2.0: Introduction:

Review of related literature is an important research effort as it provides comprehensive understanding of what is known about the topic and what is still unknown and untested. Since effective research is based upon the knowledge, this step helps to eliminate the duplication of what has been already done in the related areas. Review of related literature is a valuable guide to define the problem, to recognize its significance, to suggest promising data-gathering devices, to appropriate study design, to identify sources of date, to make effective analysis and arrive at fruitful conclusions. The review of related literature involves the systematic identification, location and analysis of documents, containing information related to the research problem. Written literature reviews are critical summaries of what is known about a particular topic. It serves an integrative function and facilitates the accumulation of knowledge [Polit and Hngler, 1995].

The major purpose of reviewing the literature is to determine what has already been done related to the problem under study to avoid unintentional duplication. It provides understandings and insights necessary for the development of a logical framework for the study. Review of literature points the research strategies and specific procedure and measuring instruments that have been and have not been found to be productive in investigating the problem (Gay, 1987.)

In view of current stock of research being published through various research journals, a researcher must be sure that the study being conducted by him would not lead to duplication of effort. Besides, there are other benefits of keeping oneself familiar with published research in one’s preferred area of interest:

1. This enables a researcher to know for himself about the type of research conducted or being conducted by fellow researchers.
2. It helps one to know about the contemporary priorities and gaps in research during the recent years.
3. It helps a researcher to build up a comprehensive research perspective in a particular area of educational research. Research cannot be conducted in vacuum or isolation. Review of relates research literature enables the researcher to juxtapose one’s research study with those conducted by others.
4. It enables a researcher to become aware of further developments in terms of concepts and constructs related to theories in an area of research.

5. It enables a researcher to learn about the latest tools of data collection, techniques of data analysis & methods of interpretation and presentation of data analysis.

In the present study the second chapter i.e. review of related literature will be divided into two parts. First part of the review will focus on the studies related with the learning styles where as second part of the review will focus on the studies related with development of professional skills.

2.1: Studies Related with learning styles:

Kolb (1981) reported that undergraduate business students tend to have accommodative learning style; Engineering students have convergent learning style while English & Science students have assimilative learning style.

Agarwal (1987) studied on ‘Learning Style among Creative Students’. Main objective of the study was, To compare the learning styles of high creative and low creative students at +2 stage belonging to different types of institutions. Population of the study involved the students at +2 stage studying in secondary institutions situated in Meerut Commissionary. A pooled sample consisting of 554 students was taken from the available class-sections as the intact group. Out of these 554 subjects only 400 provided complete and usable data. Verbal Test of Creativity Thinking by Baquer Mehdi was used to collect data on creativity. Learning Style Inventory was developed by the investigator and used to identify the preferences for learning styles. Findings of the study revealed that: The high creative students were found having flexible learning style as compared to low creative students who preferred non-flexible learning style. High creative students were found to have preferred visual learning style as against the low creative students who were found having aural learning style. High creative students were identifies as having field independent learning style, while low creative students preferred field dependent learning style. High creative students were found to possess environment oriented learning style whereas low creative students were identified as preferring environment free learning style. High creative students and low creative students in all were found to have preferred individualistic vs non-
individualistic learning style, short attention span vs long attention span learning style and motivation centred vs motivation non-centred learning style equally.

**Messick (1984) and Streufert & Nogami (1989)** found evidence learners adapt their learning style based on perceptions of the requirements of learning task.


**McKee (1995)** found in an exploratory study that there was significant relationship between learning style preference on Kolb's LSI and gender of college students. There was significant relationship between learning style preference on Kolb's LSI and age of college students. There was significant relationship between learning style preference on Kolb's LSI and academic major of college students.

**Purkiss (1995),** studied on ‘Learning styles and the Changing Face of Community Colleges’. Investigator concluded that, it is clear that there is some validity to the claim that style is a predicator of success in different academic disciplines. It is clear that, at least in the examination of the experience encountered by this freshman class, the institution has been more supportive of abstract conceptual learning style dominated students. Real effort must be made to develop methodologies of engagement that will stylistically democratize the community college and allow all students to step into the learning dynamic as equal partners in the process.

**Sims & Sims (1995)** studied on ‘Learning and Learning styles: A review and Look to the Future’. They concluded that, it is urgent that those responsible for teaching and training in higher education and other organizations recognize, accept, and understand delivery in regard to leaning styles. Acceptance of style as a fundamental strength of each person contributes to the development of self-esteem and, ultimately, to achievement. It is important that instructor and trainers first know and care and then teach about learning style, thus helping students and trainees understand their own strengths and weaknesses. Orientation sessions before the beginning of school and orientation classes during the first semester appear to be a practical staring point in colleges and universities.
Gunawardena, Jayatilleke and Lekamge (1996) studied on ‘Learning styles of the open university students of Sri Lanka’. The objective of this study was to (1) Identify the learning style of adult students in the B.Sc. programme and the PGDE programme using the LSI. (2) Determine if there is a relationship between demographic characteristics (age, gender and employment) and learning styles, and (3) Examine whether these two groups of students (B.Sc. & PGDE) are different in learning styles.

Two instruments were administered for this study. One was the revised LSI (Kolb, 1985) and the second was a questionnaire developed together demographic information and information related to the objective of this study. Results showed that the learning style that emerged as the dominant style in the entire population consisting of both B.Sc. & PGDE students was that of Assimilator. This was followed by both the converger and Diverger learning styles. The least frequent style was that of accommodator. The pattern is similar for both males & females. Results indicate that the program of study is more likely to influence learning style than gender. It could also be assumed that the older students who were employed specifically in the PGDE programme were influenced by the type of employment they were engaged in as well as by the type of programme they were enrolled in.

Mckee (1997) in his review of Literature on Multimedia - Effectiveness in the Learning Environment examines some of the research and academic literature related to the use of computer assisted instruction, hypertext, hypermedia, and multimedia in the learning environment. He was of the view that each learner has a different learning style and responds to different stimuli differently. Assessing the learning styles of individual students should be an important consideration when designing instructional media.

Stemler (1997) while working in the area recommended that learner control in multimedia should be designed to accommodate the different abilities and styles of learners.

Diaz & Cartnal (1999) had done a comparison between student learning styles in online distance learning & an equivalent on campus class. Their major finding was that the relative differences in the average scores between the two class rooms occurred for the Independent and the dependent learning styles was larger. Compared to those students enrolled in the additional classroom, the students in the distance class had higher scores on the Independent learning style scale & lower scores on the dependent
learning style scale. Researchers suggested that if there are no differences in learning styles then the same learning activities should be effective for both traditional and online classroom and any differences in the outcome are due to other factors.

McLoughlin (1999) suggested that to promote improved design of instructional materials, knowledge about individual differences needs to be integrated & connected directly with the design process, so that instructional materials are not only flexible, but also supportive of diversity & capable of accommodating a wide range of learning styles.

McNeal and Dwyer (1999) found no significant difference in learning between instruction that was designed in agreement with students learning styles and instruction designed in disagreement with students’ learning styles, not all learning styles perform the same in online and traditional course format.

Vermilten et al. (1999) revealed significant difference between students of private law, criminal law & administrative law with regard to their learning style.

Merrill (2000) argued that most students are unaware of their learning styles. Knowledge of one's learning styles can be used to increase self-awareness about their strengths and weakness as learners.

Bates and Leary (2001) in their paper supporting a Range of Learning style using a Taxonomy-based Design Framework Approach, share the result of a UK research programme evaluating computer based learning software and determine its suitability in supporting the different learning styles of users. Design taxonomy is proposed as that helps designers built software to target multiple specific learning styles.

Aragon, Johnson & Shaik (2002) conducted a study on ‘The Influence of Learning Style Preferences on Student Success in Online versus Face-to-Face Environments’. Three learning style instruments were used, viz. Reichmann and Grasha’s (1974) Student Learning Style Scale ((SLSS), Weinstein, Palmer, and Schulte (1987) Learning and Study Strategy Inventory (LASSI), and Kolb (1985) Learning Style Inventory (LSI). Results showed no significant differences in the social and environmental preferences between the students of two delivery formats. It revealed that both formats students are similar in their learning and study strategies, with the exception of study aids. Although significant differences were found between the learning style preferences of the online students and those of the face-to-face students,
these differences were not significant when success factors were controlled. The results of this study suggested that the students can learn equally well either delivery format, regardless of learning style, provided the course is developed around adult learning theory and sound instructional design guidelines.

**Benham (2002)** compared the effectiveness of online training and traditional training in a computer literacy course using the Kolb learning style inventory. Scores on lab exercises and exams were used to measure training effectiveness for each of the four Kolb learning styles of online and traditional students. The author suggests that learning styles do influence learning performance and concludes that the online group was significantly less effective for students who favour a learning style which include AC (i.e. convergers and Assimilators).

