- t-test

The above statistical techniques were used to evaluate the effectiveness of the strategy in terms of the student-teachers performance in the achievement test. i.e. objective 3(i)

- Percentage analysis was carried out to find out the percentage of students attaining mastery level.
- The data collected from the opinionnaire was analysed through frequency distribution and percentage analysis. i.e. objective 3(ii)
- The data gathered through interview of experts were analysed using content analysis. i.e. objective 3(iii)

5.13 TENABILITY OF THE HYPOTHESIS

The tenability of the hypothesis is tested by considering the directional hypothesis on the basis of the scores obtained in the achievement tests by the Experimental Group and Control Group.

HYPOTHESIS

There will be a significant improvement in the self- managed learning skills of the student- teachers of the Experimental Group after the intervention of the Self-Managed Learning strategy.

This hypothesis is fully substantiated as the obtained 't' value (21.702) is significant at 0.01 level.

Hence the hypothesis titled "The prepared strategy will enhance the self-managed learning skills of the student-teachers." is accepted.

5.14 MAJOR FINDINGS OF THE STUDY

The major findings of the study are as follows:

(i) Six skills were identified for developing self-managed learning skills among student-teachers. These were: Goal Setting Skill, Information Location Skill, Information Processing Skill, Information Storing Skill, Information Retention Skill and Information Retrieval Skill.

(ii) The sub-skills and techniques that were identified for developing Goal Setting Skill were: differentiating long-term goal from short-term goal, use of SWOT analysis, use of SMART acronym, identifying ones' life-time goals, identifying ones' learning goals, goal mapping, time-management techniques, preparing activity logs, preparing term calendar, weekly schedule and daily to-do-list.

(iii) The sub-skills and techniques that were identified for developing Information Location Skill were: identification of range of institutions where relevant information could be found, analyzing the topic to be learned, breaking the topic of study into searchable key-words, refining the key-words to obtain relevant results, using library catalogues, using web-resources, evaluating the resources and keeping records.

(iv) The sub-skills and techniques that were identified for developing Information Processing Skill were: using different strategies for reading, using KWL strategy, SQ3R technique, speed reading and identifying ones' learning style.

(v) The sub-skills and techniques that were identified for developing Information Storing Skill were: identifying common abbreviations and symbols used while taking notes, forming new abbreviations while taking and making notes, forming new symbols while taking and making notes, listening skill, Cornell system of note-taking and mind mapping.

(vi) The sub-skills and techniques that were identified for developing Information Retention Skill were: identifying nutrients which nurture brain function, using techniques for improving memory, systematic revision and using the principle of chunking.

(vii) The sub-skills and techniques that were identified for developing Information Retrieval Skill were: forming new acronyms, forming new abbreviations, forming new acronymic sentences, using peg-word and using key-word.

(viii) A modular strategy was developed using the above mention skills, sub-skills and techniques for enhancing the self-managed learning skills of the student-teachers.

(ix) The self- managed learning (SML) strategy was found to be effective in enhancing the learning to learn skills or Self- Managed Learning skills of the student- teachers.

(x) Most of the student- teachers i.e. 75% of them were able to perform at mastery level in the achievement test after the administration of the self-managed learning strategy.

(xi) The student-teachers had a positive opinion about the six skills taken up in the strategy viz. Goal Setting Skill, Information Location Skill, Information Processing Skill, Information Storing Skill, Information Retention Skill and

Information Retrieval Skill. Moreover they felt that the strategy as a whole was very useful in improving their learning skills.

(xii) They found the strategy very interesting and felt that such strategies should be implemented from the school level itself.

(xiii) The experts had a highly favourable opinion towards the self-managed learning strategy.

5.15 SUGGESTIONS FOR FURTHER RESEARCH

- The present study can be conducted in the schools at the secondary and higher secondary level.
- A similar study can be conducted among the students studying at M.Ed level.
- The strategy can be used for the students of other faculties also with necessary modifications if required.
- A strategy for developing self- managed learning skills taking into consideration a different set of skills can be undertaken.
- The present study was meant for students having an English medium background the same can be done for students of other vernacular medium background.
- A similar strategy using the same skills but different sub-skills, techniques and methods may be developed.
- A similar strategy can be prepared and taught to the students by using power-point presentation and workshop method.
- The improvement in the performance of the student-teachers in their college examinations before and after the learning of the self- managed learning skills can be found out.

- An in depth study of the study skills used by bright students at varying levels of education can be found out.
- A strategy for enhancing study skills of bright students may then be developed.
- A strategy for developing study skills of below average students may also be developed.
- The study skills used by primary school students may also be determined.
- A strategy may then be developed for introduction of study skills at this level.