

CHAPTER - II
REVIEW OF RELATED LITERATURE

| | | |
|------|---|----|
| 2.0 | Introduction | 28 |
| 2.1 | Inclusive Education in India | 28 |
| 2.2 | Inclusive Education in Western Countries | 32 |
| 2.3 | Inclusive Education: Concept & Principles | 38 |
| 2.4 | Emerging Perspectives on learning | 41 |
| 2.5 | Collaborative Learning for transforming Traditional Teaching and Learning | 43 |
| 2.6 | Developing Collaborative Learners Community | 47 |
| 2.7 | Use of Technology in Collaborative Learning | 50 |
| 2.8 | Collaborative Learning in Science Classrooms | 53 |
| 2.9 | Supported Collaborative learning Knowledge Construction Strategies | 55 |
| 2.20 | Collaborative Learning on Social Skill development | 58 |
| 2.11 | Development Advantages and Benefits of Collaborative Learning | 61 |
| 2.12 | Collaborative learning for Children with Special Needs in Inclusive Schools | 64 |

CHAPTER - II

REVIEW OF RELATED LITERATURE

2.0 Introduction

In the first chapter, Rationale along with Objectives and Hypotheses has been given. The present chapter is devoted to reviewing researches related to different aspects of Inclusive Education, Collaborative Learning and its various aspects

The review has been classified under the headings of:

- 2.1 Inclusive Education in India
- 2.2 Inclusive Education in Western Countries
- 2.3 Inclusive Education: Concept & Principles
- 2.4 Emerging Perspectives on learning
- 2.5 Collaborative Learning for transforming Traditional Teaching and Learning
- 2.6 Developing Collaborative Learners Community
- 2.7 Use of Technology in Collaborative Learning
- 2.8 Collaborative Learning in Science Classrooms
- 2.9 Supported Collaborative learning Knowledge Construction Strategies
- 2.10 Collaborative Learning on Social Skill development
- 2.11 Development Advantages and Benefits of Collaborative Learning
- 2.12 Collaborative learning for Children with Special Needs in Inclusive Schools

2.1 Inclusive Education in India

Arends & Richards (2000) in his study “Learning to Teach”, states that inclusion is the practice of including students with disabilities in general education classrooms but the incorporation of inclusion in schools goes much beyond the simple physical placement of students with disabilities into

the classroom and also includes to what extent the students are participating in classroom activities and assignments.

Graves & Tracy (1998) studied “Education for Children with Disabilities - The Rationale for Inclusion” considers it as the education of children with disabilities in mainstream classes. The study focused on the ways the child is educated rather than where the education takes place and revealed that there are substantial arguments to encourage inclusive education for children with disabilities. In advising parents, the focus needs to be on how rather than where the child with a disability should be educated.

Koster et al (2007) examined the literature focusing on the social dimension of inclusion in education and questioned whether pupils with Special Educational Needs (SEN) in regular classrooms have interactions and friendships with their peers. The literature analysis revealed four key themes central to all three concepts: Friendships/relationships, interaction/contacts, perception of the pupil with SEN and acceptance by classmates for inclusion to the successful.

Chudasama, Jadeja & Mehta (2006) conducted a study, ‘Impact of integrated education for disabled children IEDC scheme under SSA’. The main findings of the study were BRCEs (50%) stated that the training had been provided and trainees were made sufficiently acquainted with the information on disabilities. All teachers were trained under IEDC scheme for 2 to 8 days. In head teachers (77.4%) teachers were familiar with the information regarding disability and had sufficient information about the special care to be taken of disabled children (91.9%) a guardian of disabled was a member of VEC in many cases (53.2%), guardians were familiar with the ‘equipment kit’ provided to disabled children (59.3%) facility of ramp existed in the schools (51.6%) medical camps were arranged to identify disabled children (56.5%). Schools had no facilities for transporting the disabled children (93%), special programmes were not arranged in the

schools for the disabled children (51.6%), facility of resource room was not available at the block level (61.3%).

Berwal (2008) conducted an experimental study titled “Impact of Intervention programme on awareness levels and attitudes of high school students, teachers and administrators towards pupils with disabilities in inclusive setting”. The study found a low level of awareness among students, moderate level of awareness among teachers and administrators before his intervention programme. Pre-Post test was conducted to one group experiment on a total sample of 250 students, 25 teachers and 10 administrators in Hamipur district of Himachal Pradesh. The results found a significant impact of his intervention programme on the attitude and awareness of the students, teachers and administrators towards pupils with disabilities in inclusive setting. It was concluded that the well-designed intervention programme had demonstrated that the awareness and attitude of student, teachers and administrators towards pupils with disabilities and more so for inclusive education could be significantly changed.

Narayan, Bruce, Bhandari & Kolli (2010) focused on the perceptions of teachers and parents of children with severe intellectual disability and children with deafblindness in the USA and India. A total of 125 teachers and parents from both countries formed the participants for the study. A questionnaire of 13 yes/no items with space for narrative comments was administered to participants. Analysis of the yes/no questions revealed that many of the perceptions of the participants were similar in both countries. Furthermore, the examples cited in the narrative were also similar across both countries. The teachers in this study tended to credit performance more readily than parents and teachers were more likely to report emerging skills and teaching strategies. The narratives highlighted the importance of functional assessment in the child’s natural environment over time to most fully capture the child’s present abilities and potential. While detailed study with larger samples is necessary, the present study implies

that it may be possible to develop assessment tools that can be used across countries for educational planning.

