CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

"One who is not fully conversant with what has gone has little chance of making a worthwhile contribution". (Krishnaswami, 2005). Having presented the detailed conceptual framework, in the present chapter, a review of the literature related to the present study is being presented.

2.2 STUDIES RELATED WITH TREND ANALYSIS AND RESEARCH SYNTHESIS

In the following sections, studies related to the Trend analysis and Research Synthesis was reviewed. For convenience, the reviewed studies are presented in two categories. The first category comprises those studies which are conducted in India and the second category comprises the studies conducted abroad.

2.2.1 REVIEW OF RESEARCH STUDIES CONDUCTED IN INDIA

The present section gives a detailed overview of the reviewed literature chronologically. The first effort to take stock of Educational Research was attempted by NCERT in the form of bringing out the third yearbook of education focusing on a review of Educational Research in 1968 (Nagaraju, 2004). Most of the studies reviewed were dissertations submitted for a Master's Degree in various universities. Later on, the UGC sponsored a survey of educational researches in India. It was carried out under the editorship of M.B. Buch in 1974 in the Center of Advanced Study in Education (CASE), The Maharaja Sayajirao University of Baroda. It traced the history of Educational Research in India and come out with research trends in different areas of education until 1972 (Buch, 1974).

Buch (ed.) (1974) conducted a Project titled *"A Survey of Research in Education"* contained 729 research abstracts and across 16 areas. It covers research abstracts of 342 Ph.D.s from Education Subject, 118 Ph.D.s from educational related subjects and 269 Research Projects from more than 60 educational institutes of Indian Universities and Institutes of National Importance up to 1972. The studies included in the survey were the first attempt on a national front and it was suggested to broaden the scope of education by including more areas and conducting in-depth research

employing higher techniques of philosophical inquiries. It was found that in the area of Tests and Measurement most numbers of Ph.D.s were carried out whereas, in the area of Educational Evaluation and Examination most numbers of Non-Ph.D. research were carried out.

Passi and Rama (1977) conducted a study aimed at appraising 729 doctoral and institutional research studies in education which appeared in a survey of research in education against a set of six criteria, namely, Social setting, concept of education, educative process, content or subject matter of instruction, context of injury and person conducting research. It was found that only one-third of the total research studies satisfied all the six criteria, while only five percent of them satisfied none.

Buch (ed.) (1979) conducted a Research project entitled *"Second survey of Research in Education"* which contained 839 research abstracts across 17 areas related to education from more than 85 universities and Institutes of National importance, during 1972-1978. The detailed account of the trend report of 17 covered areas by experts from the related fields is also there. These trend reports provided detailed information about the Research problem taken, type of Sampling technique used, type of research, Methodology of Research, tools used, and techniques used, along with the needed aspects to be focused in particular areas. It was found that studies were scattered in different areas and lacking vision for education.

Raina & Sengupta (1979) conducted a study on Indian Educational Review (IER) through ten years and reviewed nineteen issues of Indian Educational Review published during July 1975 against a set of some criteria, such as function areas, subject areas, personnel areas, administrative areas, it was found that some of the areas in education at least as indicated by the number of contributions in IER have received greater attention in comparison to other areas which are as important as fashion change, interest change and consequently emphases change. They found that people deeply want to do research not because they have "striving spark" but because certain areas are a more tempting and rewarding area, like, Curriculum, Instruction, Special Education and Research in function area have been neglected. Personal areas and Administrative Areas have not received as much attention.

Buch (ed.) (1987) conducted a Research project entitled *"Third survey of Research in Education"* which contained 1483 research abstracts across 19 areas related to education from more than 95 universities and Institutes of national importance during 1978-1983. The detailed account of the trend report from 19

covered areas by experts from the related fields is also there. The trend reports have detailed information about the Research problem taken, Sampling techniques used, type of research, Methodology of Research, tools, and techniques used, along with the needed aspects to be focused in particular areas.

Pal (1984) in his investigation *"Research Abstracts of M.Ed., Ph.D., and projects (1979-1984)"* observed that there are certain areas that are not fully explored. Problems related to the priority areas like supervision system, Curriculum Analysis, and Development, Studies of Innovations, Pedagogical and learning process, Effectiveness of teachers.

Singh (1987) conducted a study on *"Trend of Research and Abstract of Research Studies at M.Ed., M.Phil., Ph.D. And Project Levels at Department of Education During 1985-1986"* conclusively commented that the studies in 2 years (1985-1986) are important from their utility point of view but there was a need of conducting research in environmental problem, rapidly growing Population Education and rehabilitation of disabled.

Mohanty (1989) in her M.Phil. Study entitled "Developing Educational Implication of Research Findings in the area of Creativity in Indian Scene" reviewed the studies in the area of creativity abstracted in the four surveys of research in Education. The researcher employed both quantitative and qualitative methods like vote counting, narratives for synthesizing the research in the area of creativity and emerging out with the implications of research titled "What researches says to teacher". The study stressed the need for synthesizing the research results for future researches and focuses on implications from the researches.

Buch (ed.) (1991) conducted a Research project titled *"The fourth survey of Research in Education"* which includes abstracts of 1652 pieces of research from 29 areas during 1983-1988. The survey reports and analyzes the researches done in different areas by giving the trend report related to the particular field. The trend report provides the synoptic view of the researches done and also explicitly identified the areas which need further attention. The survey also highlighted the need for increasing the areas of research by conducting interdisciplinary studies.