**Byrne (2002)** conducted an experimental investigation into relationships between Individual Learning Styles and Online Multimedia learning resources. The major findings of the study was that even the different conceptualizations of learning styles reverse the relationship. His study revealed a significant relationship between learning style & multimedia preferences when these learning styles are identified using the VARK questionnaire but no significant relationship when the learning styles are identified using the index of learning styles (ILS) questionnaire.

**Hede & Hede (2002)** in their concluding remarks mentions that providing multiple views of the same information in multimedia to cater to the different styles of learning, and utilization of variety of media types which permits information to be presented in ways that allow learner to focus on materials that support their particular style of learning are some of the alternatives available for multimedia designer.

**Logan and Thomas (2002)** studied on 'Learning styles in Distance Education Students Learning to Program'. The result of the study shows in the Honey and Mumford's Learning Style Questionnaire, significant gender related differences in the Pragmatist and Theorist measures. Both the females and males were noted to have distributions skewed from the expected norms; but in opposite directions. Males were significantly less pragmatic both in comparison with the expected normal, distribution (p<0.01) and in relation to females. While females were significantly more pragmatic than the expected normal distribution (p<0.01). Significant positive correlations were found existing between the Pragmatist, Theorist and Reflector Style for females while
males were found to have significant negative correlations between the Activist & the Reflector & Theorist styles. Analysis of the responses to the Grasha Reichmann Student Learning Style Scales showed no apparent differences between genders. All scales were found to be significantly different from their expected distribution (P < 0.01) subjects were also noted to have a greater preference for the collaborative & independent style than expected. Significant correlations were also found between Independent and Dependent as well as between participant & the Avoidant, collaborative and Dependent Scales. No gender or other differences were found with either the visual or verbal scales on the QSVV (Questionnaire on visual & verbal styles).

Srivastava (2002) studied on 'Effect of self concept on the learning style preference: A study of High School Pupils'. explored the effects of self concept on the learning style preferences of High School male pupils. The findings revealed that as the self concept level of the urban boys increased they showed increasing preferences to flexible, non-individualistic, visual, field-independent long attention space, motivation-centered and environment free leaning styles. He also found that accommodating learning styles is the most popular learning style among students.

Terrel (2002) tracked 159 doctoral students majoring in Computing Technology in Education, during their course work in an online learning environment and showed that learning style determines preference for online learning and were more likely to succeed than students preferring CE (Diverges & Accommodators).

Verma and Mishra (2002) in their study ‘cognitive and Meta cognitive aspects of learning styles of prospective secondary teachers in relation to teaching aptitude and Self Esteem’ proposed to ascertain the main and interaction effects of teaching aptitude and self esteem on cognitive and meta cognitive strategies of learning of prospective secondary teachers. A sample of 387 subjects was selected randomly from the four Teacher Education Institutions of Himachal Prades. The tools used were Inventory of learning styles (ILS) by JDH Vermant (Hindi Version by Prof. B.P. Verma and R.K. Mishra, 1998), Teaching Aptitude Test (Hindi) by Jai Prakash and R.P. Srivastava (1973) and self esteem scale (SES) by M. Rosenberg (1965). Statistical Technique ANOVA was used to analyse the data. The result revealed that teaching aptitude and self esteem to influence some cognitive & meta-cognitive strategies of learning of prospective secondary teachers in an independent manner. However, no interaction
effect of the two variables was found on any cognitive and meta-cognitive strategy of learning.

Bajraktarevic, Hall and Fullick (2003) in their research findings suggested that students benefit from the learning materials being adapted to suit their learning preferences. The results revealed that students have obvious different preferences for lesson presentation type.

Bureck, Malmstrom & Peppers (2003), studied on ‘Learning environments and learning styles: nontraditional student enrollment and success in an internet-based versus a lecture-based computer science course’. The primary objective of the study was to determine if there is a relationship between students' preferred learning environment (i.e. face-to-face or on-line) and their learning style. The secondary objective was to determine if there were any differences in the academic success of students in the face-to-face versus on-line sections. Participants were adult (ages 22+ years), non-traditional computer science students given the option to take a face-to-face lecture-based or an on-line Internet-based computer science course. Researchers compared 13 students in the online section versus 16 in the face-to-face section of a computer science course and found significant difference in learning styles between online students (tended to have the converger learning style) and their traditional counterparts. Results revealed that computer science students in the face-to-face learning environment were more likely to have the Assimilator learning-style, whereas computer science students in the on-line Internet-based learning environment were more likely to have the Converger learning-style. Student academic success did not reliably differ as a function of learning environment selection. Implications of these results are discussed in terms of learning style characteristics of computer science students, learning styles and gender differences and implications of student academic success in on-line vs face-to-face environments.

Kumar, Sharma & Vyas, (2003) studied on ‘Impact of Electronic Media in Distance Education: A study of Academic Counsellor’s Perception’. A questionnaire was developed by the investigators for collecting the data. Results of study revealed a positive perception of academic counsellors regarding the impact of electronic media on various activities associated with teaching learning process in distance education. Perception of counsellors varied depending on the programmes and the level they were associated with. Counsellors of computer programme reported a relatively more
positive impact as compared to others. Within the given academic activities, a higher degree of improvement in developing the skill of understanding the fact was felt by all counsellors counselling at UG level, while PG counsellors believed that electronic media were relatively more helpful in improving the overall performance of the learners. Study indicated a high positive relationship between the media available at study centres & media used by the counsellors and number of media used by the counsellors.

**Sadler - Smith and Smith (2004)** offer the following recommendations for accommodating learners cognitive styles:

- give a structured route through learning
- provide a global perspective of the content
- present information both visually and verbally (Written of Spoken).
- Make the structure and scope of content

As well as its relationship to other topic areas, as explicit as possible.

**Coffield et al. (2004) reviewed** over 800 texts and studied 13 models in depth. According to him, the five major families of kinds of learning style research and practice are:-

1. Constitutionally-based learning styles and preferences.
2. Cognitive structure
3. Stable personality type
4. Flexibly stable learning preferences
5. Learning approaches and strategies.

**Rayner and Riding (1997, in Cassidy 2004)** define three categories from which to approach learning styles:

1. Cognitive-centred
2. Learning-centred
3. Personality-centred

**Felder & Brent (2005)** suggested that assessing the learning style profile of a class with an instrument such as the Myers-Briggs Type Indicator, the Kolb Learning Style Inventory, or the Index of Learning Styles without being overly concerned about which students have which preferences- can provide additional support for effective instructional design.
Garland & Martin (2005) were of the view that when designing online courses the learning style of all students must be considered.

Oh and Lim (2005) concluded that students learning styles were not significantly correlated with their attitudes and preference for instructional delivery modes while others factors such as previous online learning experience and computer competency were significantly correlated with student’s learning outcomes and attitudes towards online instruction.

Manochehr (2006) compared online learning versus traditional instructor-based learning, based on students learning styles, and showed that he learning style in traditional learning was irrelevant but in online learning it was very important. Students with learning styles assimilator and converger did better with the online learning method while students with learning styles, Accommodator and Diverger received better results with traditional instructor - based learning.

Shinde and Kamat (2006) studied on ‘Learning styles in computer based learning’. The study was undertaken with following objectives:

1. To find out the extent to which scholastic achievement of the learners is affected by the levels of interactivity.

2. To find out the extent to which scholastic achievement of the learners is affected by the learning styles in two different environments. (Learning through CAI with high level of interactivity i.e. HCAI and learning through CAI with low level of interactivity i.e. LCAI).

3. To study the opinions of learner of different learning styles about the HCAI and LCAI.

The following tools were used in the study:

a. Learning Style inventory developed by Kolb.


c. Pre-test and post-test on Communication.

d. Rating Scale for Experts to Evaluate CAI.

e. Opinionaire about High Interactive CAI (HCAI) for the subjects.

f. Opinionaire about Low Interactive CAI (LCAI) for the subjects.
Conclusion of the study:

Comparatives study of different learning style groups support the characteristics and learning needs mentioned by Wolfe and Kolb (1984) for each learning style. HCAI proves more effective in almost all the learning styles except in assimilators. Divergers and Accommodators who are best at concrete experiences excel by learning through activity-based learning situations.

Brittan-Powell, Legum and Taylor (2008) conducted a research study to find out whether students preference for course delivery modality (fully online vs. face-to-face) was contingent upon their Kolb learning style A 2 by 4 (course delivery format by Kolb's learning style) chi-square test was used to compare the learning styles of 72 online students with that of 36 traditional students, all of whom had self-selected their instructional environment. Results revealed that no unique relationship exists between student learning style and their selection of a traditional face-to-face course compared with a fully online course. $\chi^2 = (3, N=108) = 3.22, \ p = 0.21$.