Shah, Das, Desai & Tiwari (2013) determined the concerns of primary school teachers about the inclusion of students with disabilities in Ahmedabad, India. A total of 560 teachers, working in government-run schools, returned the completed survey. A two-part questionnaire was used in this study. Part 1 gathered information relating to personal and professional characteristics of the teachers. Part 2 was a 21-item Likert scale titled Concerns about Inclusive Education - Gujarati. The major finding of the study was that the teachers in Ahmedabad were moderately concerned about including students with disabilities in their classrooms. The teachers were most concerned about lack of infrastructural resources and least concerned about lack of social acceptance of students with disabilities in inclusive education classrooms. Significant differences existed in teacher concerns based on the following background variables: gender, qualifications in special education, teaching experience and number of students with disabilities in class. A number of implications are discussed to address teacher concerns for inclusive education in India.

Bhatnagar, N & Das, A. (2013) undertaken to determine the attitudes of secondary regular schoolteachers towards the inclusion of students with disabilities in New Delhi. A total of 470 teachers, working in schools managed by a private organisation in Delhi, returned the completed survey. A two-part questionnaire was used in this study. Part one gathered information relating to personal and professional characteristics of the teachers. Part two was a 16-item Likert scale titled, Attitudes towards Inclusive Education Scale. The major finding of the study was that the teachers in Delhi had positive attitudes towards the inclusion of students with special needs. This study also indicated that the teachers who were more positive about inclusive education were Boy, younger teachers (less than 40 years of age), less experienced (less than 10 years) and had postgraduate qualifications. In addition, the teachers who had a contact with a person with

a disability and those who did not have a focus on disability during their preservice teacher education programmes were more positive towards inclusive education.

Chadha et al (2005) conducted a study on “Evaluation of inclusive education under DPEP-III”. It indicated that out of 66721 children enrolled in these schools. There were 1023 CWSN (58.7% boys and 41.3 % girls). Enrolled CWSN boys were 1.8% and total boy population and enrolled CWSN girls were 1.3% to total girl’s population. In schools 7.1 % of such children were using aids and appliances and rest (92.9%) were not using any assistive devices. Out of CWSN using assistive devices, 11.8% children were using visual aids, 7.1% children were using hearing aids and 58.9% children were using orthotic and prosthetic aids. As per teachers rating performance of majority of CWSN (56.6%) was average. Teachers (79.2%) needed extra support in the class, either through special training (58.7%) or in the form of additional teachers to address the learning need of CWSN (41.4%). This study revealed that, out of 241 schools visited most schools had teaching learning material (66.1%). Adequate lighting (63.3%) but lacked learning corner with special TLM for CWSN (85.5%). Some schools had resource rooms, ramps, handrails and had attempted toilets modification. Under DPEP, (65.2%) teachers received training for IED. Training increased the number of teachers with positive attitudes towards CWSN from (60.9%) initially to 95.7% after training. Community members were aware of numbers of CWSN in their village and they were involved in the implementation.

2.2 Inclusive Education in Western Countries

Alquraini (2012) In Saudi Arabia, the majority of students with severe intellectual disabilities are still educated in special schools that do not meet their unique needs for interaction with their typically developing peers in public schools settings where they could improve social, communication and academic skills. One of the most significant obstacles to inclusion of this

group of students is teachers' perspectives regarding inclusive education for this category of students. As a result, this study examined teachers' perspectives regarding the inclusion of students with severe intellectual disabilities using a quantitative approach. In addition, this study also examined the relationship between teachers' perspectives regarding the inclusion of students with severe intellectual disabilities and current teaching position, training, teacher's levels of education, previous teaching experience with any kind of disabilities in inclusive settings, grade level being taught, teacher's gender and whether they have a family member with a disability. Three hundred and three teachers responded to the Opinions Relative to inclusion of Students with Disabilities (ORI: Arabic version) survey, including 161 Boys and 139 Girls, and three non-specified gender. A two-way analysis of covariance (ANCOVA), a one-way analysis of variance (ANOVA) and an independent *t*-test were used to answer the research questions. The findings of the study indicate that teachers have slightly negative perspectives towards the inclusive education of students with severe intellectual disabilities. Significant factors regarding teachers' perspectives towards the inclusion of this group of students included their current teaching position, previous teaching experience with students who had any kind of disability in inclusive settings and the teacher's gender.

Ahmed, Sharma & Deppeler (2012) conducted in the context of primary education in Bangladesh aiming to examine variables influencing teachers' attitudes towards inclusion of students with disabilities in regular classrooms. Data for the study was collected from 738 teachers working in 293 government primary schools in Bangladesh. The results indicated that perceived school support for inclusive teaching practices and a range of demographic variables including previous success in teaching students with disabilities and contact with a student with a disability were associated with more positive attitudes of the teachers towards the inclusive education. The results are discussed with possible implications for educators, policy-

makers and international organisations working on the implementation of inclusive education.

Cameron (2013) examined in Teacher-student interactions in 17 inclusive classrooms using a mixed-methods approach that involved quantitative analysis of interactions recorded during classroom observations and follow-up interviews with seven general educators. Observational findings suggest that classrooms were organised along traditional lines with the vast majority of interactions provided by general educators to the whole class, followed by brief intervals of 1:1 interactions directed towards individual students, most frequently children with disabilities. Interview findings suggest that teachers were aware of the greater individual attention devoted to students with disabilities and described a number of ways that they adapt their instruction that are consistent with the research on effective teaching. In addition, participants struggled with the dilemma of balancing their attention between students whom they perceived as needing it most and ensuring that the class as a whole made adequate progress. The analysis of both observational and interview data indicates that paraprofessionals were responsible for a large portion of instruction and curricular decision making for children with severe disabilities in these classrooms.