Jawade (1990) conducted a study *"Preparation of database of research studies in the school of education and its implications in Educational Technology'*. In this study database of the research findings was prepared and analysis was carried out

using vote counting methods. Differential synthesized findings related to the various themes were found related to the area of educational technology.

Rais & Madhulika (1991) studied 9000 theses and arrived at the following conclusion (a) 78 percent of supervisors felt that hardly any thesis made any intellectual contribution. (b) 60 percent of the supervisors thought that most of them were repetitive studies of the phenomena by known methods. (c) Nearly 70 percent of the supervisors worked in isolation, not interacting with the researchers doing similar work in other universities. (d) Of the 3000 theses approved every year, about 700 are of fairly good quality, which could be of interest to the user agencies. (e) Applied research, which accounts for 80 percent of the theses, is often trivial, mediocre and without any intellectual input

Sahoo (1992) classified the studies done in Distance Education into nine broad categories and on the basis of his review suggested the areas for the large scale research, like, development of courses in the basis of appropriate planning and need assessment, formulation of the appropriate strategies of instruction of different courses, utilization of technology in distance education, Economics of the Distance Education, all issues concerning the Open School System and Open University System and Structure & Style Management of Distance Education.

Shaheen (1994) conducted a study entitled *"Indore ke Shikshan Prashikshnarthiyon Dwara Purna ki Gayi Shekshik Pariyojnaon Ka Mulyankan"* with the objectives 1. To develop a tool for the evaluation of a good research thesis. 2. To evaluate the research thesis by the developed tool. 3. To evaluate the thesis of teacher educators. The present study was delimited to 30 B.Ed. students and 20 M.Ed. students and only 20 research dissertations of the year 1992-1993 were taken for the evaluation purpose. The research included title, conceptual framework, data analysis technique, statistical technique, limitation tool, sample and conclusion as a dimension in the developed tool. The researcher developed a questionnaire and Reaction scale for getting opinions of Trainee-researcher. The major findings of the research include above-average performance aspects related to title, conceptual framework, delimitations, presentation of data, statistical technique, and explanation of data. But at the same time, poor results related to the presentation of diagram, graph, photograph, chart was found. Also, problems related to researchers in data collection, lack of support, lack of proper guidance, etc were also enumerated.

Panda, Satyanarayana & Sharma (1996) in their pioneer work *"Open and Distance Education Research: Analysis and Annotation"* reviewed over 152 studies and annotated 88 studies. The studies covered included some published and some unpublished, some institutional sponsored and some individually undertaken, some projects and some dissertations at universities, open universities, and open schools. They analyzed studies under nine sub-themes and also listed in the references almost all the research studies considering Indian Distance Education and finds out (a)lack of compatibility between the macro and micro issues & lack of proper theoretical base to back the research studies. (b) methodology of fewer studies were sound and most of the studies are either descriptive, status survey or experimental with poor methodological procedures (c) lack of coverage of the research problems by the researchers (d) Distance education research studies conducted from 1992 to 1994 have neither changed the characterization of the issues raised nor significantly contributed to the quality of the research.

NCERT (1997) conducted the *"Fifth Survey of Research in Education"* which contained 1828 research abstracts and covers 37 areas. The study was also given the trend report of 37 covered areas by the expert from the related field. This trend reports had detailed information about the Research problem taken, Sampling used, type of research, Methodology of Research, tools used, and techniques used, along with the needed aspects to be focused in particular areas. It emerges from the studies included in the survey that Educational Research in India has progressed subsequently over the years in spite of variations in the professional approach to understand issues and problems in the field of education.

Raina & Srivastava (1997) in their study titled 'Educational Psychology in India: Its Present Status and Future Concerns' examined the status of educational psychology in the general curricula of psychology and education at various academic levels in India by focusing on the published research in this area during the last 15 years. Analysis reveals that educational psychology in India is struggling for a respectable place in the psychology curricula. Despite the fact that it has been included as a foundation course in education curricula, the course of study is characterized by an arbitrary selection of topics and stereotypic, inappropriate, outdated contents. Fewer research studies are conducted in educational psychology than in some other branches of psychology in India. A lack of in-depth analysis of the research problems and of collaborative efforts, a failure to keep up with recent

international research and theorizing, excessive use of the questionnaire method with easily available respondents, and instrument-dependent research are some of the characteristics of educational psychology research in India. To make educational psychology more responsive to the changing social needs, suggestions are made regarding changing the orientation and emphasis in the teaching of the discipline and altering research priorities within the framework of the country's historical and socio-cultural contexts.

Sujatha (1998) in her study classified the Distance Education research works of the decade 1976-86 into the nine areas and finds out that (a) from the point of view of methodological aspects, most of the studies were descriptive, highlighting the status and functioning of the system, exploring facts and figures of related to its different dimensions (b) except few studies most of the studies were evaluative in nature (c) piecemeal form of evaluative studies and lack of proper direction of the distance education research

Dahiya (2001) has highlighted various aspects related to doctoral research. According to the study, more than 80 percent of Ph. D. is bogus, stereotype, repetitive, plagiarized and hence irrelevant. Many studies have been conducted in the field of Programmed Learning Material, Computer-Aided Instruction, Correlates of Achievement but findings of the studies have never reached the practitioners and the user community could not take the advantage.

