CHAPTER II

Review of Related Literature
## CHAPTER II

### REVIEW OF RELATED LITERATURE

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1. INTRODUCTION</td>
<td>25</td>
</tr>
<tr>
<td>2.2. CLASSIFICATION OF THE RELATED LITERATURE</td>
<td>25</td>
</tr>
<tr>
<td>2.3. STUDIES REVIEWED</td>
<td>25</td>
</tr>
<tr>
<td>2.3.1. Studies in Abstract Form</td>
<td>25</td>
</tr>
<tr>
<td>2.3.2. Studies in Detail</td>
<td>30</td>
</tr>
<tr>
<td>2.3.2.1. Studies in Indian Context</td>
<td>30</td>
</tr>
<tr>
<td>2.3.2.2. Studies in International Context</td>
<td>36</td>
</tr>
<tr>
<td>2.3.3. Studies in Capsule Form</td>
<td>49</td>
</tr>
<tr>
<td>2.4. CRITICAL REVIEW</td>
<td>57</td>
</tr>
<tr>
<td>2.5. REFERENCES</td>
<td>57</td>
</tr>
</tbody>
</table>
CHAPTER II
REVIEW OF RELATED LITERATURE

2.1. INTRODUCTION

Research in education is no better than the information upon which it is based. Review of the related literature allows the researcher to acquaint her with current knowledge in the field or area in which she is going to conduct her research. It helps the researcher to know about the methodology adopted, the tools and instruments used and findings obtained in the previous studies.

In the words of J. Francis Rummel "Research is an endeavour to discover and develop knowledge. It is an intellectual process that has developed over hundreds of years ever changing in purpose and form and always searching for truth" (Aggarwal, J.C., 1996, P. 3).

Citing studies that show substantial agreement and those that seem to present conflicting conclusions help to sharpen and define understanding of existing knowledge in the problem area and provides a background for the existing knowledge. The literature in any field forms the foundation upon which all future work will be built.

"The researcher is a specialist rather than a generalist" (Best J.W., 1986). Therefore to be a specialist, a researcher has to go through all the related literature and related relevant studies.

2.2. CLASSIFICATION OF THE RELATED LITERATURE

This chapter includes the related studies done in India as well as abroad regarding learning style, teaching competence and hemisphericity studied at various levels. The reviews are furnished in abstract form and detailed form.

2.3. STUDIES REVIEWED

2.3.1. Studies in Abstract Form

Thiagarajan, A. et al. (1995) conducted a study about teaching competency and achievement. This study revealed that (i) There was a significant relation between
teaching competency and achievement of boys; and (ii) The relationship between teaching competency and achievement of boys and girls differed significantly.

Bitner, Betty L. (1996) conducted a study on "Interactions Between Hemisphericity And Learning Type, And Concept Mapping Attributes Of Pre-Service And In-Service Teachers". The purpose of this study was to determine whether hemisphericity and learning type are related to concept mapping attributes of pre-service and in-service teachers. In addition, differences in concept mapping by program (i.e., pre-service elementary / middle school and secondary science teachers and in-service elementary / middle school teachers), learning type, and hemisphericity were investigated. Hemisphericity and learning type were measured by the Hemispheric Mode Indicator and 4MAT Learning Type Measure respectively. Concept maps were constructed by the teachers and scored on a seven attribute rubric. Statistically significant intercorrelations were found between hemisphericity and learning type as well as between the attributes within the concept maps. However, concept mapping attributes did not correlate significantly with hemisphericity and learning type. The ANOVA (Analysis Of Variance) indicated that the in-service elementary/middle school teachers performed significantly better in concept mapping than the pre-service elementary/middle school and secondary science teachers.

Mohanasundaram, K. (1998) in his doctoral thesis "Study On Cognitive Process, Hemisphericity And Personality Of Physical Science B.Ed. Teacher Trainees In Tamilnadu" revealed that (i) There is association between hemisphericity and sex of the teacher trainees. It is inferred that the more number of women trainees are right hemisphere dominants (men = 47.5%, women = 55.5%) and men trainees are left hemisphere dominants (men = 35.5%, women 23.2%); (ii) There exists an association between hemisphericity and locality of teacher trainees. It is inferred that the urban teacher trainees are right hemisphere dominants (rural = 45.77%, urban = 56.48%) and rural teacher trainees are left hemisphere dominants (rural = 34.15%, urban = 23.24%); (iii) There is no association between hemisphericity and subject specialisation of the teacher trainees; (iv) There is no association between hemisphere dominance of the teacher trainees and management; (v) No association is found with hemisphericity of the teacher trainees and management; and (vi) In cognitive process and hemisphericity, the right hemisphere dominance contributes more to the cognitive process than the left
hemisphere dominance. In such cases where right hemisphere dominance is intense and pronounced, the cognitive process appears to be more prominent.

Ramasamy, Rangasamy et al. (1999) did a study on “Hemisphericity Modes, Learning Styles, And Environmental Preferences Of Students In An Introduction To Special Education Course”. This study was designed to determine whether a sample of pre-service teachers had different brain hemisphere processing modes, learning styles, environmental preferences, and course-related behaviors. The study population was 90 students enrolled in an undergraduate introductory special education course. Forty-four of the students were selected to participate using a systematic random sampling procedure. Between- and within-subject designs were used to conduct the study. Dependent variables included findings from the subjects' Hemispheric Mode Indicator, Learning Style Inventory, and Productivity Environmental Preference Survey, and selected responses on a four-part questionnaire. Data analysis indicated that participants had different hemisphericity modes and preferred left and right processing. Their hemisphericity was associated with their predominant geographic area (urbanites preferred right mode processing, while suburbanites preferred left). Participants also had different learning styles and tended to be assimilators, accommodators, and convergers, but their learning styles were not associated with gender, race, predominant geographic area, laterality, or major. Participants had different environmental preferences (e.g., noise level), which were affected by gender, race, and laterality. Participants indicated that they had selected course-related behaviors or perceptions for listening, note-taking, time management, reading in the content, and studying.