Clough & Lindsay (1991) investigated the attitudes of teachers towards integration and to different kinds of support in U.K. Their research provided some evidence that attitudes had shifted in favour of integrating children with special educational needs over the past ten years or so. This study also revealed that although the respondents appeared more supportive towards integration, they varied in their views regarding the most difficult need to meet. In particular, teachers identified children with learning difficulties and, to a greater extent, children with Emotional and Behavioral Difficulties as the most difficult categories.

Waititu, Aloka JO. P & Araya (2013) investigated the perspectives on psychosocial challenges facing integrated learners with physical disabilities (LWPD) in the selected mainstream secondary schools in Olkalou District in Nyandarua County, Kenya. The study was informed by the Chickering Psychosocial Development Theory. The study adopted a Mixed Methods design. The study participants comprised teachers and integrated LWPD learners in secondary schools. The sample size comprised 48 students integrated in the selected secondary schools from Olkalou rehabilitation centre in the previous four years and 60 teachers. Questionnaires and interviews were used to collect data. The results indicated that learners with physical disabilities in integrated schools suffer low self-esteem, and they also found it very hard to fit into the world of non-disabled learners. The study recommended a comprehensive implementation of inclusive education policy and proper guidelines integration of special needs learners in Kenyan mainstream schools.

Hamid, Alasmari & Eldood (2004) examined students' attitudes toward including students with disabilities with their typical peers in general classrooms. The aims of this study are to verify attitude of education students toward including disabilities in general education classroom, and to examine the influence for GPA, level and age on attitude of education students toward inclusive. the investigator used descriptive statistic methods. Questioner technique is used as method of data collection. Study group include (800) education students from Faculty of Education School and (120) students were selected randomly as study group sample. The data was analyzed by using SPSS program. The attitude of students toward including disabilities in general education classroom is positive, and it is significant ($p < 0.05$). The GPA influenced on attitudes of students toward inclusive. The study demonstrated that an important factor in the success of inclusive education is dependent upon education students' attitude, because these are future teachers.

Mdikana, Ntshangase & Mayekiso (2007) examined preservice educators' attitudes towards inclusive education were investigated. The participants are full time students of the University of the Witwatersrand (Africa) in Johannesburg. These students are registered for the Post Graduate Certificate in Education, B.Phys.ed) and B.A (Ed) and they are all in their final year of study. The students are mainly English-speaking. The sample comprises of 22 students seven Boys and fifteen Girls. Convenient sampling design was employed. A questionnaire developed by Choles (1997) was adapted and was used as a measuring instrument to record the responses of the research respondents. The adapted questionnaire comprised of the following sections: Biographical details, Attitudes towards inclusive education, Requirements for competency, Requirements for successful inclusion and Attitudes towards learners with Special Needs. Data were analyzed using descriptive statistics. The research participants were generally found to have positive attitudes toward inclusive education. The results of this investigation are significant in the sense that the understanding of pre-service educators' attitudes is critical for the successful implementation of inclusive education (Mowes, 2000; Elloker, 1999; Gadium, 2002; Dover, 2002; & Mckeskey & Waldrom, 2002).

Leyser, Kapperman & Keller (1994) undertook a cross-cultural a cross study of teacher attitudes towards inclusion or integration in the United States, Germany, Israel, Ghana, Taiwan and the Philippines. Their findings showed that there were differences in attitude to inclusion between these countries. Teachers in the United States and in Germany had the most positive attitudes. Positive attitudes in the United States were attributed to inclusion being widely practiced there as a result of Public Law 94-1423. Teachers in Germany exhibited positive attitudes to inclusion, though at the time of the study, Germany had no special education legislation, their teachers were not provided with special education training, their children eighth special educational needs were educated in segregated settings, and integration was being practiced only on an experimental basis. Teacher

attitudes were less positive in Ghana, the Philippines, Israel and Taiwan. The authors reasoned that this could probably be due to limited or non-existent training for teachers to acquire integration competencies. Also, there were very few opportunities for integration in these countries.

Scruggs & Mastropieri (1996) in their meta-analysis of American attitude studies, which included 28 survey reports conducted from at least 1958 through 1995, reported that two thirds of the teachers surveyed (10, 560 in total) agreed with the general concept of integration. A smaller majority was willing to implement integration practices in their classes, but responses again appeared to vary according to disabling conditions. Moreover, only one third or less of teachers believed they had sufficient time, skills, training and resources necessary for integration.

Brown (1998) conducted a study on Middle school personnel's attitudes towards inclusive education in suburban Texas school district. The purpose of the study was to examine the criterion variable of school personnel's attitude towards inclusive education and how they are related to the variables of academic assignment, gender, inclusive education, experience, and the number of years of experience in education. Results revealed that there was a significant difference between the academic assignment groups on the criterion variable of attitude towards inclusive education. The analysis of data supported a significant difference between the teachers', counselors' and administrators' attitude towards inclusion. The findings in this study support that; administrators demonstrated a more positive attitude towards inclusion than teachers and counselors. There was also a significant relationship between attitude towards inclusive education and the composite set of variables: academic assignment, gender, inclusive education experience, and number of years in education. However, there was a significant independent relationship between attitude towards inclusive education and the predictor variable of academic assignment. Interaction was found between inclusive education experience and gender on the criterion variable of attitude towards inclusive education.