Venkataiah (2001) reviewed thirty six evaluation reports of the doctoral theses in education and concluded about many maladies and misconceptions in different aspects of research like erroneous research problem title, ignored research review, flaws in research design, errors in data analysis techniques, use of language jargons, lack of language mastery, and lack of discussion on findings.

Mishra (2002) analyzed the first 10 volumes of the Indian Journal of Open Learning and concluded that several gaps exist in the research literature. The researcher pointed out the areas of design and development of self-learning material need due attention. The study also pointed out the replication, use of plagiarized text, lack of proper referencing as the major findings.

Gupta (2003) in his study of "*Scientific Research in Indian Universities: Status, Challenges, and Prospects in Scientific Research"* concluded that vast majority of research has little or no relevance to the immediate needs of the society and in most of the areas the quality of research is poor. The study also found that most

of the studies lack the fundamental aspects of research like writing reviews of related literature, conceptualizing a problem, formulating hypotheses, and writing references. So there is a need to appraise and to develop a monitoring system for the bad research at the higher education level.

Nagaraju (2005) in his article study National Concern and Indian Educational Research critically commented on the scenario of the Educational Research on India and claimed that many Educational Researches promoted in the Departments of Education in Indian Universities lack perspective and vision of education.

Koul (2006) reviewed research studies in Distance Education in India conducted in the last four decades and concluded that the trend of research on distance education in terms of its quality and depth has not been encouraging. The researcher pointed out the research studies lack a qualitative trend with respect to theory and practice, lack of studies on dropouts in different courses of various categories of distance learners, more dominance of the qualitative and descriptive surveys**.**

Sansanwal (ed.) (2007) had collected the abstracts of doctoral theses for 2394 studies from 139 universities catering to the 29 categories and put these online under the research project Sixth survey of Educational Research in Education, with the funding of UGC- (DRS-SAP). This online collection of the research abstracts helps the novel researchers to locate the studies done in their field of interest.

NCERT (2007) published the *"Sixth Survey of Educational Research"* consists of twelve chapters each presenting a trend report on research in a specific area/concern of education during the period 1993 - 2000. More than 2500 research abstracts from the 8 broad areas were put in this survey report. The trend reports presented in this volume, authored by distinguished experts of the respective areas, have used both the primary and the secondary sources of data which include journals, periodicals, books, web, doctoral dissertations, project reports, conference proceedings, and published abstracts. No separate Trend report was found in this survey as found in earlier surveys. A review of the included studies was there in the chapters related to the identified Eight Areas which mention the areas that need to be focused on the different identified areas. The survey finds that 'Philosophy of education' both in terms of quantity and quality, presents a sorry spectacle today and subject has suffered neglect in all aspects; under 'Teacher Education' does not present a satisfactory scenario; areas like history and philosophy of science and policy studies in science education remain unexplored; teacher training in India do not pay due

stress to the need for promotion of health, physical education and sports science; the researches covered are a few in number and hence do not provide the exact picture of implementation of vocational education program in the country; areas of research like curriculum development, parameters of assessment and evaluation, administrative and management, child abuse, children of divorced parents, coping with stress, anger, violence, rape, attempted suicide, should dig further in rural and urban settings; Indian Research has been a weak link in the population education project at all levels. The reports within the survey, however, clearly indicate the need for more research in different areas of education.

Gupta and Koul (2007) in their study 'Research Studies on Creativity in India Since 1990— A Trend Analysis' have reviewed researches on creativity in India reported in various journals and publications since 1990 with a view to analyzing the main trends. The various criteria on which these studies were analyzed included: (i) year of publication of the abstract, (ii) type of creativity studied, (iii) sex of the sample, (iv) tools used, (v) setting of research, (vi) scope of the sample, and (viii) area of creativity research. Major findings were—A sharp slump in research studies on creativity in India especially during the period 2000 to 2005; Lacked sophistication as far as research designing is concerned, Indian researchers have largely confined their studies on urban samples only; Maximum studies have been conducted on students at secondary level qualitative and clinical methods for data collection and analysis were lacking; educational implications have not been highlighted in majority of researches. Further, the researches continue to suffer from drawbacks identified by earlier reviewers. The authors recommend that renewed efforts are needed to reactivate researches in the domain of creativity in the light of drawbacks and limitations highlighted in the trend analysis since a holistic and comprehensive body of knowledge on nature, process, and nurture of creativity in Indian settings is still to be concretized.

Singh & Desai (2009) in their study on *"Plagiarism: Deterioration to Quality in Research or Knowledge Expansion - Some Observations and Reflections"* draws the attention towards the unethical practices in Educational Research areas. They reviewed the text in doctoral theses and found the intentional copying practice, locate mistakes related to reference & credit giving, listed the researches done on plagiarism at different levels. While making a distinction between Replication and Duplication, they proclaim the need of keeping a track of the researches already done to bring

quality in Educational Research and to guide the future course of action for Educational Research. They emerge with the thesis of reviewing the Educational Research at different levels and on a regular basis to found the bases of ethical practices in the Educational Research area.

Goel et.al. (2007) attempted to abstract and classify educational research conducted in teacher education institutions in India 1998 onwards. It presents abstracts of 146 studies from the different parts of Indian universities differentiated into 18 areas.

