CHAPTER III

REVIEW OF RELATED LITERATURE

3.1 Reflective practices
3.2 Cognitive and Affective variables
3.3 Creativity
REVIEW OF RELATED LITERATURE

The review of related literature provides background information about reflection, and describes various strategies used to instill reflective thinking and reflective practices in students and identifies the thinking process of individuals who engage in reflection.

Much of the literature related to reflection indicated that the act of reflection is not an easy task and does not necessarily occur naturally, one who support for the development of reflection should understand that reflection is rather difficult and uncomfortable process for some students. Although widely used conceptions of reflective practices differ widely, some studies emphasises the reflective aspect, equating the reflective practice with silent introspection and retrospection; others emphasises practice, viewing this thoughtful process as a means of developing a better solution to a problem.

Reflection can mean all things to all people, it is used as a kind of umbrella or canopy term to signify something that is good or desirable, everybody has his or her own (usually undisclosed) interpretation of what reflection means, and this interpretation is used as the basis for trumpeting the virtues of reflection in a way that makes it sound as virtuous as motherhood (Smyth, 1992).
The search for a definition for reflective thinking for the study many often lead to ill-defined terms as reflection, reflective practice, reflection in action, reflection on action and so on, the definition of reflective thinking for this study formed from a variety of these sources, and reflection from the part of the investigator.

3.1 REFLECTIVE PRACTICES

Reflective teaching is an enquiry approach that emphasises an ethic of caring, a constructivist approach to teaching, a creative problem solving.

Katz, (1995) argues that reflection involves active, persistent, and careful consideration of any belief or practice. It promotes understanding of underlying beliefs and application of new knowledge to new situations. For experienced teachers and teacher educators, reflective thinking has become "second nature," an automatic response or a disposition.

Kuhrt and Farris (1990) argue that teachers can determine the instructional frameworks that can empower students to understand more about their own learning and concludes that activities like learning logs, directed reading-thinking help
Review of related literature

develop higher level thinking skills using writing, reading, and reasoning.

Sparks-Langer et al. (1990) describes pre-service and in-service teacher education programs by the Collaboration for the Improvement of Teacher Education (CITE) to develop reflective thinking in students, focusing on the framework for reflective pedagogical thinking, a coding scheme developed by CITE to analyse students' reflective thinking about curriculum, methods, and sociopolitical issues.

Norton (1994) examined reflective thinking in pre service teachers as it relates to locus of control and creative thinking. Measures of the dependent variable, reflective thinking, were determined and results indicated that locus of control was a significant predictor of reflective thinking; however, none of the independent variables, either alone or in combination, were consistent predictors of reflective thinking.

Santhanakrishnan and Veeran (1995) in their study tried to find out the impact of the levels of the degree course and the nature and type of the course on reflective attitude of the prospective teachers. The study reported that there was significant difference between the nature and type of course of B.
Ed. trainees, whereas on levels of course and interaction effect it was non-significant.

McCrindle and Christensen (1995) examined how journal writing a powerful tool to reflective activity affects college students’ cognitive and metacognitive processes and learning performance in a biology course. Their results indicated that the students who were trained how to write a journal when asked to write it during laboratory classes performed better than the students who wrote a report on the material they were learning without training. They also reported that the journal-writing group showed better awareness and control of cognitive and metacognitive processes.

Soldner (1997) discusses reflective free writing as a method postsecondary faculty can use to help students develop metacognitive awareness. Describes how giving students’ time in class to ‘think about thinking’ promotes students' cognitive and affective development. Reviews the literature on metacognition and describes the direct instruction used to facilitate freewriting.

White and Frederiksen (1998) found that a reflective-assessment tool to support students to evaluate their learning progress had a strong positive effect on middle school students’
inquiry performance. They indicated that supporting students to reflect on and evaluate their learning progress and products affects students' products, especially low-achieving students who lack the metacognitive monitoring and reflecting skills.

Taggart and Wilson (1998) provide teacher educators and staff developers with strategies to enhance the reflective thinking abilities of pre-service and in-service educators. Strategies for reflective thinking approached at three levels: technical, contextual, and dialectical.