Haywood, Alison Lee (2005) conducted a study on the relationship between student learning styles and L2 acquisition in two international high schools. The study was completed in fall semester 2004 in Jeddah, Saudi Arabia. The topic for the study was ‘The Relationship between Student Learning Styles and L2 Acquisition in Two International High Schools’ English Language Classes in Jeddah, Saudi Arabia.’ The students learning styles were determined with the use of the Learning Styles Assessment, (Bogod, 1998). Then L2 acquisition was determined with the use of the IDEA Proficiency Test, a standardized test that looked at reading and writing proficiency. Three hypotheses were tested looking at relationships between second language reading and writing scores, differences between the two schools’ scores, and the relationships
between learning style and second language acquisition. The data were statistically analyzed using non-parametric statistics. The tests used were Spearmans’ rho Correlations Coefficient Test for H1, Mann Whitney U Ranked Test for H2, and Kruskal Wallis Ranked Test for H3. The results in H1 showed a significant relationship between reading and writing in L2 acquisition. In H2 there were definitive differences between the schools. In H3 there were some significant relationships between learning style and reading and overall writing scores. The fact that there were relationships can be noted but no definitive conclusions can be drawn from the data due to nature and size of the study.

Kenward, Darla Cordes (2005) carried out a study entitled “A Study Of Learning Styles As Indicators Of Success For Online Mathematics Students In Texas Institutions Of Higher Learning”. This study examined a possible relationship between student learning styles or psychological types and achievement in an online college algebra course. By classifying each subject, an online college algebra student from a Texas institution of higher learning, as SJ–Sensing and Judging (Guardians), NF–Intuition and Feeling (Idealists), SP–Sensing and Perceiving (Artisans), or NT–Intuition and Thinking (Rationale) according to the Keirsey Temperament Sorter (Keirsey, 1987a), and then obtaining final grades in the online college algebra course for each of these students. The researcher also attempted to statistically establish whether a relationship existed between learning styles and success in online college algebra courses, and the researcher attempted to predict a student’s likelihood for success in an online college algebra course based on his/her learning style or to establish that it may not be reasonable to relate the likelihood for success and learning style. Additionally, percentages of the population of the four temperaments in the general population were compared to corresponding representations of students enrolled in online algebra courses. Results were based on the participation of 153 post secondary students enrolled in online sections of College Algebra at Texas institutions. It was established that personality types were not represented in online College Algebra in the same proportions for which they occur in the general population. It was also shown that statistically significant differences in achievement exist for different personality types.

The purpose of the study “Using Technology In Higher Education: Differences Among Outcomes, Learning Styles, Gender, Computer Self-Efficacy, Course Contexts And Ethnicity” executed by Lipinski, Edmund R. (2005) was to examine the potential
differences between learning outcomes and learning predictors in higher education. Specifically, this research addressed several research hypotheses via a mixed research design, differences among learning outcomes and student learning styles, gender, computer self-efficacy, course context and ethnicity. Participants were 192 students taking an Introductory Psychology course at Mesa Community College; learning outcomes were measured by a quiz of Psychological concepts taught in Introduction to Psychology; learning styles were measured with Grasha-Riechmann’s Learning Style Inventory and Murphy, Coover and Owen’s Computer Self-Efficacy Scale measured computer self-efficacy. Results indicated that gender, ethnicity and course contexts were significant contributors to learning outcomes; implications and limitations of these findings were discussed.

Domen, Christopher H. (2005) conducted a study on “Hemispheric Asymmetries For Accessing The Phonological Representation Of Single Printed Words”. The differential abilities of the cerebral hemispheres to access the phonological representation of printed words was investigated using a visual half-field paradigm in which participants performed a lexical decision task for target words primed by semantic associates (e.g., TOAD-FROG), homophones of words semantically associated to target words (e.g., TOWED-FROG), and unrelated control words (e.g., FINK-FROG, PLASM-FROG). At a short stimulus onset asynchrony (165 ms), significant priming was obtained for both semantic and homophonic associates regardless of visual field of presentation, although the effects were much less robust for the left visual field/right hemisphere. Thus, both hemispheres seem to initially have access to the semantic and phonological representations of printed words, but with the degree of activation being less in the right hemisphere. These results replicate those of previous studies indicating that both hemispheres initially have access to the phonological representations of printed words and are discussed in terms of the model of the hemispheres proposed by Chiarello (2003).

Wong-Goodrich, Sarah Jeanne Evens (2005) conducted a study on “Variation In Cognitive Performance And Cerebral Hemispheric Asymmetry Across The Human Menstrual Cycle In Normal Cycling Females”. This study utilized a visual field chair identification task, a free-vision face processing task, and dual-task procedures (repetitive finger-tapping while concurrently solving anagrams) to investigate potential
shifts in hemispheric and cognitive function across the menses (low hormone levels) and midluteal phase (elevated hormone levels) of the menstrual cycle in a sample of 32 undergraduate students. Notably, dual-task results demonstrated an enhancement of left hemisphere function during the midluteal phase; these findings are the first to expose the efficacy of a dual-task paradigm to detect shifts in hemispheric asymmetry across the menstrual cycle. Although no shifts in hemispheric arousal were detected for the other tasks, results for chair identification task performance suggest that ovarian hormone levels during task acquisition influence future task performance.

2.3.2. Studies in Detail

2.3.2.1. Studies in Indian Context

Study – 1


Title : A Study On Self-Concept, Achievement Motivation And Teaching Competency Of B.Ed. Students.

Objectives

1. To identify the level of self-concept, achievement motivation and teaching competency of B.Ed. students.
2. To find out the significant difference between self-concept and sex, qualifications, native place, major subjects of students.
3. To find out the significant difference between achievement motivation and sex, qualification, native place, major subjects of students.
4. To find out the significant difference between teaching competency and sex, qualification, native place, major subjects of students.
5. To find out the relationship among self-concept, achievement motivation and teaching competency of B.Ed. students.

Procedure

The study was carried out to three hundred B.Ed. students, randomly selected from three Colleges of Education during the academic year 1995 – 96. The tools used were General Information Blank, Teaching Competency Rating Scale, Self-concept Inventory and Achievement Motivation Scale.
Findings

1. The male and female teacher trainees significantly differed in their level of teaching competency.
2. B.Ed. teacher trainees with graduate and postgraduate qualification did not differ in their teaching competency.
3. The rural and urban B.Ed. teacher trainees did not differ in their teaching competency.
4. The science and arts group students did not differ in their teaching competency.
5. The arts and language group students did not differ in their teaching competency.
6. The science and language group students did not differ in their teaching competency.
7. The science and non-science group students did not differ in their teaching competency.
8. The language and non-language group students did not differ in their teaching competency.
9. There was significant difference between more competent and less competent teacher trainees in their self-concept.
10. There was significant difference between more competent and less competent teacher trainees in achievement motivation.