2.3 Inclusive Education : Concept & Principles

Davis (1994) conducted a study on how administrators and teachers feel about full inclusion of students with moderate to severe disabilities. The philosophy of educating students with moderate in severe disabilities in neighborhood schools and even in regular classrooms has increasingly become recognized nationally as the 'best educational practice' or 'service delivery model' is regular and special education teachers and administrators on what is critical to ensure the success of full inclusion of students with moderate to severe disabilities in home/neighborhood schools and also to determine their attitude towards the inclusion of these students in home schools.

Quality indicators in inclusive education programmes were studied by **Gorne (1997)**. This study examined the relationship that exists between regular education teachers' degree of satisfaction with including students with disabilities in their classroom demonstrated in the programme. The results indicated that the teachers were successfully implementing programme quality indicators in the area of classroom organization, instructional methods, staff collaboration and support, and student social support. There appeared to be a positive significant relationship between use of these indicators and teacher's satisfaction with their experience of including students with disabilities in their classrooms. Teachers were also concerned regarding professional preparation, training and support.

Galis (1994) conducted a study on attitudes and beliefs of special and regular educators in the state of Georgia. The purpose of this study was to investigate the perceptions and beliefs of regular and special education administrator and teachers in the state of Georgia regarding the provision of services to students, including at rest students and students with disabilities. The study investigated school reform issues that revolve around the concept of inclusive education. It was found that most responders strongly agreed that it is important to make modifications for students who need adaptations

to benefit from a particular instructional environment. The responders also believed that special education provides a valuable service for students with disabilities. It is important for student's progress to be graded according to ability rather than only with standardized measures according to the sample that responded to this survey. They further opined that maximum class size should be reduced when students with disabilities are placed in regular classrooms.

Zahn (1998) investigated the perceptions and attitudes of elementary school teachers towards the practice of inclusion, its implementation, impact and future. The study revealed that although the majority of teachers indicated support for the philosophy of inclusion, many teachers do not seem to believe it can work within the parameters of their school setting. Pre-service and in-service training efforts do seem to be addressing the instructional needs of teacher working within inclusive classrooms. However, teachers still feel that the training they are receiving is not extensive enough to meet their needs. Whatever may be the attitudes towards disabilities or the practice of inclusion, it is clear that teachers need support, both through local and state administration practices and staff development.

Herman (1995) examined the perceptions of elementary school principals regarding the desirability and feasibility of adapting regular elementary classrooms and programmes for the inclusion of children with moderate and severe disabilities. Responding elementary principals in this study identified 95% of the presented adaptations as significantly more desirable than feasible with demographic factors having little or no effect. Moderate to high scores on the feasibility scale, Thus indicated that principals do not view implementation of the adaptation as desirability and feasibility may be attributed to either a presented lack of available resources or administrative autonomy or both.

Thomas, Bryant & Land (1996) conducted a study entitled “planning for effective co-teaching: the successful inclusive’. Three study of inclusive programming at the elementary level, in which a co-teaching model was implemented, both students with disabilities and low achieving general education students experienced improvements in social skills and all students experienced increases in self-esteem related to their abilities and accomplishments.

Blackie (2010) examined the perceptions of educators towards inclusive education. The educators perceptions of the barriers to learning, the skills required in an inclusive environment, the involvement of support in inclusive education and the training programmes required were all examined. Education White Paper 6 was introduced in 2001 by the South African Department of Education stipulating inclusive education policies and a long term goal of successful implementation of inclusive education country wide. The sample of this study consisted of forty educators from six government primary schools in the Johannesburg region. The questionnaire was created to look at educators perceptions of all aspects of inclusive education within their school. The results demonstrated an equal amount of positive and negative perceptions towards the implementation of inclusive education. The educators of this study reported perceiving themselves to be inadequately trained to assume the responsibilities of inclusive education. The perceived prevalent barriers to learning in the classroom were emotional and cognitive barriers to learning. Due to South Africa’s diverse population language was also seen to be a prominent barrier to learning within these schools. Educators reported the need for parental support for the successful implementation of inclusive education; however, the reality of these educators is that parental support is minimal and often nonexistent. Finally the limitations of the study are discussed and suggestions for further research made.

2.4 Emerging Perspectives on learning

Eskay, Onu, Obiyo & Obidoa (2012) investigated the use of peer tutoring, cooperative learning, and collaborative learning as strategies to reduce anti-social behavior among schooling adolescents. The study is a descriptive survey study. The area of study was Nsukka education zone in Enugu State of Nigeria. The sample of the study was 200 teachers randomly sampled from the four towns that make up the zone. The instrument for data collection was questionnaire. The data were collected using questionnaire and analyzed by the use of mean and standard deviation. The major findings of the study indicate that teachers are aware of peer tutoring, cooperative learning, and collaborative teaching as strategies for reducing anti-social behavior of schooling adolescents and that to a large extent, they are applying these strategies in their classrooms.