Stanley (1998) proposes a framework for teacher reflection based on a longitudinal study of the development of six experienced second-language teachers who attempted to implement reflection and reflective action into their teaching practice. The resulting framework included several phases in the development of reflective teaching: engaging with reflection, thinking reflectively, using reflection, sustaining reflection, and practicing reflection.

Moallem (1998) focuses on reflection and reflective thinking as a means for developing expertise in instructional designers. Paper discusses the need for the reflective instructional designer, and examines reflective thinking from
several perspectives. It also described a reflective thinking model.

Sillman and Dana (1999) explore the usefulness of metaphor generation and analysis as a tool for reflection by prospective elementary teachers of science. The main assertion was that reflection through metaphor helped prospective teachers identify and actualise some of their beliefs about learning and teaching science.

Francis, Tyson and Wilder (1999) examined the impact of a reflective thinking instructional module designed to increase reflective thinking levels in pre-service elementary teachers' field experience logs. Analysis of logs from students who did and did not use the module indicated that the module significantly improved the quality of reflection in the experimental group's logs.

Stough and Palmer (2000) examined the effects of using expert models on the reflective thought of pre-service special educators during classroom instruction. Results found no notable between-group differences in the percentage of comments in each category. The largest category of comments for both groups
was strategies, followed by student characteristics, then
teachers' goals and expectations for students.

Alpert (2000) describes how the experience of carrying out
qualitative research contributes to student teachers' development of reflective thinking, promotes constructivist
approaches in teaching and learning to teach, and supports
feminist perspectives in teacher education. Results highlight how
qualitative research experience contributed to the development
of reflective thinking, constructivist learning, and feminist
perspectives.

Koszalka, Song and Grabowski (2001) here attempt to examine factors that sixth through eighth grade middle school students perceive as prompting reflective thinking. The result indicated that young students perceived three factors as most important in supporting their thinking: learning environment, teacher, and scaffolding tools.

Passman and McKnight (2002) present a significant problem for the design of effective professional development. The absurdity of asking teachers and administrators to raise test scores constantly encourages teachers to teach to the test without regard for the intellectual development of students.
Teachers also credited the reflective conversations in helping them understand their roles as teachers and guides.

Hamann (2002) in this paper describes three studies designed to determine whether beginning and completing teacher candidates reflected on their teaching experiences, in what categories they reflected, and how prompts affected their reflections. Results suggested that most reflections occurred in the students' affective/social/psychomotor category, and teacher candidates focused more on their students' behaviors and attitudes than on their learning.

Florez (2002) in this paper explains how to use reflective questioning in teaching of English as a second language for adults. The paper also describes how one teacher spends about 30 minutes at the end of every 3-month session asking learners to reflect on the work they and their teachers have been doing.

Spalding and Wilson (2002) identified pedagogical strategies that helped pre-service secondary teachers improve their reflective thinking via journal writing and case studies and found that no single pedagogical strategy was best, and students responded differently to different strategies. Personalised
feedback on their journals and relationships with instructors were most important in helping students.

Osterman and Kottkamp (2004) in their guide to reflective practice for teachers, administrators, and professional development specialists in schools and universities explains the potential to create meaningful change in schools and shows how to integrate reflective practice effectively in school work. The book offers ideas and practical strategies to facilitate collaborative, databased enquiry, dialogue, and problem solving in schools.

Passi, Passi and Mishra (2004) deal with the classification, process and development of thinking skills. While classifying the thinking skills into various categories, the paper describes the process and suggests ways to develop thinking skills among children. The article classifies thinking skills under two approaches: 1) Product approach with two categories and 2) Process approach with seven categories; and says, thinking should be taught as an independent course.

Li (2004) using King and Kitchener's model of reflective judgment framework, inquired and examined his own critical reflective thinking skills and of pre-service and in-service
teachers in the process of developing a multicultural autobiographical curriculum in 4 years. It explored, in a narrative inquiry mode, his historical cross-cultural self and how it connected this self to his immediate teaching environment in preparation for the curriculum.

Yeh (2004) explained a computer simulation program for nurturing reflective teaching for improving critical-thinking in instruction and found its effectiveness. The findings suggest that the computer simulation is an effective vehicle for improving pre-service teachers' reflective teaching in critical-thinking instruction.