Study – 2


Title : A Study On Teacher Competency, Teacher Personality And Teacher Attitude On Student Achievement In Science In High Schools.

Objective

To study whether teacher competency, teacher personality and teacher attitude of science teachers are related to the academic achievement of standard X students in science.

Procedure

The study included a sample of 100 teachers (58 male and 42 female) teaching science and 300 students of standard X studying under those teachers. The tools used were Teacher Competency Student Rating Scale and Self-appraisal Scale, Teacher
Findings

1. Male and female teachers differed significantly in their teaching competency, whereas they did not differ significantly in their personality traits, and attitude towards teaching.

2. There exists a positive relationship between academic achievement of students and teacher competency, and teacher attitude.

Study – 3

Investigator : Pandiyam (2000)

Title : An Experimental Study On Developing Teaching Competency In History Among B.Ed. Trainees Through The Information Processing Approach.

Objectives

1. To find out the effect of information processing approach in developing teaching competency.

2. To find out the effect of information processing approach on academic.

Procedure

A sample of 10 teacher trainees who opted for history optional subject had been taken for this experimental study. The history optional teacher trainees were taught the information process approach model for a period of one month. A scale to measure the teaching competency developed by the investigator, an achievement test in history constructed and validated by the investigator were used in this study with a pretest and posttest method.

Findings

1. The information processing approach enhanced the academic achievement of teacher trainees.

2. The information processing approach enhanced the teaching competency of teacher trainees.
3. There was a significant positive relationship between the teacher trainees’ academic achievement and teaching competency.

Study – 4

Investigator : Singh, Renu (2001)

Title : Learning Style Of High School Students As Related To Some Learner’s Characteristics.

Objectives

1. To study the relationship of intelligence with the learning styles of high school boys and girls,
2. To compare the learning styles of the students of different socio-economic status;
3. To compare the learning styles of high school boys and girls,
4. To compare the learning styles of the students having different levels of extraversions;
5. To find out the learning styles of the students having different levels of neuroticism.

Method

A sample consisting of 400 students (200 boys and 200 girls) within the age ranged 13-16 of both rural and urban areas, was selected for the study. The tools used for the study were: Learning Style Inventory (S.C. Agarwal), Culture Fair Intelligence Scale - 3 (Indian Adaptation by Singh and Rao), Socio-Economic Status Scale (R.L. Bhardwaj, Sharma Gupta and N.S. Chauhan) and Eysenck Maudsley Personality Inventory by H.J. Eysenck (Indian adaptation by Jalota and Kapoor). Chi-square test was employed for data analysis.

Findings

1. It was found that high intelligent and average intelligent boys had individualistic and long attention span learning styles, whereas high and average intelligent girls had non-individualistic and short attention span learning styles.
2. Low intelligent boys and girls were not found different in their preferences.
3. The boys from high and low SES preferred individualistic learning style, while boys from average SES preferred non-individualistic styles.
4. The boys of high SES favoured long attention span style.
5. The girls from high and average SES preferred non-individualistic, field dependent and motivation-centred learning styles, while girls from low SES showed preference for individualistic learning style.

6. Extravert boys and girls were not found different in their preferences. At average extravert level, boys were found to be individualistic, whereas girls were non-individualistic in their learning styles.

7. The introvert boys were found to be more individualistic and less environment oriented than the introvert girls. The introvert boys appeared to have long attention span and introvert girls reflected short attention span learning style.

8. At neurotic and average neurotic level, the boys were individualistic and girls were non-individualistic in learning styles.

9. Stable girls found to have short attention span and stable boys have long attention span learning styles. Stable girls also appeared higher in visual learning style than the stable boys.

Study – 5


Title : The Teaching Competency Needs of Pre-service Teacher Trainees.

Objectives

1. To identify the competency needs of pre-service teacher trainees as perceived by the pre-service trainees.

2. To identify the competency needs of the pre-service trainees as perceived by the practising teachers.

Procedure

The teacher educators and student teachers from six DIETs constituting 273 pre-service trainees, 106 teacher educators and 462 practising teachers working in these districts were the samples for the study.

Findings

1. Learning process related competencies emerged as a group having the highest number of competencies.
2. The practising teachers, teacher educators and pre-service teacher trainees invariably perceived learning process related competencies as the most essential followed by teacher related / learner related competencies.

Study – 6


Title : Job Satisfaction Of Primary School Teachers In Relation To Their Teaching Competence.

Objectives

The objectives of the study were: 1) To estimate the relationship between ‘Teaching Competence’ and ‘Job Satisfaction’ of primary school teachers for the total sample and for the relevant sub samples; and 2) To test whether the correlations obtained for the comparable sub samples differ significantly.

Procedure

The hypotheses for the study were: 1) There will be significant relationship between ‘Teaching Competence’ and ‘Job Satisfaction’ of primary school teachers (a) for total sample and (b) for relevant sub samples; and 2) The correlations obtained for the comparable sub samples will not differ significantly.

A representative sample of 224 primary school teachers belonging to different districts of Kerala namely Kottayam, Alleppy, Pathanamthitta, Calicut and Malappuram were selected randomly for the study.

The investigators constructed two tools for the study. Teaching competence of primary school teachers was measured by ‘Teaching Competence Rating Scale for Primary School Teachers’. Job Satisfaction of primary school teachers was measured by ‘Job Satisfaction Questionnaire for Primary School Teachers’. Both the tools consisted of 60 items. The subject had to respond from one of the three alternatives viz., Always, Sometimes, Never. Profile of Effective and Ineffective Teachers prepared by Gupta and Kapoor was used as the basis for preparing statements of Teaching Competence Rating Scale. The dimensions identified by the authors which were used for preparing this scale are (1) Instructional strategies; (2) Classroom management; (3) Personal disposition, temperament and tendencies; (4) Evaluation and feedback; (5) Interpersonal relations;
(6) Job involvement; (7) Initiative and Enthusiasm; (8) Professional Values; and (9) Innovativeness. Dimensions of Job Satisfaction by Locke were made use of for the preparation of the questionnaire. They are events or conditions and agents. In which events or conditions are further divided into work, rewards and context of work. Agents are divided in to self and others.

Finding

The relationship between ‘Teaching Competence’ and ‘Job Satisfaction’ is positive and significant and this relationship is not influenced by sex, locale, teaching experience and educational qualification.