Khan (2009) conducted a study on 'Differences between Learning Styles in Professional courses at University Level'. In her study Honey and Mumfords Learning Styles Questionnaire (LSQ) was employed to assess learning styles of student of (B.Tech., MBBS, LLB and MBA) of four different courses. Her major findings are:-

- The difference in learning styles of B.Tech. and MBBS were to be significant.
- Significant differences were found in learning styles of reflectors and theorists in the case of MBA and B. Tech students.
- It was found that MBA and LLB students were significantly different in activist and thermostat learning styles and in others they insignificant.
- Except in the area of pragmatist, MBBS group has shown significantly better learning styles of activist, reflector and there most as compared to MBA group.
- Activist, reflector and theorist are the three learning styles whose significant differences were marked as 2.87, 2.89 and 6.91. t-value.
- Learning styles of LLB and MBA students has not showed any remarkable differences in any of the four areas.
Hina, Ajmal & Rahman (2010) studied on ‘Relationship between Multiple Intelligence Categories and learning styles of students’. The main objective of the study was to investigate the relationship between multiple intelligence categories and learning styles of secondary school students. The study was conducted in 6 girls secondary schools of Islamabad 354 students of grade X participated in the study. Two instruments namely modified version of multiple intelligence assessment scale (Adam, 2004) and Modified Version VAK learning styles scale (Pride Company, 2002) was used to called data. Survey method was used to explore the inter relationship. The finding of the study showed that different learners have different type of intelligence like multiple intelligence. As for as relationship between multiple intelligence and learning styles was concerned, the findings of the study showed that visual learning style did not found any relationship with multiple intelligence.

Jaiswal (2010), studied on ‘a study of learning style preferred by high and low creative students’. This study was conducted through survey method in which tools [GRLSS and Baquer Mehdi Creative thinking test] were given to the sample students studying in class X. The result shows that the most preferred style of learning in high and low creative students in participant style, while least preferred style of learning in avoidant.

Kumar (2010) studied on 'Learning Style Based Multimedia Designs'. The conclusion of the study is like this - the designing a proper multimedia is one of the key aspects. This designing aspect should take into consideration of various researches based findings. Needless to say that one of the significant strategy to harness the potential of otherwise underutilized but powerful tool of education is to integrate learning styles of the learner while designing the multimedia package for educational purposes. Hopefully properly integrating different learning styles of the learner will pave way for maximizing achievement gains of the learners.

Rathod (2010) studied on 'Evolving ICT enabled strategies for teaching science catering to the learning styles of the students'. Index of learning styles (ILS) tool was used to identify the learning styles of Std. VIII students. He found that 17% of std. 8 (A) students were found to have a sensing preference. These students tend to perceive information in a concrete factual way, and are less comfortable with theories and abstraction. About half of the students were found to have preference of visual inputs. In which (13%) of students have strong or very strong preference of visual Inputs. 61%
of students process new information in an active manner. More than half of the class finds it hard to learn through the lecture method, as they need to actively process new material. The majority of the students (80%) demonstrated a global preference in understanding new material. 13% of them have strong or very strong preference for global understanding.

**Tali and Chand (2010)** studied on 'Impact of Well being on Prospective Teachers in relation to their Learning and Decision Making Styles'. Learning style questionnaire was used as a tool. Results shows no significant difference between high, middle and low well being among prospective teachers in relation to different variables of learning styles, namely - Activist Learning Styles, Reflective Learning Styles, Theorist Learning Style, & Pragmatist Learning style.

**Gulbahar & Alper (2011)** studied on ‘Learning Preferences and Learning Styles of Online Adult Learners’. They concluded that online learning environments possess passive learning features when a student reads, listens, and analyzes graphics, and consist of active learning features when students discuss and express themselves through writing in various platforms. Hence, either grouped like the proposed one, or under different names, to address all possible learning styles in terms of instructional media and materials, instructors should aim to at least provide: synchronous and asynchronous learning activities, individual and group work activities, and supportive interaction and facilitation for individual and social learners. ICT support like audio and visual materials, podcasts or visuals of sample cases and scenarios, graphic organizers like diagrams, figures, comics and tables within the content, and video casts of teaching performances for auditory and visual learners. Instructor should provide hands-on activities, interactive experiences like simulations and games, activities that need discussion, creativity, exploration and research, and wide range of printed materials like books, hand-outs, worksheets, puzzles, and newspapers for concrete and abstract learners. They should provide content considering both inductive and deductive approaches, real-life problems, and guided work plan for logical and sensual learners. From the perspective of instructional methods; instructors should use a mix of all the appropriate methods such as direct instruction, lecture, demonstration, discussion, cooperative learning, case studies, discovery learning, problem-based learning, role-playing, scaffolding, and storytelling in harmony.
Singh (2011) in a study of ‘Impact of e-TV on learning style of students studying in class 11’ of Allahabad city (CBSE-Board) found that on components of learning style namely writing modes, memory, examination performance the students who had been exposed to e-TV programmes do not differ significantly on above components of learning styles, on the other hand they had significantly differed on components namely time determination, physical conditions, reading aptitude, learning motivation & health.

Upadhyay (2011) studied on 'A study of learning styles among undergraduate students'. Descriptive method of research was employed in the study. Sample for the study consists of 96 undergraduate students of Ewing Christian College, Allahabad. Out of these, 50 were Arts stream and 46 were of science stream. Learning style Inventory prepared by K.S. Misra had been used to collect the data. t-ratios had been computed for the analysis of the data. The results revealed that students of Arts and Science stream do not differ from one another on learning styles. It implies that both students of Arts and Science stream had similar enactive, figural, verbal, enactive, reproductive, enactive constructive, figural reproductive, figural constructive, verbal figural and verbal constructive learning styles.

Zacharis (2011) conducted a study on 'The effect of learning style on preference for web-based courses and learning outcomes'. The Kolb Learning styles Inventory (LSI), a statistically reliable and valid 12-item questionnaire in which respondents attempted to describe their learning style, was administered online to both student groups, one week after the start of the course. The first research questions was that, Is there is relationship between students’ learning style and the selection of course delivery format (online or face to face)? To determine the answer to the first research question, a Pearson chi-square test was used to examine the relationship between student learning style and preference for online or face-to-face instruction. The results of this Inferential test were non significant, $\chi^2 (3, N=161) = 3.477, p= 0.324$, suggesting that students learning style did not influence their selection of taking instruction in either a face-to-face or fully online format. The second research question sought to determine if there was a difference in student achievement due to the instructional delivery method. Results revealed that students in the traditional group had higher (M= 68.79, SD= 20.90), but not significant higher performance than the online group (M= 67.44, SD= 18.87), based on their course grades, $F(1,153) = 0.319, p > 0.05$. The third research question investigated whether students' learning style
influenced their academic performance (course grade) differentially contingent upon whether they took the course in either a face-to-face or fully online delivery format. The 2 x 4 ANOVA revealed no significant difference in students course grades between the online and face-to-face group $F (3,153)=0.797$, $p> 0.05$. The fourth research question aimed to find out if there was an interaction between instructional method and learning style, based upon the students' course grades. The 2x4 factorial analysis of variance in this case indicated no statistically significant interaction between the learning style and the method of instruction, based upon course grades. The 2x4 factorial analysis of variance in this case indicated no statistically significant interaction between the learning style and the method of instruction, based upon course grades, $F (3,153) = 0.205$, $p > 0.05$.

**Gokalp (2013)** studied on ‘The Effect of Students’ Learning Styles to Their Academic Success’. Researcher evaluated the learning styles of education faculty students and determined the effect of their success and relationship between their learning styles and academic success. Population of the study was comprised of the students of Education Faculty in 19 May University, Samsun, Turkey and the sample included 140 students. Out of which 68 was Art and 72 pre-school teacher department students. Depending on the results obtained from pre-test, it was aimed to improve students’ knowledge and skills in studying. There was a significant difference between the scores of pre- and post-tests. The significant relationship between the scores of post-test and the student success revealed that they learned how to study effectively. The validity and re- liability of the test were determined by considering the Cronbach alpha coefficients for each and all of the items. The study has found statistically significant differences between the results of the first and final applications of the subtests on learning styles and academic success; those subtests covered the items as learning, planned study, effective reading, listening, writing, note taking, using the library, getting pre- pared for and taking exams, class participation and motivation. The study found statistically significant differences between the results of the first and final applications of the sub- tests on learning styles and academic success; those subtests covered the items of learning, planned study, effective reading, listening, writing, note taking, using the library, getting pre- pared for and taking exams, class participation and motivation. The students who did not have study plans or could not follow their plans at the beginning of the term were observed to have a well-planned study program.
at the end of the term. Researcher recommended that, Programs should be designed to improve students’ learning styles and learning strategies for all levels to make the teaching and learning process more effective.