Yang (2006) conducted a study on ubiquitous learning environment provides an interoperable, pervasive, and seamless learning architecture to connect, integrate, and share three major dimensions of learning resources: learning collaborators, learning contents, and learning services. Ubiquitous learning is characterized by providing intuitive ways for identifying right learning collaborators, right learning contents and right learning services in the right place at the right time. The aware of the context ubiquitous learning environment consists of three systems, namely peer-to-peer content access and adaptation system, personalized annotation management system, and multimedia real-time group discussion system. Since the effectiveness and efficiency of ubiquitous learning heavily relies on learners' surrounding context, built a context aware ubiquitous learning environment and addressed how this newly designed environment can fully support the needs of peer-to-peer collaborative learning

Baraka (2011) proposed a research on collaborative e-learning model that consists of six levels and six tasks based on four social cognitive development theories which are: Connectivism, Social Cognitive

Development, Social Interdependence and Cognitive Elaboration Perspectives. The proposed collaborative e-learning model levels are: Networking, Contribution, Cognitive Disequilibrium, Origination of Social Interaction, Knowledge Evolving, and Cognitive Equilibrium. The tasks of the proposed collaborative e-learning model are: Knowledge Feeding, Knowledge Self-Reflection, Knowledge Negotiation, Knowledge Elaboration, Knowledge Accommodation and Knowledge Shifting. A rich Web-based collaborative e-learning environment called ShareSpace is developed as a realization of the proposed collaborative e-learning model. ShareSpace is evaluated based on the proposed collaborative e-learning model, on a framework for evaluating computer supported collaborative learning and on an adaptable usability heuristic checklist for online courses. Share space is an interactive and flexible social collaborative e-learning environment which can be utilized by educational institutes and contributes to the overall goal of learning process which is maximizing the learning outcome.

Sinnema, Sewell & Milligan (2011) investigated the impact of a professional learning intervention on the improvement of social studies teachers' practice, and their students' learning. Data were gathered from 26 primary and secondary teachers before, during, and after a year-long research and development project. Analysis of interviews, observation notes, teachers' reports, and reflective journals revealed how *both* engagement with outcomes-linked evidence and collaborative inquiry supported and challenged teachers to improve their classroom practice, and positively impacted on a range of outcomes for their learners.

O'Donnell & O'Kelly (1994) noted that classroom decisions a teacher makes in relation to cooperative or collaborative learning depend on the theoretical approach adopted. Social-psychological approaches suggested that the interdependence among group members is the underlying mechanism for effective cooperation. Interdependence is created by using group rewards or by encouraging social cohesion and a norm of caring and helpfulness. From a cognitive-developmental perspective, effective peer

learning occurs as a result of processes of cognitive conflict and resolution, or through the modeling of skilled behavior. A sociocultural perspective would suggest that the joint knowledge of the group members is greater than the individual knowledge of any member and that the group operates as an interacting system. In contrast, a cognitive-elaboration approach suggests that collaboration enhances student learning by providing a context in which individual learning is promoted by the use of more effective learning processes. In other words, an individual learns better with a peer because the peer provides an audience, prompts more metacognition, or maintains an individual's focus on a task. In creating and using collaborative groups for instructional purposes, teachers' decisions about the size and composition of groups, the kinds of tasks on which students will work, whether or not they should use explicit rewards, and the particular stance to take in relation to the collaborative groups will be influenced by the theoretical perspective that the teachers adopt.

2.5 Collaborative Learning for transforming Traditional Teaching and Learning

Pietsch (2005) studied the implementation of a collaborative learning model at two schools in Sydney designed to realize the principles recommended by reform documents such as the Principles and Standards for School Mathematics (NCTM, 2000) and policy documents including Numeracy, A Priority for All (DETYA, 2000). A total of 158 year seven and year eight students ranging in age from 12 to 15 years old from two schools participated in the study. In all, seven classroom teachers participated in the study each completing two topics using the collaborative learning model.

The questions related to the nature of collaboration evident in each classroom, the level of motivation and self-regulation displayed by students in the different types of classrooms and the relationship between learning mathematics within the collaborative learning model and real-world mathematics. And the study examined the degree to which the concerns of

teachers relating to preparing students for examinations are met within the collaborative learning model. Several different data collection strategies were adopted to develop a picture of the different forms of activity evident in each classroom and the changes that took place in each classroom during and after the implementation of the collaborative learning model. These included classroom observations, interviews with student and teacher participants, questionnaires and obtaining test results. Leont'ev's theoretical approach to activity systems (1972; 1978) was then used to describe the changing nature of classroom activity with the introduction of the collaborative learning model.

Final results found there was quantitative evidence that students in some of the collaborative classes did not perform as well as students in traditional classrooms on topic tests. Comments from students and teachers, however, suggested that for some students the collaborative learning model enabled them to learn more effectively, although other students were frustrated by the greater freedom and lack of direction.

Sulaiman, & Shahrill, (2015) investigated the impact of collaboration in the learning of secondary school Statistics in three government secondary schools in Brunei Darussalam. In total, 71 Year 7 students participated in this study. A series of lessons and group-based activities on Statistics were conducted that consisted of hands-on activities and application of mathematical concept to real-life problems and worksheet-based instruction. Data were collected using pre and post-tests on secondary school Statistics; a readily available 4-point student work rubrics was used as reference on collaboration that focused specifically on the level of collaboration skills acquired; and a questionnaire on students' attitudes on collaborative learning. The results from the pre- and post-tests revealed an 11.8% increase in the test scores, and 47.9% of the students worked collaboratively within their groups and shared the responsibility towards the given tasks. The responses from the questionnaire indicated that 96% of the students found working collaboratively as a group assisted them in enhancing their

learning of Statistics. Majority of the students also believed that they gained more knowledge and learnt specific skills and processes when they work in groups. This study has shown that collaborative learning helped to improve students' performance academically as well as to develop the necessary skills of the 21st Century.