2.3.2.2. Studies in International Context

Study – 1

Investigator : Taylor, Raymond Cornelius (1997)

Title : A Qualitative Study Of The Perception Of Successful African-American Educators And Their Influence Upon Future African-American Educators (Career Choice)

This study was designed using qualitative methodology and its purpose was to gather and analyze data which will help to understand those factors that influence the perceptions of African American educators as those perceptions relate to education and career choice. The study was guided by factors including perceptions, rewards and incentives, teacher competency tests, recruiting and retention, and college and university teacher preparation programs. Structured interviews were used from an instrument developed by the investigator. Participants were selected from the African American certificated staff of the Hazelwood School District. A total of 10 participants were chosen. Interviewee job assignments included building administrators, classroom teachers, and counselors. Consent and full disclosure of the intent of the study were made known to each participant. The participants were chosen through the qualitative technique of purposeful sampling. This technique was used because it enabled the research to (1) include a variety of subjects (job assignments); (2) did not tell how many or in what particular job assignments the interviewees should have; (3) the researcher was free to choose particular subjects because they are believed to facilitate the expansion of the developing theory; and (4) the sample selected was not randomly
The characteristics of the subjects in this study did not have to be in the same proportion that they appear in the total population. The participants were chosen because they have experienced success as educators and have accumulated a wealth of knowledge essential to this study. The interviews were audio recorded with the permission of the participant. The audio tape was transcribed for the purpose of data analysis and all participants were assured of confidentiality and may obtain a copy of the transcript of their interview if requested. Participants’ names and schools were not revealed. The participants were identified alphabetically by A, B, C, etc.

Study – 2

Investigator : Abeare, Christopher A. (2005)

Title : The Hemispheric Dynamics Of Semantic Processing And Creativity

Prior research on the Neuropsychology of creativity often report increased right hemisphere involvement for creative tasks. Much less is known about the process or time-course of semantic processing and creativity. In this study, visual half-field semantic priming with high, low and unrelated prime-target pairs were employed in a lexical decision paradigm. Four stimulus onset asynchronies (SOA) were used in a within subjects design. Creativity was measured using the Torrance Tests of Creativity. The high creative group showed more right hemisphere priming during the 400 ms SOA. In addition, there was an interaction with task order effect such that the high creatives who were administered the creativity tests showed overall more right hemisphere priming. Results are discussed in the context of the time-course of processing and controlled vs. automatic processes.

Study – 3

Investigator : Allert, James Donald (2005)

Title : Learning Style As A Correlate Of Success In Introductory Computer Science Education

The Soloman-Felder Inventory of Learning Styles (ILS) is a frequently used instrument for the assessment of learning styles in science and engineering. However, introductory computer science education has rarely been a focus of learning styles research. This study used the ILS, in a test-retest format, in introductory computer science courses at the University of Minnesota Duluth (UMD) as a tool to aid in the
understanding of student achievement and retention. Over 300 students in a variety of classes participated in the study during fall semester, 2004. There were important findings in three areas: instrument reliability, learning style characterization, and the relationship of learning style to outcome. Instrument reliability was acceptable along most dimensions of the scale but weak along the sequential-global scale. Specific sources of concern were identified which could lead to improvement of the instrument. Profiles of the learning styles of students in each class were constructed. The visual-verbal scale was skewed to the right in each instance. Other distributions were fairly normally distributed. A significant association with gender was identified (females being less visually oriented than males). This is important because computer science has historically been characterized by low female enrollment. Relationships with outcome identified the active-reflective scale as significantly related in performance in computer programming classes. Active learners were more likely to do poorly. This is important because it may be linked to retention issues. A predictive model of student outcome success identified the active-reflective scale and ACT Composite scores as the key indicators. The study has implications for the ways in which computer science students are selected for enrollment, instructed and assessed and may be linked to larger issues of retention and gender.

Study – 4

Investigator : Beric’, Bojana (2005)

Title : Students’ Learning Style, Perceived Control And Participation In Class Discussion In Personal Health Issues Classes.

The purpose of the study was to gain understanding about students’ participation in class discussion. The research questions were: (1) Are there differences in participation in class discussion based on students’ learning style? (2) Is there a relation between students’ participation in class discussion and perceived control? (3) Are there differences in level of perceived control based on students’ learning style? (4) Do learning style and perceived control taken together explain students’ participation in class discussion? The Psychological Empowerment framework (Zimmerman, 1995) was employed to structure the study. It was contemplated that learning style and perceived control may explain students’ participation in class discussion. An instrument, Classroom Experience: A Student Questionnaire was developed to collect the data.
Research method used was a survey. The research participants (N = 191) were undergraduate students enrolled in a general requirement personal health course, at a public university in the United States. The results showed the difference in the level of participation in class discussion based on learning style; however, this difference was not statistically significant \[ t(189) = 1.47, p = 0.14 \]. The correlation between students’ participation in class discussion and perceived control (Pearson correlation, \( r = 0.32, p < 0.05 \)) was statistically significant. The difference found in the level of perceived control according to learning styles was not statistically significant \[ t(189) = 1.49, p = 0.138 \]. Multiple regression analysis confirms the above findings, with the overall model being statistically significant \[ F(8,182) = 5.002, p < 0.001 \]. Based on the results, it may be concluded that there is a statistically significant correlation between students’ participation in class discussion and perceived control. Recommendations: (1) further study relation between participation in class discussion and perceived control; (2) further study psychological empowerment in the classroom; (3) develop a new instrument to measure perceived control in college classroom discussion, as a measure of critical awareness of the environment; (4) include qualitative measures to complement the quantitative; (5) develop a teacher questionnaire, and (6) develop a measure of the quality of the classroom environment.