It is also recommended that course design should be flexible enough to reach a variety of learning styles. The students should be properly guided and given incentives to select individual learning styles that are appropriate and applicable in their environment for them to achieve their personal academic objective. The students should adopt a suitable learning style that would be beneficial to them.

Ren (2013) studied on ‘which Learning Style Is Most Effective in Learning Chinese as a Second Language’. Findings of the study revealed that that visual learners are the great majority (57%) among the secondary school CSL girls under investigation; The girls with auditory learning style have performed better orally; whereas the girls with kinesthetic learning style have performed better in writing. The girls with visual learning style have never been ranked on top of the list neither in oral nor in written examinations.

Saha (2013) in his article ‘Learning styles and its classroom Applications’ developed different models of learning styles. Some of them are: David Kolb’s model, Honey and Mumford’s model, Anthony Gregore,s Model, Sudbury model, Fleming’s VAK/VARK model (neuro-linguistic programming, visual, auditory and kinesthetic learners), Chris. J. Jackson’s model and R.M. Felder & R. Bronte’s models of learning styles. He found that when mismatch between the teaching and learning styles occurs many students can’t get what’s being thought. As a result they become-Bored, inattentive or disruptive in class, do poorly on tests, get discouraged about the course, curriculum and about themselves. On the other hand, Teacher/Professor observe: Low test scores, unresponsive or holistic classes, poor attendance, drop-outs. Teacher may themselves get defensive or hostile (making things even worst). They may question whether they are in right profession or not?

Dhiman (2014) studied on ‘Learning Style Preferences among Prospective Rural and Urban Teacher Educators’. The study aimed at finding out the difference in learning style preferences among prospective teacher educators belonging to rural and urban residential backgrounds. The objective of the study was to find out the significant difference in Visual, Auditory, Tactile, Kinesthetic, Group and Individual Learning Style Preferences among Rural and Urban Prospective Teacher Educators. The sample
comprised of 120 M.Ed. Students drawn from Two Urban and Two Rural Teacher Education Institutions through cluster technique of random sampling. Descriptive survey method of research was used for conducting the study. Data were collected by using Learning Style Preferences Scale (Form-B) developed by Owens and Straton (1990). The analysis of collected data revealed that residential background had significant influence on learning style preferences among prospective teacher educators. Result revealed that urban prospective teacher educators had more preference towards Auditory Learning Style than their rural counterparts. Rural and urban prospective teacher educators did not appeared to differ significantly with regard to their Visual, Tactile, Kinesthetic, Group and Individual learning style preferences.

Dey & Chaudhary (2015) studied on ‘The Perception of B.Ed. Students on Printed Self-Learning Material and Learning Style in ODL’. As a sample of study 100 B.Ed. students (50 male and 50 female) were selected purposively from the Delhi Region who had enrolled in the B.Ed. programme of IGNOU. Descriptive survey method was employed in the study. For measuring perception on self learning materials and learning style of the B.Ed. students, structured questionnaires based on five point Likert type rating scale was used. Researcher visited the respondents and administered the tests for collection of data. Data has been analysed by using both parametric and non-parametric statistical methods. Study revealed a strong positive correlation (0.57) among the scores of students in their perception on SLM and learning style. It reveals that the perception of the learners on SLM helps them to adopt better learning style and vice versa. No significant difference was observed between the male and female students both in their scores in learning style as well as, on the perception scale. The teaching experience of the students did not influence either their learning style or perception. The number of male and female students who had scored above or below the desired average scores either in the scale of learning style in ODL or in their perception on SLM did not differ significantly.

Ford, Robinson & Wise (2016) conducted a study on ‘Adaptation of the Grasha Riechman Student Learning Style Survey and Teaching Style Inventory to assess individual teaching and learning styles in a quality improvement collaborative’. Participants were invited to complete a modified Grasha Riechmann Student Learning Style Survey and Teaching Style Inventory. Principal components analysis determined participants’ preferred learning and teaching styles. Responses were received from 17 (94.4 %) of the coaches. Seventy-two individuals were excluded from the initial sample
of change leaders and executive sponsors \((N=389)\). Responses were received from 80 persons \((25.2\%)\) of the contactable individuals. Six learning profiles for the executive sponsors and change leaders were identified: Collaborative/Competitive \((N=28, 36.4\%)\); Collaborative/Participatory \((N=19, 24.7\%)\); Collaborative only \((N=17, 22.1\%)\); Collaborative/Dependent \((N=6, 7.8\%)\); Independent \((N=3, 5.2\%)\); and Avoidant/Dependent \((N=3, 3.9\%)\). NIATx200 coaches relied primarily on one of four coaching profiles: Facilitator \((N=7, 41.2\%)\), Facilitator/Delegator \((N=6, 35.3\%)\), Facilitator/Personal Model \((N=3, 17.6\%)\) and Delegator \((N=1, 5.9\%)\). Results indicate that individual learners (change leaders and executive sponsors) and coaches utilize multiple approaches in the teaching and practice-based learning of quality improvement (QI) processes. Identification teaching profiles could be used to tailor the collaborative structure and content delivery. Efforts to accommodate learning styles would facilitate knowledge acquisition enhancing the effectiveness of a QI collaborative to improve organizational processes and outcomes.

**2.2: Studies related with process of development of Professional Skills:**

Berge & Smith (2000) studied on ‘Implementing Corporate Distance Training Using Change Management, Strategic Planning and Project Management’. They suggested that distance education must not be explored or conceived as a solution waiting for a problem. Consideration of conditions and constraints of the organization, as raised by the strategic planning process, are critical to successful implementation. The primary consideration is that distance education arises out of true need. Once this is established, the planning process is informed by connection to users. To implement distance education requires overcoming barriers and dealing with complex issues. Training and performance stakeholders can benefit from leveraging existing skills of project management, change management, and strategic planning and applying these disciplines to distance training.

Jamtsho (2000) presented paper on ’Distance Education for In Service Teachers in Bhutan’. In Bhutan the distance education course for in service teachers consisted of a two-year diploma in primary teaching, followed by a three-year B.Ed. degree in Primary Teaching. The course consists of the following components:
1. Professional development studies :-
   - Understanding the learner
   - Learning process
   - Teaching skills
   - Teaching strategy
   - Bhutanese Education System
   - School of Curriculum
   - Education for Development
   - School organisation & Administration
   - Measurement & Evaluation

2. Personal Development Studies:-
   • Dzongkha for communication
   • English for Communication
   • Functional Mathematics

3. Elective Teaching Subjects.
   • Any one teaching subjects for specialisation

4. Primary Curriculum Subjects
   • Teaching of English
   • Teaching of Mathematics
   • Teaching of EVS (Social Studies & Science.)
   • Teaching Experience (6 weeks of supervised teaching practice each year)

There are 8 modules of 60 hours each to be completed every year for the diploma, and 10 modules of roughly the same length as above for the B.Ed. course each year. This figures out to be 2 hours of study time a day.

**Modes of Delivery**- The course will be basically delivered in two ways:-

1. Compulsory residential periods of four weeks every year to attend orientation programmes & lecture sessions; write assignments; collect study materials; discuss the assignments and other issues related to their course work.

2. Using mail services to send course materials (mainly print backed by video and audio takes) send and receive assignments. Printed material will generally consists of a "Study Guide" and a "Resource Pack", that will include reading material of varying types and schools of thought where they exist. In certain cases, it will also be accompanied by visual & audio tapes.
The course is evaluated through a series of assignments assessed using pre-determined criteria. For every assignment completed, the respective tutors give a detailed feedback to the candidates.

In order to obtain the certificate/degree, a candidate must fulfill the following criteria:

1. A candidate must do all the assignments indicated in the respective modules by the tutors and submit them within the due date.

2. A candidate must obtain at least 'D' grade, i.e. the passing grade in each assignment.

3. A candidate must complete 16 modules successfully (8 modules each year) for the diploma certificate.

4. A candidate must complete 30 modules successfully [10 modules each year] in the three years course for the degree award.

5. If a candidate is unsuccessful, he/she will be allowed to re-do the module(s) that he/she failed in, at his/her own expense.

6. A candidate must attend one month residential school each year regularly until the course is completed.

Kabir, Alamgir & Haque (2000) presented a paper on 'Training of Professionals through distance Education in Bangladesh'. BOU is highly committed to training of the professionals through the distance mode. Most of the proposed 18 formal programmes of BOU are for the training of professionals in areas such as, teacher education, management education, health & nursing education, technical education & agriculture and rural development. The B.Ed. programme through distance education was first launched by BIDE in 1985. Later, BOU made some improvements to the programme. B.Ed. is aimed at training secondary school teachers. It is a 72 credit programme with 40 courses, while about 40,000 students have been enrolled cumulatively in this programme from semesters to complete. About 5,500 students enroll in this programme every year. Since 1992, about 8000 students graduate from this programme while about 40,000 students have been enrolled cumulatively in this program from 1992 to 1997. Given table shows some information about professional training programme of BOU.
The University has a physical infrastructural network of 12 Regional Resource Centre, 80 Local Centres and about 600 Tutorial Centres. Students of a programme receive self instructional print materials for a course which is backed up by supporting radio programmes or audio cassettes. TV programmes, tutorial sessions at the tutorial centres on fixed days and correspondence/telephone. The B.Ed. and BELT programme arrange 'Summer School' and 'Winter School' programmes for practices. The students are also encouraged to form self-directed study groups to discuss their problems and to have the opportunity of learner-learner interactions.