Laal, Naseri, Laal & Kermanshahic (2013) examined when groups of learners help each other, collaborative learning occurs. Collaboration is a philosophy of interaction and personal lifestyle where people are accountable for their actions, including learning and respect the abilities and contributions of their peers. The advances in technology and changes in the organizational infrastructure put an increased emphasis on teamwork. Group members have to think creatively, assess problems, and make decisions as a team. In all situations where people come together in groups, it suggests a way of dealing with people that respects and highlights individual group members' abilities and contributions. Application of learning in collaboration, can lead to many advantages. This article seeks to describe the potential advantages of learning in collaboration.

Brown (2009) surveyed students' perceptions of Collaborative Learning (CL). The research was aimed at providing depth and detail on students' perceptions of what they have gained from the process and possibly indicates what areas might need to be improved or changed. Analyses of data revealed that most students claim to have derived academic benefits such as better comprehension and improved performance, and acquired generic skills - enhanced communication and problem-solving skills. About half of the respondents believe they gained social skills: they found CL enjoyable and made new friends. Most students agree that CL practices should be encouraged and continued. It was concluded that students' perception of CL at the University of Botswana is similar to findings in the stated literature. It was recommended that, in addition to focusing on academic benefits of CL, teachers should also be concerned with the social aspects of CL.

Gokhale (1995) reviewed the concept of collaborative learning, the grouping and pairing of students for the purpose of achieving an academic goal, has been widely researched and advocated throughout the professional literature. The term 'collaborative learning' refers to an instruction method in which students at various performance levels work together in small groups toward a common goal. The students are responsible for one another's learning as well as their own. Thus, the success of one student helps other students to be successful. In collaborative learning, students work together in small groups to complete projects by questioning each other, and discussing and sharing information. This is in contrast to the competitive process usually used in the classroom.

Laal (2015) studied on Positive Interdependence in a Collaborative Learning settings. The success of one person is dependent on the success of the group; this is referred to as positive interdependence. All members should rely on one another to achieve the goal and need to believe that they are linked together to succeed. Positive interdependence is the belief of anyone in the group that there is value in working together and that the results of both individual learning and working products would be better when they are done in collaboration. This article aimed to describe the basic concept of collaborative learning and also to present diverse forms of structuring positive interdependence in a collaborative setting.

Terenzini, Cabrera, Colbeck, Parente & Bjorklund (2013) examined the extent to which undergraduate engineering courses taught using active and collaborative learning methods differ from traditional lecture and discussion courses in their ability to promote the development of students' engineering design, problem-solving, communication, and group participation skills. Evidence for the study comes from 480 students enrolled in 17 active or collaborative learning courses/sections and six traditional courses/sections at six engineering schools. Results indicate that active or collaborative methods produce both statistically significant and substantially greater gains in student learning than those associated with more traditional

instructional methods. These learning advantages remained even when differences in a variety of student pre-course characteristics were controlled.

Yau, Gupta & Karim (2003) conducted a study on Smart Classroom facilitates collaborative learning among college students. Students in such an environment form small groups to solve a specific problem or develop a group project. In a Smart Classroom, each student has a situation-aware PDA. Students' PDAs dynamically form mobile ad hoc networks for group meetings. Each PDA monitors its situation (locations of PDAs, noise, light, and mobility) and uses situation to trigger communication activity among the students and the instructor for group discussion and automatic distribution of presentation materials. Middleware can effectively address the situation-awareness and ad hoc group communication for pervasive computing by providing development and runtime support to the application software. This study developed a Reconfigurable Context-Sensitive Middleware (RCSM) for such purposes. In this paper, the characteristics of Smart Classroom, how RCSM can be used to develop such an environment and greatly enhance collaborative learning will be presented

2.6 Developing Collaborative Learners Community

Thousand et al (2002) explained how using the collaborative learning model can help teachers address classroom challenges. The research includes the section 1, families as creative collaborators in inclusive schools; supporting genuine friendships in inclusive schools; strategies for creating multicultural and pluralistic societies; teaching for liberation; and access to the general education curriculum for all students. Section 2, cooperative group learning; problem solving to facilitate inclusion; supporting students with troubling behavior; awareness plans for facilitating creative thinking; integrating cooperative and collaborative learning; student disruptions in cooperative classrooms; peer tutoring to prevent early reading failure; and partner learning. Section 3, role of students in resolving conflict, redefining the role of a cooperative education team, cooperative group lesson plans,

creating and supporting peer tutor partnerships, and empowering secondary students to take the lead.

So, H-J & Brush, T.A. (2008) examined the relationships of the students' perceived levels of collaborative learning, social presence and overall satisfaction in a blended learning environment. This research studied the relationship of these three variables and identified critical factors related to them. The participants were 48 graduate students who took a blended-format course in health education and worked on a collaborative group project related to the development of a comprehensive HIV-AIDS prevention plan. Data was collected from the Student Perception Questionnaire and face to-face interviews. The analysis of quantitative data indicated that student perceptions of collaborative learning have statistically positive relationships with perceptions of social presence and satisfaction. This means that students who perceived high levels of collaborative learning tended to be more satisfied with their distance course than those who perceived low levels of collaborative learning. Similarly, students with high perceptions of collaborative learning perceived high levels of social presence as well. Surprisingly, the relationship between social presence and overall satisfaction was positive but not statistically significant. Interview data revealed that (a) course structure, (b) emotional support, and (c) communication medium were critical factors associated with student perceptions of collaborative learning, social presence, and satisfaction. Explanations about findings and implications for instructional design are discussed in the conclusion.