Kim, Grabowski and Sharma (2004) in their study has explicitly attended to the nature of the perceived underlying factors that prompt young adolescents' reflective thinking in association with K-12 learning environment. This paper focuses on an analysis of the factors that young students perceive as prompting their reflective thinking and how those factors apply to the practice of design.

Senapathy and Nityananda (2005) in their article discuss the design aspects for constructivist learning - Instructional design is concerned with selecting optimal methods of instruction
to bring about the desired changes in students knowledge and skills; and the role of teacher in the instructional process is redefined - instructor is a guide or helper rather than the source of knowledge.

Srivastav (2005) stresses the need for reflective practices among teachers to awaken the knowledge and perfection, which is within the learner by a three level practice – by review of ones own action research, by restructuring pedagogical pursuits by creative meditation, by addressing the very premises of ones own practice of education.

Nissila (2005) explains how learning organisations like school function as wholes; and focused on personal mastery and mental models; it investigated the phenomena of individual and collective reflection and their prerequisites on a sample of teacher trainees in vocational teacher education. The study concluded that familiarisation with systematic reflection and adopting the usage of it led to a conscious professional approach, empowerment and aptness for life-long learning.

Lee (2005) reviews the criteria for assessing reflective thinking, and investigates how the process of reflective thinking develops in pre-service teachers. It assessed reflections of pre-
service teachers from two perspectives: content and depth. The findings include variations in the content, and that the pace at which reflective thinking deepens depends on personal background, field experience contexts, and the mode of communication.

Kienzler and Smith (2005) argue that good teachers of critical thinking ask hard questions of students; however, they must also ask hard questions of themselves to be the best possible teacher and provide the best learning environment. They found three categories of classroom practices and grouped them as, knowing oneself as a teacher; determining pedagogical content and process strategies; and coaching students.

Kelly (2005) in his book argues that children are thinkers, but that there are schooling barriers to engage in this thinking. Author considers these barriers, proposes ways for promoting thinking skills through talk, through assessment, through authentic activity, promoting creativity, by structuring their thinking to think creatively, and addresses the issues surrounding the development of a whole school approach to issues of engagement and thinking.
Frangenheim’s (2005) major purpose is to introduce teachers to various individual and group thinking strategies related to specific questions and activities through his book. Strategies in this book offer teachers the opportunity to have a break from active teaching and offer the students an opportunity to be independent learners.

Trudeau and Harle (2006) examined the effectiveness of reflective teaching in Kindergarten, which promotes children's learning, the article emphasises that it is possible for teachers to nurture reflective skills in young children.

Pedro (2006) in this article emphasises the need of a new type of teacher in the contemporary classroom – one who is not just a mere technician, but who can keep an open and critical mind.

Cookson (2006) writes that teachers need strong managerial skills, and requires them to be visionaries as well. Teaching profession that makes one a visionary, lies in organising a classroom that promotes reflective thinking, empathy, and broader global identification, encouraging cross-cultural understanding and the ability to step outside of one's personal experiences.
Kaur (2007) in this article explores the inputs of a teacher education programme that would encourage the future teachers to engage in reflective practice. It emphasizes the need for incorporating reflection into teacher preparation programmes by strengthening the foundational theory disciplines.

**Discussion**


McCrindle and Christensen (1995), White and Frederiksen (1998), Stough and Palmer (2000), Koszalka, Song, and


In this study the focus is on developing reflective thinking strategies for classroom practices.

3.2 COGNITIVE AND AFFECTIVE VARIABLES

Khan (1987) studied on innovative proneness of secondary school teachers and reported that; the middle age-group teachers with long teaching experience had higher innovative proneness than the younger group with less experience. Academic qualification was highly related to innovative proneness. Innovative proneness and leadership behaviour of the principals and the organisational climate are not significantly related but significantly related to job satisfaction of teachers.
Haller et al. (1988) used Meta-analysis to assess the effect of metacognitive instruction on reading comprehension. Twenty studies from the reading research literature were compiled and quantitatively synthesised. Results affirm the effectiveness of metacognitive strategies, especially for junior high school students.