Goel et.al. (2008) abstracted and classified educational research conducted by Teacher Education Institutions in India mostly 2006 onwards. It presents abstracts of the 64 Research Studies differentiated into 19 areas. The study helps in providing a base for the novel researcher to help to collect information regarding the things happen in the teacher education area so as to incorporate the latest findings in their research.

Goel et.al. (2010) abstracted and classified educational research conducted by Teacher Education Institutions in India mostly 2005 onwards. It presents abstracts of the 120 Research Studies differentiated into 23 areas.

Yadav (2011) in their study had reviewed the educational research studies at the M.Ed., M.Phil. and Ph.D. level held at School of education, Devi Ahilya Vishwavidyalaya, Indore during 2001-2010. The study used a random sampling technique to draw a sample of 150 studies and reviewed the same. The non-uniform attention is paid to the different areas of educational research; maximum attention was paid to Educational Technology, Psychology of Education and Teaching Strategies; poor review of literature in many research studies at M.Ed. and M.Phil. level; domination of the Quantitative research methodology along with with the two groups pre-post research design; more use of parametric data analysis techniques, the opulence of the purposive sampling, along with the greater number of errors in research publication, grammatical and lexical errors. The review of all these related literature has, however, elucidated the following observations, which further justifies the reasons for taking up the present study.

Sharma (2015) conducted a study at the M.Ed. level on 'Abstractization and Trend Analysis of Doctoral Researches'. The study collected abstracts of 96 doctoral studies and trend analyzed the studies with respect to the various components of the research. it was

concluded that many areas of the research were deprived and only a few were dominating the education research.

Khan (2015) conducted a study at the M.Ed. level on 'Abstractization and Trend Analysis of Master of Philosophy Researches'. The study collected abstracts of 84 M.Phil. studies and trend analyzed the studies with respect to the various components of the research. it was concluded that the many areas of the research were deprived and only a few were dominating the education research.

2.2.2 REVIEW OF RESEARCH STUDIES CONDUCTED ABROAD

The review of the studies related to the trend-analysis and Research synthesis conducted abroad was detailed in the following sections.

Henk (1999) in her study on *'Reading to Young Children in Educational Settings: A Meta-Analysis of Recent Research'* reviews 10 studies, comprising 11 samples, of the effects of reading to young children in schools. The age of the children varied between 31 and 90 months. Dependent variables were classified into 2 domains: oral language and reading skills. The combined effect size for the oral language domain was d = .63, and for the reading domain, d = .41. Although these figures look promising, caution is needed because the empirical evidence appears to be meager. Not only is the number of studies small, but a critical analysis of the design of the studies generally reveals poor quality.

Cwikel, Behar, and Rabson (2000) in their study "A Comparison of a Vote Count and a Meta-Analysis Review of Intervention Research with Adult Cancer Patients" compares the utility of two methods of knowledge utilization in social work intervention: vote count review and meta-analysis. Using the two methods, the authors reviewed 40 intervention studies with adult cancer patients that used treatment techniques common in social work. The common research question was which treatments are the most effective with cancer patients, differentiated by disease phase and type of diagnosis? It was found that By both methods of review, interventions were shown to be most common and effective at the treatment phase, and cognitive-behavioral methods showed the most consistently positive effects. Correlations between the vote count and meta-analysis results showed that the outcome score given in the vote count was very strongly correlated with the average effect size from the meta-analysis. Conclusions: Vote count is a relatively simple method of knowledge utilization, whereas meta-analysis requires a careful explanation of the discretionary steps taken in analysis.

Berge & Mrozowski (2004) in their study of *"Review of Research in Distance Education during 1990–99"* examines the research literature in distance education over a ten-year period from 1990 to 1999. Using four prominent, peer-reviewed, English-language distance education journals and the dissertation abstracts that were related to the field of distance education, the authors found 1,419 total articles and abstracts. Only those articles reporting a research methodology (N = 890) were included in this study. A categorization system based on Sherry (1996) was used to categorize the content. The patterns across journals and dissertation abstracts indicated a predominance of pedagogical issues being researched. Three-fourths of the articles and dissertations used a descriptive methodology. Implications for reviews such as this include that, while they cannot correct sloppy or short-sighted research, they can begin to address gaps in past distance education research. The research concluded on the need for a research agenda and future vision in the field of distance education.

Olaf, Eva & Sebastian (2009) reviewed distance education literature to describe the status thereof and to identify gaps and priority areas in distance education research based on a validated classification of research areas. The articles (N = 695) published in five prominent distance education journals between 2000 and 2008 were reviewed for this study. They concluded that distance education research is strongly dominated by issues related to instructional design and individual learning processes; whereas, other important areas (e.g., innovation and change management or intercultural aspects of distance learning) are dreadfully neglected. There is a significant trend towards collaborative research and more qualitative studies. Over 80% of all articles originate from only five countries.