Study – 5

Investigator : Calhoun Haney, Rose (2005)

Title : Effect Of Age On The Functional Connectivity Of Brain Regions Involved In Olfaction

The study investigated the functional interactions among brain regions typically involved in olfactory processing with the application of structural equation modeling (SEM) to functional magnetic resonance (fMRI) imaging data. fMRI data were obtained during an odor detection task from ten healthy young and ten healthy elderly gender matched participants. Interregional correlations from fMRI signal data were used to calculate path coefficients and were then compared between groups using a stacked model approach. Results demonstrated that the left hemisphere functional networks differed between age groups. Comparison of path coefficients showed stronger interactions in the young occurring between piriform-amydala, piriform-entorhinal, and amygdala-hippocampal connections. Interestingly, a stronger functional interaction
between the piriform-orbital frontal connection was observed in the elderly network. In contrast to the left hemisphere, right hemisphere networks did not differ between age groups. These findings revealed age-related changes in functional connectivity among brain regions involved in odor detection, as well as contributed to a growing body of literature suggesting possible compensatory mechanisms occurring in the aging brain. The present study also applied SEM to fMRI data and compared functional networks between ten young and ten elderly gender matched participants during an olfactory recognition memory task. Age-related differences were observed in the left hemisphere functional network with stronger interactions occurring between the amygdala-hippocampal and amygdala-parahippocampal connections. Functional networks in the right hemisphere differed between age groups, with stronger interactions for the young occurring between the piriform-amygdala, piriform-entorhinal, and hippocampal-parahippocampal connections. Additionally, the elderly functional networks for both left and right hemispheres had a reduced number of significant functional pathways associated with the olfactory recognition memory task. This reduction in number of significant functional pathways corresponded with a significantly poorer performance by elderly on recognition accuracy. These findings suggest age-related changes in functional connectivity among brain regions involved in olfactory recognition memory, and support prior olfactory recognition memory research that suggests the interaction between left and right hemispheres allows for optimal performance for more complex olfactory processing.

Study – 6


Title : Effects Of Individuals’ Learning-Style Strengths On Reading Recall And Attitudes With And Without Pictures

This investigator analyzed the effects of learning-style strengths on recall and attitudes when reading text with or without pictures. The participants were drawn from the population of fourth-grade students attending a K--5 public school in Queens, New York. Permission to conduct this study was obtained from the New York City Department of Education, parents, and the participants. The Learning Style Inventory (LSI) was administered to each participant. Price Systems developed individual and group profiles from the LSI results. Students silently read chapters in the novel, Holes by
Louis Sachar. They were divided into two-treatment groups. The first read the five chapters of the novel including pictures placed over words; whereas, the other group read the same chapters without pictures. This process was alternated every five chapters for each group. Teacher-made reading-recall chapter tests were administered after each set of five chapters was read. The above procedures were repeated until the book had been read in its entirety. Each participant completed a Semantic Differential Scale (SDS) (Pizzo, 1981) attitudinal survey after the novel was completed. Statistical analyses revealed a highly significant difference on recall-test scores when reading with, rather than without pictures $t(63) = 5.092$, $p < 0.001$. The mean recall scores for reading with pictures was 86, whereas the mean recall scores for reading without pictures was 77.

A correlation analysis indicated that subjects who were authority-oriented scored significantly lower reading recall-test scores when reading with pictures ($p < 0.05$). Visually-preferenced students scored significantly higher on reading recall tests when reading with pictures than without ($p < 0.05$). Subjects with a late morning time-of-day preference scored significantly higher on reading recall tests when reading without pictures ($p < 0.05$). Those students who preferred mobility performed significantly less well on recall tests when reading without pictures than with pictures ($p < 0.01$). No significant correlations existed between learning-style preferences and attitudes on the task. A correlation also was performed to determine if there was a relationship between reading recall-test performance and the liking of reading with or without pictures. Results were no significant correlation between liking the pictures or not and recall test scores.

Study 7

Investigator: Chang, Chien-Ni (2005)

Title: How Did The OSU M.Ed Program Prepare Teachers To Be Multiculturally Competent?

Researchers have explored teachers' attitudes toward issues of equity and diversity, yet only a handful of studies have connected teachers' attitudes with their subsequent classroom practice. Related to this question, there is a need to study how teacher preparation programs have helped teachers develop multicultural competence. The research for dissertation is situated within a larger program evaluation study within which he have participated during his doctoral studies. He will be using some of the
survey and interview data from this larger project. This paper, however, describes the
data collected from the case studies He have been collecting in the past three quarters.
Recent sociocultural theorists suggest that teachers are socialized to learn how to teach
(Zeichner and Melnick, 1996). Social interactions are considered important to generate
transformative knowledge that leads to real learning. These institutional elements are
central influences in shaping social interactions and the individuals’ perceptions and
behavior within them. Wenger (1998) categorizes these institutional elements as:
enterprise, engagement, and repertoire. Enterprise refers to the domains of an institution
(in this study, the M.Ed. program), engagement to the relationships among individuals in
the program, and repertoire to the practices of individuals. Critical theorists bring
forward the issues of power when investigating social interactions (Nieto, 2000; Sleeter,
2001). Various forms of resistance can happen along with the social interactions,
especially there are different opinions between the new comers and old timers in a
particular institution. Postmodernists further problematize the learning process by
assuming the existence of multiple subjectivities that usually shift and change within
these social interactions (Giroux, 1998; Kumashiro, 2001). The purpose of this study is
to explore how multicultural competence was defined, interpreted, and developed by
three case study participants from the OSU M.Ed. program. Related information or
document about how the program has prepared teachers’ practices in classroom was
collected.

Study – 8

Investigator: Chen, Li-Shu (2005)

Title: The Relationship Among Perceptual Style Preferences, Language Learning Strategies, And Personality Types Among Taiwan Senior High School Efl Students (China)

The major purpose of study was to investigate whether perceptual style preferences, learning strategies, and personality types were significantly related among Taiwanese senior high school EFL students. Three survey instruments, Myers-Briggs Type Indicator (MBTI), Perceptual Learning Preferences Survey (PLPS), and Strategy Inventory for Language Learning (SILL) were administered to Taiwan senior high school students learning English as a foreign language. The three self-report questionnaires were administered during a three-week period from October 25 to November 14, 2004. A total of 364 subjects participated in the study. Six hypotheses
were formulated in an effort to explore potential relationships between perceptual style preferences, language learning strategies and personality types among senior high school students in Taiwan. Factorial analysis of variance, One-way ANOVA and Pearson Chi-Square tests were used to test the null hypotheses. Findings revealed that most Taiwan senior high school students (193) in the study have a visual preference in learning. Perceptual style preferences were significantly related to language learning strategies use (p = 0.032) on average, female students were found to use strategies more often than their male counterparts (Female M = 2.6638, Male M = 2.5719). In addition, females and males revealed differences in frequency in the use of language learning strategies. Female use of strategies was greater in the categories of cognitive (Female M = 2.625, Male M = 2.496), compensation (Female M = 3.138, Male M = 3.051), metacognitive (Female M = 2.605, Male M = 2.473), affective (Female M = 2.539, Male M = 2.429) as well as social strategies (Female M = 2.587, Male M = 2.546). Personality type showed a significant relationship to language learning strategy use on the SILL (p < 0.05). However, this study did not find any significant relationship between students’ perceptual style preferences and their personality types. In addition, none of the subjects’ perceptual style preferences were found to be significantly related to gender. This study focused on a population of senior high school EFL students in Taiwan. Additional research on populations representing different ages, geographic areas, and academic levels is recommended to determine if these factors would influence the use of learning strategies. It is recommended that students be taught through their individual learning style preference to help increase their probability of succeeding in their learning.