Feng (2012) examined the effectiveness of three scaffolding conditions on learning outcomes in an ICL environment. Inter-school collaborative learning (ICL) has significant meaning for bridging the educational gap between urban and rural schools. One urban primary school and one rural school were selected to participate in the inter-school collaboration. Three 6th grade classes in each school were randomly assigned to one of three scaffolding conditions: lowest-coercion scaffolding

(class A), highest-coercion scaffolding (class B), or adaptive scaffolding (class C). Detailed scaffolds were designed and developed to support ICL from 8 dimensions, including 18 strategies and 27 scaffolding tools. Both process data and summative data were collected to measure the learning outcomes at both group and individual levels. Results showed that pupils with highest-coercion or adaptive scaffoldings (in class B and class C) performed better than those with lowest-coercion scaffolding (in class A). Questionnaire results also supported the effectiveness of scaffolds on inter-school collaborative learning. Findings also revealed that middle-coercion adaptive scaffolding was significantly most supportive for urban school while highest-coercion scaffolding was most suitable for rural school.

Rimor, Rosen & Naser (2010) examined and classified patterns of interaction in a collaborative database learning environment (Google Docs) by analyzing interactions between 44 graduate students in an Open University course. The patterns of interaction were examined according to a model that tested the degree of collaboration in an online learning environment (Weinberg & Fischer, 2006). The purpose of the study was to examine how the participants reach consensus in the process of database construction. Advanced computer technologies constitute a useful communicative environment for collaborative learning and provide platforms that support interactive learning characterized by collaboration. They facilitate mutual supervision of content studied, development of real-time learning strategies, debate, and cultivation of thinking skills. The findings of the study present a number of different patterns that develop in this kind of environment and show that the patterns of interaction that emerged did in fact reveal different levels of complexity. It seems that the collaborative environment of the online database contributes to the development of complex patterns of interaction while performing tasks.

Murphy (2012) investigated elementary classroom teachers' experiences in a collaborative learning community (CLC) on the topic of supporting the literacy learning of students with characteristics of ADHD.

Five general education classroom teachers participated in biweekly CLC meetings over a 5-month period. Qualitative methods of data gathering were employed in the form of participant observations in the classroom and during 9 CLC meetings. Participants were also interviewed three times. The first interview was conducted before the CLC meetings began, the second interview was conducted immediately after formal CLC meetings had ceased, and the final interview was conducted 6 months after meetings had ended. Three main findings emerged from the research. First, participants' literacy teaching of their students with characteristics of ADHD was positively influenced as a result of their participation in the CLC. This positive influence came through an interaction of factors related to their knowledge, skills, attitudes, and beliefs. It also resulted from a reconceptualization of both their understanding of their students with characteristics of ADHD and of themselves as literacy teachers. Second, certain aspects of the CLC contributed to this positive outcome. These aspects were the opportunity to work with colleagues, participant control over the format and content of CLC, and repeated opportunities to reflect on and refine teaching practice. Third, personal and contextual factors shaped the participants' experiences within the CLC participants who had challenges during their own.

2.7 Use of Technology in Collaborative Learning

Daradoumis, Martinez-Mones & Xhafa (2006) evaluated on-line collaborative learning interactions is a complex task due to the variety of elements and factors that take place and intervene in the way a group of students comes together to collaborate in order to achieve a learning goal. The aim of this paper is to provide a better understanding of group interaction and determine how to best support the collaborative learning process. To that end, the study proposed a principled framework for the study and analysis of group interaction and group scaffolding which is built by combining different aspects and issues of collaboration, learning and evaluation. In particular, we define learning activity indicators at several levels of description which prompt to the application of a mixed interaction

analysis scheme and the use of different data types and specific tools. At an initial layer, the basis of the approach is set by applying a qualitative process for evaluating the individual and group task performance as well as the group functioning and scaffolding. The interaction analysis process is completed by defining and applying two more layers: a social network analysis of the group activity and participation behaviour and a quantitative analysis of group effectiveness as regards task achievement and active interaction involvement. Our work defines a grounded and holistic conceptual model that describes on-line collaborative learning interactions sufficiently and applies it in a real, web-based, complex and long-term collaborative learning situation. An in-depth empirical evaluation of the conceptual model is fully discussed, which demonstrates the usefulness and value of the approach.

Havard, Du & Xu (2008) examined the dynamics of online collaborative learning and communication media regarding team projects. Media richness and social presence theories are well-accepted rational theories that explain media choices and media behaviors, and serve as the theoretical framework. Quantitative and qualitative data collection methods were used to gather data from the 26 graduate students participating in this study, conducted at a land-grant university in the southeastern United States. Quantitative data analyses revealed significance between pre and post course survey item themes regarding factors affecting successful collaboration and perceptions on online collaboration. Qualitative analyses revealed relationships between collaboration and communication media, factors necessary for successful online collaboration, and communication media selection decisions. The results may serve to guide research and practice in online collaborative learning by using communication media. This research may also guide instructors and instructional designers in developing online collaborative learning activities with communication media.

Jarvela, Naykki, Laru & Luokkanen (2007) explored possibilities to scaffold collaborative learning in higher education with wireless networks and mobile tools. The pedagogical ideas are grounded on concepts of collaborative learning, including the socially shared origin of higher education students' self-regulated learning in university lectures. In the second study smartphones were used as regulation tools to scaffold collaboration by supporting externalization of knowledge representations in individual and collaborative levels. The third study demonstrates how face to face and social software integrated collaborative learning supported with smartphones can be used for facilitating socially shared collaboration and community building. In conclusion, it is stressed that there is a need to place students in various situations in which they can engage in effortful interactions in order to build a shared understanding. Wireless networks and mobile tools will provide multiple opportunities for bridging different contents and contexts as well as virtual and face to face learning interactions in higher education.