Lee, Wu &Tsai (2009) in their study of *"Research Trends in Science Education from 2003 to 2007: A Content Analysis of Publications in Selected Journals"* in which 802 articles published in the "International Journal of Science Education," "Science Education," and the "Journal of Research in Science Teaching" from 1998 to 2002 were analyzed in terms of author's nationality, research type, and research topic. In this study, a total of 869 papers published in the three journals from 2003 to 2007 were analyzed, and the results were compared with those of Tsai and Wen (2005). Moreover, this study also identified 31 highly-cited papers published during 1998-2002 and 20 highly-cited papers published during 2003-2007. The results showed that authors from countries other than the four major

English-speaking countries (i.e., the USA, the UK, Australia, and Canada) published an increasing number of articles in the past decade. During these five years (2003-2007), science educators showed relatively more interest in research topics involving the context of student learning. Besides, science educators have changed some of their research interests from 1998-2007, with a shift in the research topics from student conception learning and conceptual change (1998-2002) to student learning contexts (2003-2007). Moreover, the investigation of highly-cited papers in the past decade revealed that studies on argumentation have gained significant attention among science educators.

Ayfer & Yasemin (2009) The aim of this research study *"Trends and issues in educational technologies: a review of Recent research in TOJET"* was to investigate the articles published between 2003-2007 in Turkish Online Journal of Educational Technology (TOJET) in order to reveal the trends and issues addressed in this electronic journal for the field of educational technology. The specific purposes of this article were to reveal: (1) the methodologies and theories that underlie research, (2) the topics that have been most and least heavily researched, (3) the design types that shapes research, (4) the issues on selection, size and level of the sample, and (5) some other issues like number of authors, data collection methods, references and variables. Document analysis, Content analysis, Graphical methods were used to analyze the data. The results showed that in order to improve the quality of research in the field of educational technology; research studies should have a theoretical basis; the mixed method of research(qualitative and quantitative) should be used to complement each other, the research studies should address K12 as much as Higher Education; New and emerging research topics should be sought; Interdisciplinary topics should be investigated; and diversity in terms of sample selection, data collection, and research design should be sought.

Zao & Gang (2009) in their study of *"Scholarly Journal Articles on Open Access in LIS Literature: A Content Analysis"* This study is to analyze the publication trends of scholarly journal articles on open access in the library and information science literature from 2000 to 2005. The authors used the method of content analysis to systematically analyze the selected scholarly articles. A total of 227 articles were selected from the relevant databases and a comprehensive bibliography on open access. They were subject to a content analysis according to a classification scheme developed by the authors. It was found that general works, library science journals,

viewpoint articles, library professionals, and U.S. authors predominated in the categories under investigation. Cross-tabulations of content with other categories and individual journals' productivity were also discussed. Trends with respect to the scholarly journal articles on open access in the library and information science literature were found to be diversified, scattered and cutting across various disciplines.

Shetty, Hiremath, Murugan & Sreeja (2010) analyzed higher education and research scenario in ten state universities of India from 2000 to 2006. Calcutta University ranked first in terms of published research articles, on an average of 664 articles in a year in peer-reviewed national and international journals. Similarly, Madras, Punjab, Rajasthan, Mysore, Gauhati, Pune, Mumbai, Patna, and Sikkim Manipal Universities published 600, 582, 538, 328.33, 221, 184.33, 112.5, 47 and 5 articles respectively. The ratio of the number of faculty to research publication varied from 1:0.05 to 1:1.9 in the selected universities. University of Madras, Punjab, Rajasthan, and Calcutta have a ratio of more than 1:1. The University of Madras received the maximum research funds of 41.46 crore rupees and ranked first among the selected ten universities. Considering the overall performance of universities in our analysis, Calcutta University and Madras University captured the first two places respectively. The study was concluded on the note that the research scenario in these top universities had grown significantly as far as the number of publications was concerned but still the traditional areas of research were found in abundance and dominating. The lack of research in the novel areas was found missing.

Maurer, **Khan and Salman (2010)** in their study of *"Research Trends in the Field of E-Learning from 2003 to 2008: A Scientometric and Content Analysis for Selected Journals and Conferences Using Visualization"* The purpose of this study was to provide a Scientometric and content analysis of the studies in the field of e-learning that were published in five Social Science Citation Index (SSCI) journals viz."Journal of Computer Assisted Learning, Computers & Education, British Journal of Educational Technology, Innovations in Education and Teaching International and Educational Technology Research and Development") and two conferences (Educational Multimedia, Hypermedia & Telecommunications and IEEE International Conference on Advanced Learning Technologies) from 2003 to 2008 to realize hidden research trends using an internally built visualization tool. The 7,759 original papers gathered from five journals and two conferences were further classified in 14

main research areas based on 150 concept clusters. The internally built visualization tool, which is primarily based on an animated bubble chart and pie chart, facilitated the task of analyzing the trends of contributions in the field over the years. Findings: Different research areas that are evolving or diminishing across the globe, most discussed research areas, most prolific researchers, leading institutions and nations. In addition to that these trends have also been analyzed across journals and conferences. The study concluded that the results of the study will allow novice and experienced educators, researchers, policymakers in the field of e-learning to study what kind of different research areas exist and to identify different research trends over the last six years.

Bretones, Paulo & Megid (2011) in their study analyzed 283 papers dealing with astronomy education published in the IAU proceedings from 1988 to 2006. The analysis was conducted to determine both the characteristics and trends of published research studies in order to determine whether researchers should consider taking new directions. The authors conclude that Astronomy educational research requires deeper treatments dealing with epistemological questions, as well as teaching and learning processes. The authors hope that this analysis will stimulate the development of scientific investigations more appropriate to the needs of astronomy education.