Wade and Reynolds (1989) outline instructional activities for developing metacognitive awareness and argues that students will be effective and efficient learners only by knowing what to study, how best to study it, and whether it has been learned.


Newton (1991) shares the work of one college class whose journal entries demonstrate how reader response can be a powerful metacognitive tool.
Hennessey and Beeth (1993) in their paper open for consideration the relationship between metacognition and the promotion of conceptual change within the classroom. This paper provides accounts of students' reflective thinking about science content, students' comments about the relative status of conceptions, and the levels of metacognition that are possible within a classroom.

Romainville (1994) studied the relationship between metacognition and academic achievement in economics. The study found high-achieving students are more aware of cognitive rules, and evoke such metacognitive knowledge more frequently. Their metacognitive knowledge also seemed more structured and hierarchically organised.

Spence et al. (1995) explore the associations between metacognition and science reading comprehension; results indicate significant correlations between metacognitive awareness and comprehension task success and a positive association between metacognitive self-management and comprehension task success.

Kumar and Susumu (1996) with the help of an experimental study revealed that there was significant difference
between the experimental and control groups’ scores at pre test and post test stages. It also showed that there is improvement in the metacognitive knowledge of the students in the experimental group who learned through co-operative learning than in the control group taught through conventional approach.

Devi (1996) attempts to study the incidence of different cognitive styles in children, the result of the study made it clear that majority of the children were impulsive in the field-dependent group and reflective in field independent group; and established significant association between field dependence/independence and reflectivity/impulsivity.

Commander and Smith (1996) describe learning log assignments for college students in a developmental studies program, assignments call for students to reflect on specific cognitive aspects of learning giving them the opportunity to explore their own thinking, evaluate their own progress, and promote metacognitive awareness.

Westberg (1996) studied eighth-grade students and investigated the influence of an instructional unit on the invention process and the degree to which training influenced students' inventiveness. The students who received the
Instruction developed a significantly greater number of inventions, but the quality of the inventions was not significantly higher when compared to the control group.

Vojnovich (1997) in this report describes use of various instructional strategies to increase student motivation. Faculty reported that lack of student motivation came from content-oriented classes that provided little opportunity for students, to create individual expressions and to find relevance in the materials presented. Three major intervention strategies suggested by the research as solution to the problem were: introduction of a variety of critical thinking tasks; use of cooperative learning techniques; and practice of writing reflective journal entries to enhance metacognition.

Tillema (1997) describes an approach to support student teachers belief change via self-regulation and metacognitive awareness. When actively involved in inquiry-oriented reflective learning and encouraged to discuss and exchange thoughts, they became increasingly engaged in processes of belief change.

Nagpal (1997) in this study on effectiveness of Objective Based Teaching (OBT) through thinking games among the rural students of the primary level, to develop creativity and
achievement in science; indicated that students taught with the help of OBT showed greater acquisition of concepts in science than those taught by the textbook method.

Lin (1999) investigated the effects of metacognitive, cognitive, and motivational question prompts on college students’ problem solving performance. The result of this study showed that students who responded to metacognitive question prompts performed better on a far transfer test on problem solving; and metacognitive question prompts encouraged students to stop, think and reflect on their problem solving processes.

Niaz, De Nunez and De Pineda (2000) tested students at high school to determine creativity, cognitive variables, and academic performance. Results suggest the mobility-fixity dimension and creativity represents different aspects of academic performance.

Kramarski and Feldman (2000) describe a study of eighth graders that examined the contribution of an internet environment embedded with metacognitive instruction on students' reading comprehension, motivation, and metacognitive
awareness. Results show a significant impact on motivation but none on achievement or metacognitive awareness.

Commander and Valeri-Gold (2001) discuss how instructors working with at-risk students have effectively used a learning portfolio to increase metacognitive awareness. Learning portfolio method facilitates student participation via a self-assessment of what they have learned about learning.

Vandergrift (2005) examined the relationships among motivation, metacognition, and proficiency in listening comprehension by motivation questionnaire, metacognitive awareness questionnaire, and listening comprehension test. He reported that students with greater use of metacognitive strategies had more motivational intensity, and the listening proficiency correlated negatively with motivation.