<table>
<thead>
<tr>
<th>Programme</th>
<th>School</th>
<th>Launching year</th>
<th>Semester</th>
<th>Cumulative students No.</th>
<th>Credit</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.Ed.</td>
<td>School of Education</td>
<td>1992</td>
<td>4</td>
<td>32455</td>
<td>72</td>
<td>40</td>
</tr>
<tr>
<td>B.Ag.Ed.</td>
<td>School of Agriculture &amp; Rural Development</td>
<td>1997</td>
<td>6</td>
<td>1899</td>
<td>96</td>
<td>42</td>
</tr>
<tr>
<td>Graduate Diploma in Management</td>
<td>School of Business</td>
<td>1995</td>
<td>3</td>
<td>7016</td>
<td>33</td>
<td>12</td>
</tr>
<tr>
<td>Certificate in Management</td>
<td>School of Business</td>
<td>1995</td>
<td>2</td>
<td>694</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Bachelor in English Languages Teaching</td>
<td>School of Social Science Humanities &amp; Language</td>
<td>1997</td>
<td>4</td>
<td>1150</td>
<td>72</td>
<td>23</td>
</tr>
<tr>
<td>MBA</td>
<td>School of Business</td>
<td>1998</td>
<td>6</td>
<td>-</td>
<td>75</td>
<td>26</td>
</tr>
<tr>
<td>B.Sc. Nursing</td>
<td>School of Science and Technology</td>
<td>1998</td>
<td>6</td>
<td>-</td>
<td>90</td>
<td>21</td>
</tr>
<tr>
<td>C.Ed.</td>
<td>School of Education</td>
<td>1998</td>
<td>3</td>
<td>-</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>M.Ed.</td>
<td>School of Education</td>
<td>1998</td>
<td>3</td>
<td>-</td>
<td>37</td>
<td>14</td>
</tr>
</tbody>
</table>

Sharma (2000) presented paper on 'Training of professionals through Distance Education in India'. He presented the nation-wide scenario of training of professional in four areas, viz. Teacher Education, Health Education, Management Education & Rural Development & Agricultural Education through the distance mode. The course materials of B.Ed. Programme include audio/video programmes besides the print material. To provide knowledge/competencies & skills to teachers, need based theory, practical courses along with project/action research have been designed. In these courses, nature of target group (in-service teachers) has been given due consideration.
A sufficient care has been taken for monitoring & evaluation aspect of programme. The use of technology for effective interactions among students has also been planned for this B.Ed. programme. The enrolment of students in this programme will be based on availability of infrastructure, man power and faculty strength. Large-scale enrolment of students will be restricted. There are 10% untrained teachers out of 14,73,241 teachers in the school system excluding teacher of public/private schools and the number would increase as more and more children are brought into the fold of school education for achieving Universalisation of Elementary Education (UEE).

A three year post Basic B. Sc. Nursing Programme for in-service nurse and post-Graduate Diploma in Material and child health programme for medical graduates have already been launched by IGNOU. In the programmes, due care is taken to import skills effectively without diluting the quality. The school also purposes to initiate few other programmer to meet the requirement of healthy professional as recent technological advances in terms of teleconferencing. Partner Institution, Openet, and Multimedia learning Centres will go a long way in providing more interactive expressive to health professional & offering quality education.

IGNOU’s School of Management Studies serves a larger group of management learners in India by enrolling about 50,000 working manages every year in it's Post Graduate Diploma & Degree courses. These programmes are delivered through 150 study centres in the country. Besides using quality of instructional material, audio/video programmes and face- to- face counseling, the school of Management Studies has taken the lead by organising teleconferencing through one way video and two way audio networks & also by broadcasting on DD-1.

The Yashwant Rao Chavan Maharashtra Open University (YCMOU), since its inception, started programmes in agriculture through distance education. The YCMOU is delivering its agricultural programmes certificate, diploma & degree print material, audio/video cassettes & face-to-face interaction through counselling in Krishi Vigyan Kendras and Prayog Pariwars (Self-help group of farmers). The National Institute of Agricultural Extension & Management, Hyderabad, has also, on a pilot bases, started in 1994 training programmes through distance education. IGNOU runs a diploma programme in rural development for government functionaries such as Block Development officers. IGNOU has also initiated project in conjunction with the Panchyat Raj System, to train functionaries at the village level at the instance of the
Ministry of Rural Development, Government of India. Still a lot is to be done for training in the area of agricultural & rural development.

Panda & Chaudhary (2001) studied on ‘Attitude, Needs and Problems of Prospective Distance Teachers’. Sample of the study consisted of 54 PDTs (Perspective Distance Teachers). Likert-type attitude scale and questionnaire was used to collect data. Result revealed that total attitude scores of all the 54 PDTs showed that 98.15% (N=53/54) had favourable attitude towards DE and the rest (i.e., 1.85 %, N=1/54) was found undecided. Highest number of PDTs (33%) took up the course because of vocational interest in the subject, followed by 28% because of professional challenge necessity, 19% to gain entry into higher course, 6% each to make up for lack of educational opportunity in the past, and to improve self-confidence respectively; and 4% each because of mere interest to learn, and just to pass time, respectively.

Mishra (2002) studied on ‘The Process-Issues for Organizing Research and Training in Distance Teacher Education’. The study envisaged the process-issues for organizing research and training in DTE. Three semi-structured interview schedules each related particular research question viz. 1) Process-Issues for Organizing Research in Distance Teacher Education, 2) Process-Issues for Organizing Support Services in Distance Teacher Education, and 3) Process-Issues for Developing and Using Media and Materials in Distance Teacher Education. An integrated approach was followed where both the quantitative and qualitative data were blended in data analysis through content analysis technique. Qualitative methodology using naturalistic approach was followed in the study. Major findings related to Process-Issues for Organizing Support Services in Distance Teacher Education are:

- Majority of the responding experts advocated for organizing separate in-service training programme for trained and untrained teachers as both have different kind of needs. More than half of the responding experts advocated against the idea of limitations of seats for DTE courses if quality is ensured. Half of the responding experts advocated for developing need-based materials to reach the disadvantaged and marginal groups. Both modern and indigenous technology should be used for the purpose. Majority of the responding experts viewed to generate the resources from teacher trainees. Almost a half of the responding experts held the view that the place of personal contact programme should be a teacher training institution where necessary infrastructure and human facilities are available. Practice
teaching should be compulsory like formal system so as to modify their teaching skills by updating their practicing skills. All experts were agreed upon the process of continuous and comprehensive evaluation of the trainees. Most of the responding experts advocated for evaluating the training programme in terms of its process and output. The evaluation should be carried out by taking the views of teacher trainees, experts of teacher education as well as distance education, mentors and counselors.

- Most of respondents thought that the selection of proper media depends upon the nature of the content. Content needs to be analysed to identify which parts can effectively be communicated by printed text, which require the spoken word and other audio attributes, which can better be illustrated visually and which need interaction. Majority of the responding experts emphasized learners to be put at the centre stage while developing materials. The whole process of adult learning principles should be adequately and scientifically applied in the production of materials. Majority favoured provision of in-text question to bring interactivity by relating the personal experiences of the learners with the learning processes through self-check exercises. Majority experts argued that there should be multiple channels for wide and rapid delivery. Both qualitative and quantitative methods of evaluation should be employed to get feedback.

Pradhan (2002) studied on ‘A Comparative Study of the Effectiveness of Traditional versus Correspondence B.Ed. Programmes of The Universities of Orissa’. Major finding of the study revealed that, there was provision of giving preference to in service teachers for admission in to B.Ed. courses both Universities. There was no difference regarding the duration of the courses. The application cost and admission fee were higher in correspondence mode than that of traditional one. The minimum and maximum age limit for general candidate were 21 and 30 years in traditional mode giving relaxation of give years for SC, ST, and women candidate but there was no such rigid policy regarding age limit in correspondence mode. In traditional mode there was provision of career weightage giving more weightage to graduation and P.G. holder candidates but no such weightage was given in correspondence mode. There existed a significant materials, instructional methods, support service and evaluation of traditional and correspondence mode. There was significant different between
achievement of Art stream and science stream students of the traditional Vs correspondence mode of the B.Ed. programme.