Hallinger (2011) in the study of *"A Review of Three Decades of Doctoral Studies Using the Principal Instructional Management Rating Scale: A Lens on Methodological Progress in Educational Leadership"* continues in the lineage of reviews of research in educational leadership and management by examining methodological approaches used by doctoral researchers in studying principal instructional leadership. The article reviews the full set of 130 doctoral dissertations completed over the past three decades that used the Principal Instructional Management Rating Scale (PIMRS). The report analyzes trends in the research foci, conceptual models, research designs, and statistical methods employed in these studies. The study finds that interest in instructional leadership among scholars and practitioners remained strong throughout the period of the review, the PIMRS has proven a reliable and valid data collection tool, and the use of research methodology has improved in several specific areas. Nonetheless, the results also suggest that the conceptual frameworks and methodologies used by these doctoral students were, on the whole, inadequate for the task of contributing to either the theoretical or the

practical knowledge base in this field. This impression of weak knowledge accumulation was further reinforced by a citation analysis that found limited citations of the dissertations by other researchers in the field at large or by the dissertation authors themselves. These conclusions applied equally to Ed.D. and Ph.D. dissertations, regardless of the level of Research University from which they were produced. Conclusions were made that the review adds empirical evidence of trends in research quality gathered over a 30-year period to the renewed debate over the purpose and direction of the doctoral dissertation in this professional field.

Chang, Chang & Tseng (2011) in their study on *"Trends of Science Education Research: An Automatic Content Analysis"* used Scientometric methods to conduct an automatic content analysis on the development trends of science education research from the published articles in the four journals of "International Journal of Science Education, Journal of Research in Science Teaching, Research in Science Education, and Science Education" from 1990 to 2007. The multi-stage clustering technique was employed to investigate with what topics, to what development trends, and from whose contribution that the journal publications constructed as a science education research field. This study found that the research topic of "Conceptual Change & Concept Mapping" was the most studied topic, although the number of publications has slightly declined in the 2000s. The studies in the themes of "Professional Development," "Nature of Science and Socio-Scientific Issues," and "Conceptual Change and Analogy" were found to be gaining attention over the years. This study also found that embedded in the most cited references, the supporting disciplines and theories of science education research are constructivist learning, cognitive psychology, pedagogy, and philosophy of science.

Higgins and Green (Eds.) (2011) in Cochrane Handbook for Systematic Reviews of Interventions, writes about the Use of vote counting for meta-analysis. The authors were of the opinion that occasionally meta-analyses use 'vote counting' to compare the number of positive studies with the number of negative studies. Vote counting is limited to answering the simple question "Is there any evidence of an effect?" Two problems can occur with vote counting, firstly, problems occur if subjective decisions or statistical significance are used to define 'positive' and 'negative' studies. To undertake vote-counting properly the number of studies showing harm should be compared with the number showing benefit, regardless of the statistical significance or size of their results. A sign test can be used to assess the

significance of evidence for the existence of an effect in either direction (if there is no effect the studies will be distributed evenly around the null hypothesis of no difference). Secondly, vote counting takes no account of the differential weights given to each study. Vote counting might be considered in situations when standard meta-analytical methods cannot be applied. Although the assumptions of the standard meta-analytical methods are rarely met in the Social sciences thus provides an edge to use Narrative or vote counting methods to synthesize findings.

Ebru, Ayca, Pinar, Mustafa, and Murat (2013) in their study entitled '*A Content Analysis of Educational Technology research in 2011*' reviewed all the articles published in 6 international journals from the social sciences citation index (SSCI) in 2011 through content analysis method. According to the results, the most frequently used research method was found to be a quantitative methodology. Among the data collection tools the most frequently used is questionnaire and the most preferred sampling method in all the journals is the convenience sampling method. It is believed that this study will provide a direction for the future and fill gaps in the literature.

Hallinger and Bryant (2013) in their '*Review of research publications on educational leadership and management in Asia: a comparative analysis of three regions*' study examined the extent to which calls over the past 15 years for increased empirical research on educational leadership and management in Asia have yielded increased knowledge production. The study analyses trends in research about and/or from Asia published in eight core educational leadership journals between 2000 and 2011. They provided an overall picture of the volume and impact of knowledge production in the region, as well as insights into change in the rate of knowledge production from the region over time. The study employs a comparative lens, specifically analyzing differences in knowledge production capacity and impact across West, South and East Asia. These comparative analyses extend further to understanding variations in the contributions of different societies and universities across Asia. Although the research identified a disappointing level of overall publication in the region, interesting patterns were revealed with respect to the distribution of publications both across and within the three regions of Asia. Taken together the results suggest that progress in developing an 'Asian knowledge base' in this field remains stunted and that regional capacity to produce empirical knowledge continues to be limited to selected societies and universities.