Study – 9

Investigator : Diaz, Michele Theresa (2005)

Title : The Neural Correlates Of Semantic And Lexical Aspects Of Visual Word Processing

Functional magnetic resonance imaging (fMRI) has provided a wealth of information about the localization of language processing in the intact brain. However, such localization studies can be complicated by many factors including stimuli selection, experimental design, and the use of explicit tasks. In this dissertation, I investigated the neural substrates of visual word processing, and identified and differentiated those brain regions involved in lexical and semantic processing. I focused upon neural regions that
are automatically activated by the presence of a word, regardless of task demands. This required experimental designs that limited the influence of extraneous cognitive processes on patterns of activation. In the first two experiments, he used fMRI to establish which brain regions are involved in lexical and semantic processes by presenting visible words and non-words in isolation. He then conducted a series of studies that limited potential top-down influences upon word processing by utilizing subliminal presentations of words. The third experiment was a behavioral semantic masked priming experiment, conducted to establish the utility of the masking procedure. Finally, in the fourth and fifth experiments, I used fMRI to establish the brain regions involved in lexical and semantic processes while simultaneously limiting the contribution from conscious processes by presenting masked words and nonwords. Activations to lexical aspects (i.e., all word categories) were found bilaterally in angular gyrus and inferior frontal gyri. A role for the angular gyrus in lexical processes is consistent with previous literature. Although inferior frontal gyrus activation has previously been found to semantic manipulations, the present results indicated that eliciting such effects may require controlled rather than incidental semantic processes. Activations in response to semantic aspects were found in bilateral temporal gyri. These effects were mediated by the semantic aspect of concreteness. A comparison of visible and masked word processing indicated that the strongest effects for the masked words were found in the left hemisphere, particularly in the temporal lobe, suggesting the primacy of the left hemisphere in automatic language processes.

Study - 10

Investigator : Grant, Nancy Susan (2005)

Title : A Study On Cognitive Learning Style, Instructional Strategies, And Gender In Information Science Courses

The purpose of the study was to determine if there were any significant differences in cognitive learning style, instructional strategies, and gender of students enrolled in the discipline of information science. Sixty-seven undergraduate students attending a local university participated in the research study. Each student's learning style was measured using the Kolb Learning Style Instrument (1993). An instructional strategies instrument was also administered to determine if there were any significant differences between cognitive learning styles and instructional strategies reported by the
students. Additionally, gender and instructional strategies were also analyzed for statistical significance. Using a two-way ANOVA statistical test, significant differences were found between cognitive learning style and student performance in the information science courses examined. In terms of the research study results, convergers outperformed all of the other cognitive learning styles in the procedure-oriented computer programming course and assimilators outperformed all of the other cognitive learning styles in the object-oriented computer programming course. Using one-way ANOVA statistical testing, significant differences were found between cognitive learning style and instructional strategy six (homework). Further statistical analysis indicated that students with an accommodative cognitive learning style rated this instructional strategy higher than any of the other cognitive learning style groups surveyed. Additionally, regardless of cognitive learning style, the hands-on instructional strategy had the highest overall rating across all of the information science courses surveyed. Gender and cognitive learning style were also examined in various information science courses in which one-way ANOVA statistical testing indicated significant differences between gender and instructional strategy three (group work) and instructional strategy four (auditory). In terms of gender and instructional strategy three, males rated this instructional strategy higher than females. In terms of gender and instructional strategy four, females rated this instructional strategy higher than males. The results of this research study indicated that students with different cognitive learning styles may excel in various computer programming environments, warranting further research, especially in the area of object-oriented computer programming environments. Additionally, since significant differences were found between the constructs of cognitive learning style, instructional strategies, and gender, it provides support for further research in these areas as well.

Study – 11


Title : Student Achievement In Basic Mathematics At Albuquerque Technical Vocational Institute: Its Relationship To Match Or Mismatch Of Learning Styles With Learning Method (New Mexico)

The purpose of this study was to investigate the relationship between a student’s learning style and his/her success in Basic College Mathematics. In particular, the student’s success as it related to his/her individual learning style and the learning
methods used to teach Basic College Mathematics. The learning styles were visual/aural, read/write, and kinesthetic, and the learning methods were collaborative, self-paced, and project-based. This research attempted to address the problem by determining which learning style was best suited for a particular learning method in the Basic College Mathematics. In other words, the researcher sought to determine if a relationship existed between student success in a course and the match or mismatch of learning styles with the teaching methodology of the course designed for the particular style. In so doing, the researcher sought to determine which learning style and which learning method, when matched, provided the greatest possibility for success for the Basic College Mathematics students at Albuquerque Technical Vocational Institute. The findings showed no statistical significance in success existed between Basic College Mathematics students whose learning styles were in agreement with the learning methods of instruction and Basic College Mathematics students whose learning styles were not in agreement with the learning methods of instruction.

Study – 12


Title : The Relationship Of Adult Learning Styles And Perceived Factors Involved In Online Graduate Education Leadership Programs

Current information on adult learner success in online graduate education leadership courses, often presented in asynchronous, text-based, computer-mediated environments has not yet established whether there is a relationship between learning style identification and success in these programs. This national, multi-institutional study investigated the relationship among learning style, factors involved in online graduate education leadership courses, and the impact of necessary skills for perceived success in the online environment.

This descriptive study asked three research questions: (1) Is there a relationship between the specific learning style of the adult learner and success in online graduate courses in education leadership? (2) What do currently enrolled online education leadership graduate students in education perceive as skills necessary for their success in a computer-mediated environment? and (3) What do professors of online education leadership graduate education courses/programs perceive as skills necessary for their students’ success in a computer-mediated environment? Quantitative and qualitative data
were used in this mixed design study, strengthened through critical multiplism. Data were collected from 101 respondents comprising professors and graduate students in education leadership courses during fall 2004 from 15 universities and colleges in the continental United States. Two instruments were used for this research: a preexisting online learning style questionnaire and a specially created and validated four-point Likert-scale research survey, which addressed demographic and attitudinal information. All data were collected via a website.