Mok et al. (2006) here describes the use of a metacognitive approach for self-assessment of teacher education students. Analysis based on concept maps and interview of students indicated that students were more aware of their learning and thinking processes at the end of the study. Further, teachers involved in the project found the method demanding yet generating useful feedback, which enhanced their teaching.
Minikutty and Regitha (2006) attempt to find out, the different learning styles prevailing among the secondary school students of Kerala and to find out the relationship between learning styles and their academic achievement, with the help of normative survey. The study revealed that the secondary school students of Kerala belong to different learning style groups such as activists, reflectors, theorists and pragmatists and there is no significant difference among various learning style groups.

Lerch, Bilics and Colley (2006) looked at how specific writing assignments encourage metacognitive reflection in order to increase the learning, it also aimed to aid in the development of higher order processing skills through the development of student reflection. The results indicated that students developed, through reflective thinking, higher order thinking skills and showed ability to analyse their own learning and start the metacognitive thinking that is necessary to be effective learners.

Michalsky, Zion and Mevarech (2007) empirically investigated the effects of asynchronic learning network embedded within metacognitive instruction on two components of metacognitive awareness. Results showed that students who learned in the asynchronic learning network outperformed their face-to-face counterparts on both components of metacognitive
awareness knowledge about cognition and regulation of cognition.

Jones (2007) in this paper outlines a clear rationale for developing speaking and listening as part of the curriculum for young children and highlights several approaches that teachers can adopt to promote effective talk: dialogic teaching is explored as a way to counter the initiation, response, feedback that characterises much of the talk between teachers and children. The study also considered the teacher's role in developing children's metacognitive awareness.

Conner (2007) reports on degrees of awareness and use of specific metacognitive strategies by students in a final-year high school biology class. The research report illustrates how teachers can cue students to be more self-directed in their learning. It was found that those students were not only aware of but also used strategies to plan, monitor, and evaluate their work.

Begum (2007) in this article discusses the role of metacognitive and self-regulatory strategies in developing the life skills among the students of higher education.

Discussion
Westberg (1996), Nagpal (1997), Haller et al. (1988), Romainville’s (1994), Wade and Reynolds (1989), Pesut (1990), Kuhrt and Farris (1990), Newton (1991), Commander & Smith (1996) and Lin (1999), outline instructional activities like, model of creative thinking, learning log, directed writing, reading, and reasoning, assignments, for developing achievement and metacognitive awareness. These studies were in line with the assumption of the investigator. Khan (1987) studied on innovative proneness. Kramarski and Feldman (2000) observed the impact of internet environment on motivation as positive, but none on achievement or metacognitive awareness. Therefore the investigator attempts to find out the impact of reflective thinking strategy of teaching on developing achievement and metacognitive awareness in classroom situation.

### 3.3 CREATIVITY

Agarwal (1988) studied on types of schools and corresponding factors as predictors of creativity at secondary level. It was reported that: creativity of students differs according to the type of school; very low association was found between the perceptions of teachers and the creative experts of personality; socio economic status influenced creativity and its components to a moderate degree only.
Gupta (1988) studied the creative development of secondary school children in relation to sex, intelligence, and urban and rural background. The major findings of the study are: urban boys and girls developed rapidly in creativity from the age of 11 to the age of 13 and 14; but later there was a sharp decline up to the age of 15. There existed low but positive correlation between creativity and intelligence of secondary school boys and girls of urban and rural area.

Bhandarkar (1989) carried out an experimental study to find the intellectual and creative suppression/stagnation faced by meritorious students in the present curriculum and found that there was very little difference between the highest and the lowest mean of the suppression expressed by the students. The high level group showed more suppression than the low level group; school was found to be the most suppressing factor and the environment and literature were the factors causing least suppression; it was found that ‘family’ was more of a suppressing factor than a ‘friend’ factor.

Datta (1989) tried to find out the differences in scientific creativity among high school students and reported that sex difference did exist in scientific creativity. Scientific creativity depends on intelligence, academic achievement, and socio
economic status. Dominant factors of scientific creativity were fluency, flexibility, and originality in case of both boys and girls.