**Moon & Robinson (2003)** worked on ‘Open and distance learning for initial teacher training’. They suggested that a range of policy options for the planners and demonstrates three potential benefits from the use of open and distance learning. The first relates to efficiency in the use of resources deployed for initial teacher training. The use of open and distance learning, in combination with college based courses, enables resources to be used differently to accommodate more trainees and, if done well, the quality can be least acceptable and at best very good. It can also produce a trained teacher at lower cost. The second relates to supply. Open and distance learning has shown that it can draw on new constituencies of teachers, such as mature entrants or rural members of a community and also, as emerging evidence shows, retain them for longer as teachers- an important consideration when assessing the cost-benefits of different modes of training and the overall costs of investment in teaching force with high rates of turnover. It can also provide more trained teachers I a shorter time than more traditional institution-based approaches. The third relates to the nature of the curriculum and training. Construction of programmes around school experiences, if well designed, increases the chances of programmes being relevant to the practicabilities of teaching, strengthening the relationship between theory and individual practice ad offering an important means of influencing classroom practice and school improvement.

**Star (2003)** studied on ‘Application of Mobile Technology in Learning & Teaching: M-Learning’. According to researcher M-learning is a natural extension to conventional e-learning practice through which mobile technology allows a greater degree of access to learning resources. Researcher concluded that the most obvious application of M-learning is in extending 24/7 access to conventional e-learning resources and activities such as on-line programme information. Lecture notes, reading, discussions etc. Several additional applications for M-learning in learning and teaching include: Location-specific learning support, Bite-size, on the move learning, Interactivity in contact sessions, study organisation and support.

**Gupta (2006)** presented a research paper entitled ‘A SWOT Analysis of Teacher Education Programme Imparted through The Distance Mode’. This paper tried to
explore the dynamics of the Teacher Education (TE) programme imparted through the
distance mode of education using the SWOT (Strength, Weakness, Opportunities and
Threats). Target Group, Nature of Trainees, Academic Programme, Curricular
Activities, Instructional Media, Geographical Distance and On-job Training are the
strengths of programme. Geographic distribution of study centres, Infrastructure,
Nature of the faculty, Interactivity, Self Learning Material (SLM), Dissemination of
Study material, Counselling, Assignments, Evaluation of Assignments, Use of ICT, and
Untrained Counselors are the Weaknesses of programme. Opportunities of distance
mode teacher education programme are: Accessibility & Affordability, Economical for
the trainees, Learner Autonomy, Capacity building and Uniformity in training course.
Some threats of ODL mode teacher education programme are: Competition from the
conventional mode, Lack of permanent faculty, excess of trained teachers, and in future
Online learning poses a great threat to ODL mode due to greater flexibility, openness,
accessibility, inter activity, choice of learning styles and better networking.

Kumar et al. (2010) conducted study on 'The importance of e-learning for quality
enhancement in Teacher Education'. They concluded that e-learning technology is the
need of today and its implementation is essential. Teacher as well as students should be
given appropriate and adequate training in e-learning for their bright future. Through e-
learning, learning takes place to the optimum level, where the learner is motivated and
there is no time and space barrier at the time of motivation. e-learning should be
infused or incorporated onto the entire curriculum. E-learning takes place over the
Internet or by CD-ROM. Few common teaching aids used in e-learning are:

**Printed aids:** Periodicals, Books & Newspapers.

**Visual aids:** Slide, Filmstrips, Mode, Graphs and Charts, Pictorial
Materials, Globes and Maps.

**Audio aids:** Tape recording, Photograph Discs, Radio

**Video aids:** Motion Pictures, Television, Dramatization.

Yadav, Sahoo & Yadav (2006) conducted a study on ‘University Teachers’
Perception about the future of ICT in Education’. Objectives of the study were: first- to
study the perception pattern of University teachers about the future of different dimensions of ICT in education; and second- to compare the perceptions of Traditional University Teachers and Open University Teachers about the future of different dimensions of ICT in education. Study remained confined to the Allahabad district. 100 teachers of the University of Allahabad and its affiliated colleges and 100 teachers and counsellors of IGNOU, Allahabad Centre and UPRTOU, Allahabad were sample respondents. Data were collected with the help of a five point scale questionnaire developed by the authors. The chi-square test of independence revealed that on majority of the items, the response patterns of Traditional University Teachers and Open University Teachers were found to be independent of each other at .05 level of confidence. A significant number of Open University teachers forecast high probability of occurrences of events related to different components of ICT than their Traditional University Counterparts significantly. The findings of the study revealed that though the advanced forms of ICT have entered into the arena of education system, the contributions of print-based materials, audio-visual materials, teleconferencing and computer-aided instructions will continue to have their predominance in the education system. The ICT will facilitate students’ self-learning activities, motivating them to learn, making self-initiated enquiries, enabling learners to identify different sources of learning to organise learning activities and to construct experiential knowledge base in participatory learning situations. The future role of ICT, as has been perceived by the teachers of the University system, shall augment learning opportunities for future learners. There is need for empowering learners and teachers of traditional as well as open learning streams for promotion of ICT in teaching learning activities.

Olaniran (2009) studied on ‘culture, learning styles, and web 2.0’. This article explores web 2.0 in interactive learning environments. Specifically the article examined web 2.0 as an interactive learning platform that held’s potential, but is also limited by learning styles and cultural value preferences. The article explores the issue of control from both teacher and learner perspectives and in particulars the cultural challenges that impact learner control. From the control perspective, the issue of access to web 2.0 technologies from both cost affordability and government censorship is also addressed. Finally the article concludes with implications and recommendations for web 2.0 learning environment.
Harichandan (2010) conducted study on ‘Teacher Education Programmes offered through distance education mode in Indian Universities’. Specific objective of the study were: First, To examine printed course materials, coverage and the media combined packaged used. Second, To study the organization of personal contact programmes for the conduct of lectures and practice teaching lessons. Third, To find out the process evaluation of response sheet. And fourth, To suggest measures for improving the programme delivery of Teacher Education Courses. The study was a census survey of the descriptive and qualitative type, describing and interpreting the different processes of ODL mode Teacher Education Programmes. Being a census study all the NCTE approved Open Universities and Distance Education Institutions in India conducting teacher education programme were considered as sample.

Major findings of the study revealed that, the teacher education programmes through the distance mode were offered in 11 NCTE approved distance education institutes and open universities in the entire country. Those programmes were offered only for in-service teachers. Institutes like SDLCE, Vishakhapatnam in A.P. ; H.P. University, Shimla; KSOU, Karnataka; Panjabi University, Patiala and YCMOU, Nasik offered both B.Ed. and M.Ed. programmes; whereas the rest of the institutions offers only B.Ed. programme. The enrollment in B.Ed. course varied from 250 to 2000 and in the M.Ed. course from 100 to 475. The higher enrollment figures was in the respect of Open University only, whose jurisdiction covers the entire country in case of IGNOU and the entire state of state open universities like: Karnataka and Rajasthan.

The faculty strength was varied from a minimum of 4 in Kakatiya University, to a maximum of 23 in Himachal Pradesh University. Most of the faculty members had a doctorate degree to their credit and are generally highly experienced. The course materials were prepared in the SIM form in case of OUs and printed booklets or distance education institutes supply topic-wise notes. They were supplemented by Films, Audio-Visual Aids, Audio Cassettes and Computer Assisted Lessons. The size of SIM was usually around 200 pages, written in simple language with adequate topic coverage and bibliography. Such was the quality of study materials of IGNOU and YCMOU that they had bagged International awards and recognition from organisation such as COL Canada for its quality of material production. The course materials were prepared by in general by a course team, and were evaluated by experts in the field of
teacher education and distance education in relation to the relevance of content, style of presentation and language difficulty.

As far as practice teaching concerned, all the institutions insisted on giving 40 lessons during the course (20 lessons in each method). Lesson guidance was given both individually and in groups. The lessons were evaluated by teacher educators, school teachers, principals, of schools and core staff of DEIs. The students were given feedback both individually and in groups.

Personal contact programmes were held in varying times depending on the institutions, either at the beginning or at the end or in the middle of the course. The duration of PCP was usually a given time slot, which range from 6 days to a maximum of 15 days. The attendance was compulsory. Programmes were conducted at the contact centres or DEIs. The faculty members involved were the staff of the DEIs or visiting faculties or both. Counselling was given as per the student’s demand regarding choice of papers, practice teaching, use of library, examinations, confidence building etc.

Evaluation was an ongoing process with 25% to 30% weightage to internal assessment. It was usually done through assignments, oral and written tests, seminars and external examination or final examination. Evaluation process was continuous in both OUS and DEIs.