Ghobadi (2013) in study, entitled, 'Meta-Analysis of Studies on Analysis of Studies on the Obstacles in Using Educational Technology in the Education Systems of Iran', Education Systems of Iran" purported to arrive at a conclusion from all the findings of different studies on obstacles in using Educational Technology in education systems of Iran and also to test the null hypotheses formulated regarding the identified obstacles the non-use of Educational Technology by Teachers of Schools and Universities in Iran. It was a quantitative review study using Howitt and Cramer's meta-analysis (2000) approach with a population of all theses, articles and project works (total 55) available during 1993-2009 on Obstacles in using Educational Technology in Education Systems in Iran. Data Analysis involved analysis-descriptive analysis and Statistical analysis in terms of effect size, combined effect size and its significance for testing hypotheses. Five variables—Financial Limitations, the Lack of Educational Technology Experts/Technologists, the Lack of Necessary and Appropriate Training Facilities, the Curriculum and Content of Books, the Lack of Teachers' Knowledge about Learning Theories in connection with Educational Technology were identified as obstacles. All 5 null hypotheses formulated were rejected and the identified variables are considered as obstacles for using Educational Technology by Teachers of Schools and Universities in Iran.

Choi and Kang (2014) in their study titled 'Themes and Trends in Korean Educational Technology Research: A Social Network Analysis of Keywords' identified themes and trends of Korean educational technology by examining 645 papers authored by Korean researchers in Journal of Educational Technology (JET) between 1985 and June 2013. In order to trace dynamic changes of the ET field, the whole 29 years were further separated into three consecutive periods: 1985-1994, 1995-2004, and 2005-2013. Results indicate that educational technology research in Korea has been strongly influenced by new media, design theory, educational epistemology, and educational assessment. Instructional design revealed to be most important keywords by centrality measures among time periods, and it has received consistent and high attention over the last decade. Constructivism related keywords and learning have also received growing attention since 1996. Social media related keywords (knowledge sharing, social capital, and social media, etc) is emerging theme since the 2005 year. The findings contribute to predict future trends of the ET field and to understand the discourse about the epistemology of educational technology research by using social network techniques. The results show that ET

fields have some established research themes and it also changes rapidly to embrace new themes.

Jung and Yoo (2014) in their study on 'An analysis of Asia–Pacific educational technology research published internationally in 2000–2013'pointed out that on the during 20003-2013 i.e. in fourteen years have seen a significant rise in the percentage of Asia–Pacific papers on educational technology (ET) published internationally: from 13.7 % in 2000 to 38.4 % in 2013. This study seeks to identify the overall trends and gaps in this research. Of the 4,332 articles published in five selected international journals between 2000 and 2013, 1,137 (26.2 %) from the Asia–Pacific region [the Asia–Pacific (AP) region includes countries specified by UNESCO and Western Asia (Middle East) countries defined by United Nations] were selected for analysis. It was found that the majority of these came from Taiwan, Korea, Australia, Singapore, and China, revealing a need for more studies from such countries as Japan and Indonesia, West and Central Asia and the Pacific Islands. The papers most commonly addressed issues at the micro-level in formal education, particularly higher education, focusing on the introduction of digital technology into on- or off-campus settings. There were few macro-level studies into such areas as policy making, quality assurance or evidence of educational outcomes and impact. It is suggested that researchers should undertake more such comprehensive studies into ET integration, not only in formal education but non-formal, informal, incidental and implicit learning.

Eğmir, Erdem and Koçyiğit (2017) studied 'Trends in Educational Research: A Content Analysis of the Studies published in International Journal of Instruction'. The major objective of the study was to analyze the studies published in the International Journal of Instruction [IJI] in the last ten years. This study is a qualitative, descriptive literature review study. The data was collected through document analysis, coded using constant comparison and analyzed using content analysis. Frequencies and percentages were calculated. In this study, Research trends in the field of education, techniques of sampling, methods of research, Statistical procedures and the countries in which the researches took place and some other variables were examined. The results showed that studies in the field of education mostly employ quantitative methods, purposive or random sampling techniques, and a sample size of below 500. Data collection tools mostly consist of scales and the data

are mostly analyzed using descriptive statistics. Publishing studies from 35 different countries, IJI has a high level of internationality.

Livingston & Flores (2017) in their study titled as 'Trends in teacher education: a review of papers published in the European Journal of teacher education over 40 years' found that questionnaires and/or interviews are the most recurrent methods; There is a need to develop larger studies with bigger samples using mixed-method approaches; theoretical/reflexive papers are abundant and they address normally issues related to given specific programs or features in teacher education.

After the abstracts of the reviewed literature were detailed, the next thing is to find implications and research gaps from the reviewed literature, for the present piece of research. This is given in the following section.

2.3 IMPLICATIONS AND RESEARCH GAPS FROM THE REVIEW OF RELATED LITERATURE

From the previous section, it was clear that 53 studies (33 Indian and 20 Abroad studies) were conducted in the area related to Review, Research trends, and Synthesis in Educational Research and allied disciplines. Summarizing the review of related literature along with the conceptual framework the following observations and implications can be made.