Jawaharlal (1990) conducted a study to find out whether the structured creative teaching programme taught in brainstorming sessions will foster creativity among primary school children, and reported that children’s creativity was enhanced through brainstorming; both male and female children had similar enhancement in creative abilities.

Tripathi and Shukla (1990) aimed at developing instructional materials for promoting creativity and in finding out its effectiveness on the students’ achievement as well as their capacity for the development of creative thinking. It was accounted that, there were certain dimensions of creativity that developed through training programme; however, there was certain other dimensions like originality which failed to register any noticeable impact of the training programme.

Badola (1991) studied ‘Locus of control, achievement-motivation and anxiety as correlates of creativity’ and reported that: creativity and locus of control were positively related with each other; there was no significant relationship between creativity and achievement motivation in general; there was
significant relationship between students’ high creativity and anxiety.

Biswas and Biswas (1991) studied the reactions to frustrations of creative and the non-creative school-going adolescents and found that the two groups differed significantly only in extragression and group conformity rating. The creative group showed less extragressiveness than the non-creative group.

McCabe’s (1991) findings demonstrated that subjects who achieved in English were more likely to score high on tests of creative thinking and obtain high intelligence quotient scores. Achievement in mathematics and art were not as highly correlated with creative thinking but were related to high IQ scores.

Gujarathi (1992) conducted a study named ‘Preparation of an integrated programme of training in scientific creativity and experimental study of its effects on students of Grade IX’ and reported that; after the treatment experimental group showed highly significant scientific creativity than expected and the test prepared by the investigator was found reliable and valid.
Shah (1992) studied on effectiveness of an educational programme on decision-making skills, creative thinking skills and intellectual skills and found that creative thinking skill development programme led to the development of fluency and originality of skills.

Baer (1996) in this study investigated what effect divergent-thinking training focusing on a single task would have on the creative performance of seventh graders on a closely related task. Students received training in poetry-relevant, divergent-thinking skills. The training was found to have a significant impact on the students' creativity in writing poetry.

Ai-girl (1999) investigated student teachers' perceptions of the characteristics or roles teachers use in fostering creativity of primary and secondary students and reported that student teachers value primary teachers who exhibit pedagogical skills, creative and interpersonal disposition, and classroom management skills, and secondary teachers who have creative dispositions and social, pedagogical, and thinking skills.

Soh (2000) developed and validated a self-rating scale for fostering creativity behaviors with a self-describing adjectives checklist. Analysis of the responses of teachers found adequate
construct and concurrent validities. Specific teachers' creativity fostering behaviors were found to correlate with sex and ethnicity.

Shin et al. (2002) in this study compares and analyses different measures of creativity in gifted and normal students to understand the nature of creativity and propose guidelines for measuring creativity.

Sunny (2004) studied the relation between creativity and teaching efficiency among student teachers from different training colleges and the product moment correlation found out indicated that there is positive relationship between creativity and its components fluency, flexibility and originality with teaching efficiency. The comparison based on sub samples proved that the higher the creativity the higher is the teaching efficiency and higher the teaching efficiency the higher is the creativity.

Discussion

Review of related literature

status, intelligence, academic achievement, achievement motivation and thinking skills.

Jawaharlal (1990), Tripathi and Shukla (1990), Gujarathi (1992), Shah (1992), Baer (1996) all studied on activities that promote creativity, like brainstorming, training programmes and thinking skill developing programmes.

Soh (2000) and Shin et al. (2002) conducted studies on creativity and measurements and suggested guidelines for measuring creativity. But here the investigator made an attempt to find out the significant difference if any between and among the low, average and high creativity groups in their achievement when taught using reflective thinking strategy of teaching.

CONCLUSION

The search on literature revealed that reflective practices help not only to develop teaching and learning skill but also awareness and commitment. Reflection is thinking again about teaching and learning. Thinking again conveys the idea that reflection is a continuous process of knowledge constructions helpful for development of cognitive and affective aspects of reflective practitioners.

A teacher adopting, reflective thinking strategy while transacting curriculum material surely can lend a hand to quality
education. This ensures the positive nature of reflective practices and its contributions to the educational service in future.