Mantry (2010) studied on ‘Professionalism and Teacher Education’. He found that, the development of both teacher education and teaching profession are strongly interlinked because, the key element of teacher professionalism and the fundamental nature of teachers’ work can be most directly influenced by changing the knowledge, skills and values required of new teachers. Teacher professionalism and the nature of teachers’ work have been primarily forms of knowledge, different skills and different professional values. Similarly the location of teacher education in an education system is a powerful barometer of the status and the nature of teacher professionalism in a society. Teacher professionalism contains three essential characteristics- Competence, Performance and conduct which reflect the educator’s goals, abilities and standards and directly impact the effectiveness of teaching through the development of these qualities.

Munshi (2010) studied on ‘Efficacy of Teacher Education Programme (B.Ed.) offered through the Regular and Distance Learning Mode at University of Sindh’
Pakistan: A comparative study’. Investigator found that distance learning graduates did not have the opportunity to deliver the practice lesson in real school situation. They attended workshop for practice teaching in the study centres. So they had little knowledge and experience of different teaching practices. Consequently their practice of adopting variety of teaching practices in lesson delivery was limited.

**Pandey and Mishra (2010)** conducted a study on ‘A comparative study of Teaching competencies of pupil teachers of regular and distance mode’. They observed that there was no significant difference between the two groups on remaining seven components of teaching competence viz. organisation of content, creating situations for introducing the lessons, properly structured questions, well delivery and distribution of questions, varied stimuli for securing pupil attention, used appropriate verbal and non-verbal reinforces. Compared to pupil teachers of distance mode, regular pupil teachers belonging to science stream have possess more competency in teaching. It might be micro teaching and teaching practices positively affected to development of teaching competency of regular pupil teachers.

**Swain & Tokash (2010)** studied on ‘A study of Attitude towards Teaching Profession of Primary School Teachers’. Major objective of the study was, to study the teaching attitude of Government and Private primary school teachers attitude towards teaching profession. All the primary school teachers of G.B. Nagar District (U.P.) constituted the population of the study. 200 primary teachers were selected as sample respondents by random sampling technique. Descriptive survey research method was used. Self made questionnaire for teaching attitude was used as a tool for collecting data. Result of study revealed that, there was no significant difference between the attitude of government and private primary school teachers towards teaching profession. There was significant difference between the attitude of rural and urban school primary teachers towards teaching profession. There was no significant difference between the attitude of male and female primary school teachers towards teaching profession. There was no significant difference between the attitude of married and unmarried primary school teachers towards teaching profession. There was no significant difference in the attitude of primary school teachers having D.Ed. or B.Ed. educational degree. In general the significance of these variables revealed that the primary school teachers had favourable attitude towards teaching profession.
Chaudhary & Sharma (2011) studied on ‘Teacher Professional Development through ICT Training’. Objectives of the study were: First, To study the views of teacher educators about ICT; second, To study the knowledge of teacher educator of ICT; third, To study the use of ICT by teacher educators; and fourth, To investigate the effectiveness of ICT program for teacher educators. Study was experimental in nature. Study was conducted on 30 teacher educators who attended 5 days ‘Intel Teach Program’. Result of the study revealed that there is a positive improvement in the views of teacher educators towards ICT. Result shows that percentage of the use of ICT has increased after the training programme. Researchers concluded that, training in ICT would be most effective for teacher educators’ professional development and as a result, ICT training programme positively affected the views of teacher educators about ICT.

Gulbahar & Alper (2011) concluded in his study that Instructors should aim to at least provide: synchronous and asynchronous learning activities, individual and group work activities, and supportive interaction and facilitation for individual and social learners. ICT support like audio and visual materials, podcasts or visuals of sample cases and scenarios, graphic organizers like diagrams, figures, comics and tables within the content, and video casts of teaching performances for auditory and visual learners. Instructor should provide hands-on activities, interactive experiences like simulations and games, activities that need discussion, creativity, exploration and research, and wide range of printed materials like books, hand-outs, worksheets, puzzles, and newspapers for concrete and abstract learners. They should provide content considering both inductive and deductive approaches, real-life problems, and guided work plan for logical and sensual learners. From the perspective of instructional methods; instructors should use a mix of all the appropriate methods such as direct instruction, lecture, demonstration, discussion, cooperative learning, case studies, discovery learning, problem-based learning, role-playing, scaffolding, and storytelling in harmony.

Kumar (2011) studied on ‘The effect of B.Ed. Programme on the development of Teaching Skills’. Teaching skills Observation Schedule (TSOS) prepared by the researcher herself was used to measure the 9 teaching skills of B.Ed. students namely- Introduction, Questioning, Explanation, Illustration, Demonstration, Reinforcement, Stimulus Variation, Blackboard Writing and Closure skills. Results revealed that
exposure to training inputs during B.Ed. programme brings improvement in teaching skills of male/female/ Science stream/arts stream student teacher. During micro teaching, the teacher educators briefed the students with the various components of different skills, made them practice each and every skill in small groups thus building their self confidence and introducing them to the minutest nuances of teaching. The valuable feedbacks from their supervisors have helped the B.Ed. trainees to make their teaching more effective and lively. They learnt how to present the content in a student friendly way using audio-visual aids or how to put questions intelligently. All these factors might have contributed in helping the B.Ed. students in acquiring various teaching skills.

Panda (2011) in his article ‘Action Research in Professional Development of Teachers’ stated that any profession has common characteristics of knowledge base related to the profession; competencies required to perform professional activities; and ethics associated with discharge of professional duties. While theoretical knowledge provides sound understanding of the concerned field and its applications, knowledge emerging out of experiences of resolving complex issues and encountering context specific problems contribute significantly towards professional development of teachers. Moreover, specific skill development practices associated with delivery of curriculum and evaluation occupy key position of teacher preparation and faculty improvement programmes. The knowledge and competencies among teachers need humanistic orientation in building conducive environment for teaching and learning. Their value orientation needs to emerge through self initiation while integrating with professional norm evolved by the professional bodies through collaborative efforts. In view of making professional development practices ground rooted, diversities must be encouraged to empower teacher educators to bring reforms at institutional level so that multiple strategies can be evolved to address local specific issues in teacher preparation.

Venkataiah (2011) worked on ‘Professional Development of Teachers’. He concluded few pints for developing professionalism in teachers: self-introspection, professionalism is a self-directed process and restoration of confidence. He suggested that every teacher must have through knowledge of the main objectives of professional development:
- The teacher must have thorough knowledge of the theoretical and practical aspects of the subject which he teaches.
- The teacher should have thorough knowledge of child psychology which will enable him to understand the process of child’s growth and development.
- The teacher must have knowledge of principles of pedagogy so as to enable him to understand the principles, process and techniques of teaching and learning.
- The teacher must be acquainted with the aims and purpose of education.
- The teacher should have thorough knowledge of adjustments so that he can understand the problems of students and help them in making better adjustments.
- The teacher should have the ability to organize and supervise co-curricular activities in the school.
- The teacher should be able to plan lessons effectively and communicate knowledge at the class level.
- The teacher should have knowledge of evaluation methods so as to enable them to assess and evaluate the attainment of the students, and
- The teacher should be trained to help effectively in the guidance programmes of the school.

**Watanabe, et al. (2011)** studied on ‘Blended learning in MBA education: a cross-cultural experiment’. They concluded that blended learning course jointly held by two foreign graduate institutions resulted in both high faculty and student satisfaction and learning despite differences in age and work experience. On the one hand, younger students found this type of course blending face-to-face and information communications technologies helpful to prepare for a career in international business, and, on the other hand, busy working students welcomed the use of both synchronous and asynchronous tools extending beyond the classroom. The student felt that the exchange of faculty brought ‘tangible diversity’ to the classroom, increased their tacit understanding of cross-cultural issues and made this technology-mediated experience more genuine.

**Doss (2012)** studied on ‘A Qualitative study of Educational Skills in Distance Education for Enhancing Employability’. He circulated a list of skills among the pre-service and in-service teachers and considerable number of collegiate students with an instruction to make tick marks against the skills they know from the list. The academic
and professional skills in the list included communication skills (conversational skills, debating skills, interacting skills, questioning skills, interpersonal skills, observational skills, soft skills, linguistic and non-linguistic skills), study skills (reading with understanding, reading with pause, fast reading, note making and note taking, information transfer, reference skills, location, identification, condensing and gathering skills, psychomotor skills, skimming and scanning skills, self learning skills, self-orientating skills), technology skills (ICT skills, media skills critical and creative skills, note taking skills, presentation skills, journalistic skills, research skills, lab skills, organizational skills, orientation skills, hardware skills, software skills, uses related skills), pedagogic skills (motivational skills, interaction skills, micro and macro teaching skills, presentation skills, writing skills, testing skills, diagnostic skills, logical skills, reasoning skills, analytical skills, reflective skills, thinking skills, responding skills, compeering skills, study skills, critical and creative skills, psychomotor skills, managerial skills, time management, leadership qualities, administrative skills, ICT skills, designing skills, display skills, questioning skills, decision making skills, problem solving skills, planning and supervising skills, monitoring skills, training skills, social skills, commenting skills, organizational skills, material production skills) and science skills (observation skills, note making and note taking skills, skills for identification of problems, problem solving skills, lab skills, reasoning skills, logical skills, psychomotor skills, process skills, awareness skills, creative and critical skills, analytical skills, research skills, operational skills, computational skills, skills on making scientific exhibits, statistical skills). It was found that 48% of in-service teachers knew some of the skills mentioned in the pedagogic and communication skills, whereas 23% of the pre-service teachers recalled a few of the skills. College students recalled only part of the communication skills. It was wondered that even science teachers were not able to recall the types of skills involved in teaching and learning sciences.