- It is evident that various attempts have been made to document the trends in Educational Research. Prominent among them are the five surveys of research in education (Buch 1974, 1979, 1987, 1991; NCERT, 1997).
- Drawing upon these and some other recent sources such as Indian Educational Abstracts, also initiate the task of recording the research abstracts to delineate the trend of research in education.
- All reviewed researches focused on analyzing, reviewing the research at a regular interval of time.
- All reviewed researches stressed on identifying the emerging trend and to avoid repetitions of research.
- Venkataiah (2001), Gupta (2003), Gupta and Koul (2007), Singh & Desai (2009) and Singh et.al. (2011) reported the lack of research writing skills in the doctoral level research.
- Apart from recording the research abstracts, the surveys also contain the Trend reports exhibiting trends of the Research problem taken, Sampling used the type of research, Methodology of Research, tools techniques used, along with

the needed aspects to be focused in particular areas. The gaps were also highlighted in these trend reports. But after the Fifth Survey of research in Education, there is a lack of detailed area-wise trend report about the scenario of educational research

- A similar attempt of collecting abstracts of researches and identifying trend was also carried out in Passi & Rama (1977) and Raina & Sengupta (1979), NCERT (2007), NCERT (1996-2009) in form of Journal of Indian Educational Abstracts, Goel et. al (2007, 2008, 2010) and Sansanwal (2007) at the national level.
- Rais & Madhulika (1991), Raina & Sengupta (1979), Dahiya (2001), Venkataiah (2001), Gupta (2003), Nagaraju (2004), Singh & Desai (2009) sarcastically criticized the researches due to their poor coverage of the ideas based on easiness of getting degrees, unethical practices at the higher education level and recommended to appraise the status of the Educational Research time to time in particular and overall research in general.
- Sahoo (1992), Panda, Satyanarayana & Sharma (1996), Sujatha (1998), Mishra (2002), Gupta (2003), Sahoo (1992), Kaul (2006), Meduri & Satyanarayan (2008), Eva, Olaf & Sebastian (2009) conducted studies in the distance education i.e. non-formal education at the Higher Education level and accordingly suggestions were given.
- Goel et.al. (2008); Goel et.al. (2008); Goel et.al. (2010) abstracted and classified doctoral research done in various areas of education since 1998.
- Zane, Berge & Susan (2004); Olaf, Eva & Sebastian (2009); Lee, Wu &Tsai (2009); Ayfer & Yasemin (2009); Zao & Gang (2009); Bretones, Paulo & Megid (2011); Maurer, Khan & Salman (2010); Shetty, Hiremath, Murugan & Sreeja (2010); Chang; Chang & Tseng (2011) studied and reviewed the journal articles and made further recommendations about filling up gaps in the research areas left unattended.
- Unsatisfactory conceptual framework, unsatisfactory conceptual understanding of research problem, poor research designs, Lack of vision for education were reported in Venkataiah (2001), Gupta (2003), Gupta and Koul (2007), Henk (1999), Zane, Berge & Susan (2004); Olaf, Eva & Sebastian (2009); Lee, Wu &Tsai (2009); Ayfer & Yasemin (2009); Zao & Gang

(2009); Bretones, Paulo & Megid (2011); Maurer, Khan & Salman (2010), Yadav (2011) and Livingston & Flores (2017).

- Quantitative methods were found dominating was reported in Koul (1991), Raina & Srivastava (1997), Gupta and Koul (2007) and Yadav (2011), Ebru, Ayca, Pinar Mustafa and Murat (2013), Eğmir, Erdem and Koçyiğit (2017) and Livingston & Flores (2017).
- Lack of Qualitative and Mixed method researches in the Educational Research was pointed out by Koul (1991), Raina & Srivastava (1997), Gupta and Koul (2007) and Yadav (2011), Ebru, Ayca, Pinar Mustafa and Murat (2013), Eğmir, Erdem and Koçyiğit (2017) and Livingston & Flores (2017).
- Vote counting method of Research findings synthesis was incorporated in Mohanty (19889), Jawade (1990), Cwikel, Behar and Rabson (2000) and Higgins and Green (Eds.) (2011).
- The two methods of Research synthesis, viz. Vote Counting method and Meta-Analysis method yields similar results were reported by Cwikel, Behar, and Rabson (2000). But Higgins and Green (Eds.) (2011) criticized the research synthesis method of Vote counting but recommended to use the same when standard meta-analysis methods cannot be used.
- At School of Education, Devi Ahilya Vishwavidyalaya, Indore, attempts were made by Pal (1984), Singh (1987), Shaheen (1994) and Singh, Desai & Yadav (2010). Pal (1984) covered the studies from 1979-1984, Singh (1987) covered the studies done in the time period of 1985-1986; Shaheen (1994) done an M.Ed. Dissertation of reviewing the Dissertations of the only one the year 1992-93, Yadav (2011), done a dissertation on reviewing the M.Ed. research studies from 2001-2010. Khan (2015) and Sharma (2015) also reviewed the M.Phil. and Ph.D. educational studies respectively.
- For the researches at School of Education Devi Ahilya Vishwavidyalaya, Indore, after Pal (1984), Singh (1987) no attempts were made for reviewing & trend analyzing the Educational Research, except NCERT (2007) and Sansanwal (2006) for Ph.D., M.Phil. and research Projects.
- Since Inception of School of Education, Devi Ahilya University, Indore, no attempts for Research synthesis, at any level of research, was taken up. Thus, there is a need for reviewing research, trend analysis and carrying out research

synthesis at Ph.D., M.Phil. and research projects level at the School of Education, Devi Ahilya Vishwavidyalaya since inception.

Conclusively, from the implications of the review of related literature, a need was felt to carry out trend analysis and research synthesis at the School of Education, Devi Ahilya Vishwavidyalaya, Indore, since inception. The ways and means of carrying out trend analysis and research synthesis at the School of Education, Devi Ahilya Vishwavidyalaya, Indore are been detailed in the next chapter.