Results of an ANOVA indicated that there was no significance regarding students’ learning style identification and their perception of either participation or success in the online classroom. Measures of central tendency and measures of variability compared and ranked mean responses of both students and professors. Time management and flexibility were ranked as important to very important factors influencing participation by both groups. However, there was variance between the groups regarding convenience and anonymity. Both groups rated personal commitment and organizational skills as important to very important but varied in their response to the importance of feedback regarding factors enabling success in online courses.

Study – 13

Investigator : Chen, Hsin-Tzu (Tommy) (2006)

Title : Taiwanese Adolescent Students' Achievement In Reading And Mathematics By Age, Gender, Learning Style And Socio-Economic Status (China)

This researcher examined the differences in learning-style preferences of 704 11- and 12-year-old female and male Taiwanese adolescents and then determined whether their learning styles correlated with their mathematics- or reading-test scores by age, gender, and SES. Learning style was identified with Learning Style: The Clue to You! (LS: CY!) (Burke and Dunn, 1998). Mathematics- and reading-test score data were obtained from two Taipei Municipal elementary schools, and Socio-Economic Status (SES) was determined by Stevens and Cho’s Socio-Economic Index (SEI) (Stevens and Cho, 1985). T-test results supported Hypothesis 1 that there were significant age differences in the learning-style preferences of 11- and 12-year-old Taiwanese students. They also revealed that Taiwanese students differed significantly in their learning-style preferences for the 12 elements; sound, temperature, design, motivation, persistent,
responsible/confirming, peers/alone, authority, auditory, intake, morning/evening, and mobility. The results of the second t-test supported Hypothesis 2 that there were significant gender differences among the learning-style preferences of Taiwanese students. Diverse and significant gender variables were revealed through t-tests for five of 23 learning-style variables: (a) female students preferred a more formal environmental design than male students; (b) male students evidenced a greater preference for their kinesthetic modality than female students; (c) male students preferred intake more than female students; (d) female students tended to be more analytic or sequential than male students; and (e) female students were more reflective than male students. The results of two multiple regressions and two correlation analyses revealed a significant relationship between a model composed of all predictor variables (learning-style environmental stimulus, emotional stimulus, sociological stimulus, physiological stimulus, and psychological stimulus, age, gender, and SES) and Taiwanese students’ achievement scores in mathematics and reading. Results also revealed significant relationships between students’ achievement-test scores and their learning-style emotional stimulus, between students’ achievement-test scores and their learning-style physiological stimulus, between students’ achievement-test scores and gender, and between students’ achievement-test scores and SES.
### 2.3.3. Studies in Capsule Form

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<tr>
<th>S. No.</th>
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<th>Title</th>
<th>Sample</th>
<th>Tool</th>
<th>Statistical Procedures</th>
<th>Major Findings</th>
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| 1.     | Rajameenakshi, P.K. (1988) | The Factors Affecting The Teaching Competency Of B.Ed. Students In Teaching Physical Science | 610 Students of Colleges of Education in Tamilnadu and 1500 School Pupils | Teaching Competency Scale   | Factor analysis and differential analysis   | a) The type of management, the time of admission to the B.Ed. course and the teacher-pupil ratio were the factors that affect the mean teaching competency of B.Ed. trainees in almost all colleges of education in Tamilnadu.  
   b) Training in the skill of demonstration significantly increased the teaching competency of teacher trainees.  
   c) Female teacher trainees had significant higher scores than males in teaching competency. |
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</table>
| 2     | Basi, Satpal Kaur (1991) | The Teaching Competency Of Language Teachers In Relation To Their Job-Satisfaction, Locus Of Control And Professional Burnout | 440 Trained Graduate Teachers and 2000 Students from High and Higher Secondary Schools of Punjab | Self-rating Scale for Teachers, Pupils Ratings of Teachers Scale, Teachers’ Job Satisfaction Scale, Rotter’s Internal-External Scale and Maslach Burnout Inventory | Percentage analysis, ‘t’ test ANOVA and Correlation Coefficient | a) There was no significant difference between the teaching competency and job satisfaction of teachers on the basis of their locus of control.
b) Female teachers, urban school language teachers and higher secondary level language teachers were found more externally controlled and satisfied with their jobs than the rural and high school language teachers.
c) There existed a positive correlation between the measures of job satisfaction and the criterion measures of teaching competency; and a negative correlation between locus of control and teaching competency, professional burnout variables and criterion measures of teaching competency. |
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| 3.    | Beckman, Marian Taylor      | Personality Characteristics Of Effective Teachers                    | 15 adult volunteers     | Gregore Mind Style Delineator and the Myers-Briggs Type Indicator and Pre-Teacher Assessment Model of Indiana University of Pennsylvania | ANOVA and Regression         | a) Analysis of Variance with post hoc procedures demonstrated that teacher performance was affected by the participants years of experience, their level of education and the participant’s school district’s socio-economic status.  