**Gupta & Trivedi (2012)** conducted a study on ‘Distance Education-A Powerful Instrument of Knowledge Explosion’. They found that distance education unlike formal education offers flexibility, autonomy, application of modern technology, cultivates the habit of independent learning in the absence of peer learning group and caters to the needs of heterogeneous group of learners. They concluded that, this century is full of
competition and there is lots of demand for interdisciplinary skills. Distance education is boon to this era as it helps in continuous skills upgradation using latest technology.

**Basha (2013)** conducted study on ‘Programme Evaluation in Distance Teacher Education—A case study of In-Service Teacher Education (B.Ed.) programme of IGNOU’. The sample of the study was consisted of 360 pursuing students teacher and 270 passed out students teacher selected by systematic sampling methods. 75 programme incharges, 294 academic counsellors and 187 workshop directors were selected by using multistage sampling method. Questionnaire was used for collecting data from B.Ed. pursuing and passed out students teacher. Structured observation schedules were also used for collecting the data. Findings of the study revealed that the majority of students found SLMs adequate, relevant, and communicative satisfactory and motivating. SLMs helped them to improve their teaching, made them competent in the profession and enhanced their knowledge and skills in classroom teaching and school system. Majority of students did not attend counselling sessions due to non-availability of information about counselling schedules and study centres far off from their residence. Those who attended counselling sessions found them satisfactory but mentioned non use of audio-video programmes during counselling sessions. Majority of them found assignments appropriate and helpful in their learning and preparation for examinations. Majority of them did not watch video Programmes and Gyan darshan channel. Majority of them mentioned that library facilities were made available to the at PSCs. Majority of them said that the workshop contributed to the improvement of their professional skills. Majority of them viewed that the school based activities helped them in enhancing their professional skills. Majority of them delivered 40 lessons in two methodology courses.

**Shazia (2013)** studied on ‘Perception of Distance Learners of Kashmir Region on Self Learning Materials of IGNOU: A study’. The sample for the study comprised of 100 learners chosen randomly from two programmes i.e. (Master of English & Master in Commerce). A comprehensive questionnaire consisting of both open ended and structured questions was developed and selected as the most appropriate tool. Result of the study indicated that clearly that learners use mainly SLMs. Female learners constituted 59.3% and male learners constituted 40.62% of the respondents in the study. All learners from MEG and 73% from M.Com. agreed that the selected content is based on prescribed syllabus of the course. 43% of learners from MEG and 63.55% from M.Com. indicated that selected content is accurate in terms of concepts, terms and facts.
Simpson (2015) studied on ‘Student Support Services for Success in Open and Distance Learning’. He identified that distance student support falls into three basic categories i.e. cognitive, organising and emotional support. Cognitive or Academic support is related with developing a student’s learning and cognitive skills. It involves not just teaching but helping students develop learning skills together with the important skills of assessment and feedback. ‘Teaching’ includes activities such as defining the course territory, explaining concepts, demonstrating, giving examples, and monitoring student progress. ‘Assessment’ includes not only formal assessment but also informal feedback to help students reflect on their strengths and weaknesses. ‘Developing learning skills’ means helping students with numeracy and literacy skills.

Organisational and emotional support is ‘Non-academic’ support. Organisational support - is about helping a student with the management of their studies. It includes helping students in managing their study time effectively, keeping up with the pace of the course, finding ways of prioritizing work and family life and so on. Emotional support - is about helping students deal with the emotional side of their learning. It includes helping students in developing their learning motivation, developing self-confidence in themselves as learners, finding ways of managing the stress of learning, particularly assessment stress.

Seebal (2016) studied on ‘Teacher Education Programme through Open Distance Learning Mode in Thailand and India: A Comparative Study’. Researcher suggested that activities of Teacher Education Programme through ODL Mode which should be given prime importance for urgent implementation. IGNOU should update the instruction and self study materials on every two years. It should provide the library facility and computer services at Study Centres for enable the learners to avail by signing a MOU with the educational Institutions such as colleges or universities whereby IGNOU learners can avail of the facilities of borrowing books and make use of reading room facilities. The strengths of IGNOU were self learning materials were highly qualities prepared in general by a course team and evaluated by experts in the field of Teacher Education and Distance Education, assessment and evaluation were standardised by academic teams and appreciated by learners, workshop and counselling session supported learners to prepare lesson plans, practice teaching skills and improve the learner’s problem during their teaching at school, and practical activities as micro
teaching practices were very effective for learners, they practiced teaching skills at the real classroom with supervision of mentors and counsellor.

STOU should develop the international course syllabus and study materials supporting for Thai and foreign students and update every two years, inform the output and achievements of the University to the society, motivate the University’s teaching academic and un-teaching academic staff to come back to join collaboration in University’s continuing development. The strengths of STOU were course structures and study materials were developed by STOU committee and course teams, they supported the requirement of students and society, STOU was working to provide educational services to students and the general public through new technologies, such as e-library and search engine for books and other types of educational services, evaluation and assessment were systemised and highly standardised which are appreciated by students and other educational institutes include society, workshop programme for final year B.Ed. students should be continued because students and teachers can meet and share experiences together, the quality of output as students of STOU was high level, and the university’s society network mean academic personnel and other institutes in the central and local sites should be motivated and kept up relationship.

Jahan & Sharma (2017) conducted a study on ‘A study of Attitude of Teachers towards Teaching Profession’ Survey method was used to investigate the attitude of teachers towards teaching profession. Teacher Attitude Inventory (TAI) developed by S.P. Ahluwalia was used for the collection of data. Sample consisted of 100 male and female upper primary teachers. Result revealed that upper primary school teachers, in general, had favourable attitude towards their teaching profession. When these teachers’ attitude was studied on according to their demographic features such as locality and their teaching experiences, it was observed that these variables had no influence on their attitude towards their teaching profession. However, the results based on gender showed that the female upper primary teachers have a better attitude than male teachers. 40.0% of respondents from MEG and 23.6% from M.Com. believes that content is upto-date.
2.3 Discussion on the Studies:


- Learning styles of face to face mode traditional courses students.
- Comparison of high creative and low creative students learning styles.
- Relationships between learning style preferences and different variables like: variables like age, gender, caste, residence, employment and SES.
- Comparison of learning styles of online learners and face to face mode learners.
- Learning styles Multimedia learning resources.
- Learning styles and instructional delivery modes & materials.
- Learning styles and learning environment.
- Learning styles and intelligence.
- Learning styles and ICT.
- Learning styles and academic success.
- Learning styles and SLMs.

- Training Planning & Management.
- Organization, Structure and curriculum of distance education professional programmes.
- Training of Professionals through distance Education.
- Attitude, Needs and Problems of Prospective Distance Teachers.
- Process-Issues of Organizing Training in Distance Teacher Education.
- Comparison of ODL mode and traditional B.Ed. programmes.
- Application of ICT in training of ODL mode professional courses learners.
- Attitude towards teaching profession.
- Action researches in professional development of teachers.
- Professional development of teachers.
- Blended learning in MBA education.
- Programme evaluation in distance teacher education.
- Perception of distance learners towards SLMs.
- Student Support Services in ODL.
- Comparison of teacher education programme of India and other countries.
- Attitude of teachers towards teaching profession.
2.4 CONCLUSION:

Knowledge of learning styles of students on the part of teachers is helpful in enhancing effectiveness of teaching learning processes of open universities B.Ed. students as well as enhancing effectiveness of managerial competencies of open universities MBA students. The development of professional skills and learning styles of learners of Open-Universities is interrelated to each other. The process of development of professional skills among professional courses students is greatly influenced by learners learning styles. Review of related literatures revealed that a few studies have been carried out on ODL mode professional courses students learning styles and process of development of professional skills. Moreover, studies on these areas are very much limited in the Indian conditions. On the basis of above reviews it may be stated that the process of development of professional skills and learning style of learners of Open-Universities is still an unexplored area of research in India. The researcher intends to conduct a study on the ‘Learning Styles and Process of Development of Professional Skills among Students of Professional Courses of Open Universities’ because in India as well as in abroad there is scarcity of study on process of development of professional skills in relation to Open Universities learners learning styles.