b) Analysis of variance and regression analysis revealed that randomness variable within the ordering dimension of the Gregore Mind Style Delineator Mode a significant impact on the teaching dimensions of sensitivity, initiative, innovativeness and total teacher effectiveness. Portfolio documentation enhanced the qualitative analysis to interpret and explain the qualitative results. |
<p>| 4.    | Lox, Jackie Lee             | Are There Significant Differences In Perception Of Effective Teaching Behaviour Between Co-Operating Teachers And Student Teachers With Similar Personality Traits? | Cooperating teachers and student teachers of Illinois State | Co-operating and Student Teacher Information Data Sheet and Barak Rosenshine’s 10 Teaching Behaviours and Element of Effective Teaching | 't' test and ANOVA       | There was no significant difference between student teachers and co-operating teachers with similar personality traits in their perception of effective teaching behaviour |</p>
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<tr>
<td>5.</td>
<td>Lundgren, Kristin Ann (2000)</td>
<td>The Relationship Between Goal Setting And Pre-Service Teacher Skill And Efficacy</td>
<td>36 teaching associates (student teachers), 9 university supervisors and 72 clinical instructors (co-operating teachers)</td>
<td>The teaching behaviour frequency checklist, The teacher efficacy scale and The competency attainment scale</td>
<td>Percentage and differential analysis</td>
<td>Analysis indicated that the treatment did not result in statistically significant differences between the experimental and control groups on measures related to competency attainment and frequency of engagement in the identified teaching behaviour</td>
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<td>6.</td>
<td>Amaladoss Xavier, S. and Amalraj, A. (2002)</td>
<td>A Correlation Study On Teaching Competency And Its Dimensions In Postgraduate Chemistry Teachers</td>
<td>89 Postgraduate Chemistry Teachers of Higher Secondary Schools in Kanyakumari District</td>
<td>Teaching Competency Scale</td>
<td>Correlation Coefficient</td>
<td>a) There exists significant relationship between the low-level teaching competency dimensions – content, organization, knowledge, clarity, communication, rapport, audio-visual aids and personality. b) There exists significant relationship between the average level of postgraduate chemistry teachers with regard to teaching competency – content, organization, knowledge, clarity, communication and personality. c) There exists significant relationship between the high level of postgraduate chemistry teachers with regard to the teaching competency dimensions – content, organization, clarity, rapport and audio-visual aids.</td>
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b) Male and female teachers differed significantly in teaching competency.  
c) Age qualification factors influenced the teaching competency.  
d) Government and aided school teachers differed significantly in their attitude towards teaching.  
e) Male and female teachers differed significantly in their attitude towards teaching.  
f) General teaching competency of teachers and their attitude towards teaching significantly related with each other. |
| 8.    | Krishna Prasad, B. and Muthiah, P.N. (2003) | A Study On Teacher Effectiveness And Temperament Variables Of Secondary School Teachers | 300 Teachers of various secondary schools in Tirunelveli district | MTA Test of Personality, Checklist on Teacher Effectiveness and a Personal Information Schedule | 't' Test, ANOVA and Correlation Coefficient | a) There exist significant differences among high, average and low effective teachers in five variables (inferiority, self-sufficiency, sociability, stability and objectivity) of temperament.  
b) There exists a significant positive correlation between teacher effectiveness and the five variables of temperament. |
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</table>
| 9     | Chen, Pei-Shih (2005) | Assessment Of Taiwanese Business Students' Learning Styles Using The Myers-Briggs Type Indicator (China) | 400 business students  | Chinese version Form G of the Myers-Briggs Type Indicator | Percentage, 't' test and ANOVA           | a) Analyses of data revealed that the most common learning style was ISTJ, a combination of introversion, sensing, thinking, and judging among Taiwanese business students.  
   b) There were significant differences in the learning styles of 16 types found in father's educational level, but not in the mother's educational level.  
   c) No significant relationships were found between learning style of 16 types and such variables as gender, age, majors, and academic degree programs. In this study, academic performance measured by grade point average was significantly related to learning style of 16 types (p = 0.003).  
   d) However, another academic performance factor, college entrance exam, was not significant relationship to the 16 learning style types. |
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<td>10.</td>
<td>Hsu, Lily Sandra (2005)</td>
<td>Learning Styles Of Community College Nursing Faculty And Their Use Of Technology In Teaching</td>
<td>41 Nursing faculties</td>
<td>Teaching with Technology Survey and Kolb Learning Style Inventory</td>
<td>Percentage and differential analysis</td>
<td>Faculty who understand their learning style preference and how it influences their teaching may be more sensitive to their students’ learning styles and use technology more effectively. Factors that will increase the use of technology in nursing education include more professional development, technology support, and release time.</td>
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<td>11.</td>
<td>McCann, Brian Matthew (2005)</td>
<td>The Relationship Between Learning Styles And Student Success In An Online Environment</td>
<td>Students, Instructors and facilitators</td>
<td>Golay’s Learning Pattern Assessment</td>
<td>4 x 3 factorial ANOVA</td>
<td>Participants in a traditional and in a multimedia-rich, highly interactive online environment had statistically higher post-test scores than those participants in a minimally interactive online environment. Further, it was discovered that a participant’s learning style had no statistically significant effect on their final post-test scores in any of the three instructional methods; and no significant interaction was found between the learning style and instructional method.</td>
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<td>12.</td>
<td>Swan, Benjamin Grant (2005)</td>
<td>The Relationship Between The 2004 Ohio State University Agricultural Education Student Teachers’ Learning Style, Teacher Heart, And Teacher Sense Of Efficacy</td>
<td>Pre-service teachers of Ohio State University</td>
<td>Learning Style Inventory</td>
<td>Differential analysis</td>
<td>The study found that at the conclusion of the student teaching experience, learning style made no difference on the development of teacher heart or teacher efficacy. The study also found that 26% of the variance in career intent was due to teacher heart and 17% of the variance in career intent was due to teacher sense of efficacy. Over the period of the student teaching experience, the student teachers' heart significantly increased while the teacher sense of efficacy significantly decreased indicating that they found their purpose in the classroom while they simultaneously lost confidence in their abilities to teach.</td>
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</table>
2.4. CRITICAL REVIEW

Majority of the studies focused on analysing the learning style, hemisphericity and teaching competence. Survey method was adopted in most of the studies reviewed. Tools like Learning Styles Assessment, General Teaching Competency Scale, The Teacher Effectiveness Scale, The Ahluwalia Teacher Attitude Inventory, Learning Style Inventory, Achievement Motivation Test, Teaching Competency Rating Scale, Teacher Competency Student Rating Scale and Self-appraisal Scale, Teacher Personality – Student Rating Scale, Teacher Attitude Inventory, Learning Style Inventory of S.C. Agarwal, Myers-Briggs Type Indicator, Perceptual Learning Preferences Survey, Kolb Learning Style Instrument, etc., were used. Most of the studies adopted random sampling method and the samples selected were school students, student teachers, school teachers, principals, etc. Multivariate Analysis, Post-hoc Analysis, ‘t’ test, Pearson Product Moment Correlation, Regression Analysis, Percentage Analysis, Differential Analysis, etc., were the statistical analyses used in the studies reviewed.

The review of related literature of both Indian and foreign studies has revealed the fact that none of the researchers has studied the role of gender, learning style and hemisphericity in influencing the teaching competency of B.Ed. students. There are quite a good number of studies to show the teaching competency of student teachers. But, no study has yet been reported on the teaching competency in relation to the learning style and hemisphericity of B.Ed. students. Hence, the investigator intends to study the role of gender, learning style and hemisphericity in influencing the teaching competency of B.Ed. students in Colleges of Education in Tamilnadu.

2.5. REFERENCES