Liaw, Chen & Huang (2008) investigated learners' attitudes toward Web-based collaborative learning systems. Based on this research, the results of factor analysis show that five attitude factors (system functions, system satisfaction, collaborative activities, learners' characteristics, and system acceptance) should be examined at the same time when building a Web-based collaborative learning system. The results also provide an acceptance model for understanding users' behavioral intention of facilitating Web-based collaborative systems.

Resta & Laferriere (2007) reviewed the research conducted in the last 20 years on the application of technology in support of collaborative learning in higher education. The review focuses primarily on studies that use Internet-based technologies and social interaction analysis. The review provides six sets of observations/recommendations regarding methodology, empirical evidence, and research gaps and issues that may help focus future research in this emerging field of study.

2.8 Collaborative Learning in Science Classrooms

Haugwitz, Nesbit & Sandmann (2010) Data were gathered from 248 secondary students (14 years old, 56% Girl) who learned about the circulatory system in 77 self-selected collaborative groups. The learning outcomes of biology students who summarised by collaborative concept mapping were compared with those of students who summarised by collaborative writing. Learning groups randomly assigned to construct concept maps instead of conventional summaries generated more relations in the summary task and their members obtained higher individual scores on a post-test. The concept mapping strategy was found to be advantageous only for students whose cognitive ability was below the median for the sample and who were placed in groups with other students having low cognitive ability.

Tudge (1992) studied the performance of student pairs on a science task, concluding that collaboration was as likely to diminish performance as to improve it. In this study, 153 students aged 5 to 9 worked in pairs on a series of tasks involving a balance beam. Researchers manipulated weights applied to the balance beam, as well as the distance from the fulcrum. Students were asked to predict which side the beam would tilt toward when the supports were removed. Children's responses were coded into several categories according to the degree of sophistication of the decision rule used to support their prediction. Researchers tested four different types of student configuration: individual students, students who demonstrated equivalent decision rules a pretest, and students demonstrating unequal decision rules at pretest - one student adopting a higher rule, and the other adopting a lower rule. During collaboration, student took turns making predictions and justifying their predictions. The results suggest that collaboration had a strong impact on student performance, with changes in reasoning persisting for several weeks afterwards. The study found that the group of less-competent students (those using inferior decision rules) was the only group that improved significantly on posttest. However, the more competent

students (those using superior decision rules) were the only group that declined significantly post-test. Thus, collaboration was as likely to decrease as increase student performance.

Hong (2010) investigated the effects of a collaborative science intervention on high achieving students' learning anxiety and attitudes toward science. Thirty-seven eighth-grade high achieving students (16 boys and 21 girls) were selected as an experimental group who joined a 20-week collaborative science intervention, which integrated and utilized an innovative teaching strategy. Fifty-eight eighth-grade high achieving students were selected as the comparison group. The Secondary School Student Questionnaire was conducted to measure all participants' learning anxiety and attitudes toward science. In addition, 12 target students from the experimental group (i.e., six active and six passive students) were recruited for weekly classroom observations and follow-up interviews during the intervention. Both quantitative and qualitative findings revealed that experimental group students experienced significant impact as seen through increased attitudes and decreased anxiety of learning science. Implications for practice and research are provided.

Kirschner, Paas, Kirschner & Janssen (2011) investigated Differential effects of problem-solving demands on individual and collaborative learning outcomes. The effectiveness and efficiency of individual versus collaborative learning was investigated as a function of instructional format among 140 high school students in the domain of biology. The instructional format either emphasized worked examples, which needed to be studied or the equivalent problems, which needed to be solved. Because problem solving imposes a higher cognitive load for novices than does studying worked examples it was hypothesized that learning by solving problems would lead to better learning outcomes (effectiveness) and be more efficient for collaborative learners, whereas learning by studying worked examples would lead to better learning outcomes and be more efficient for individual learners. The results supported

this crossover interaction hypothesis. Consequences of the findings for the design of individual and collaborative learning environments are discussed.

Wendt (2013) examined the effects of online collaborative learning on middle school students' science literacy and sense of community. A quantitative, quasi-experimental pretest/posttest control group design was used. Following IRB approval and district superintendent approval, students at a public middle school in central Virginia completed a pretest consisting of the Misconceptions-Oriented Standards-Based Assessment Resources for Teachers (MOSART) Physical Science assessment and the Classroom Community Scale. Students in the control group received in-class assignments that were completed collaboratively in a face-to-face manner. Students in the experimental group received in-class assignments that were completed online collaboratively through the Edmodo educational platform. Both groups were members of intact, traditional face-to-face classrooms. The students were then post tested. Results pertaining to the MOSART assessment were statistically analyzed through ANCOVA analysis while results pertaining to the Classroom Community Scale were analyzed through MANOVA analysis.

2.9 Supported Collaborative learning Knowledge Construction Strategies

Shukor, Tasir, Van der Meijden & Harun (2014) attempted to investigate the students' behaviour and their strategies to construct knowledge during online collaborative discussions. Online collaborative learning allows discussion to occur at greater depth where knowledge can be constructed remotely. However students were found to construct knowledge at low-level where they discussed by sharing and comparing opinions; those are inadequate for new knowledge creation. Using the combination of content analysis and sequential analysis technique, this research found that groups those being able to construct high-level knowledge tend to negotiate on shared information. Argumentation is also

found to contribute for successful knowledge construction at higher-level. This study suggested triggering argumentation and emphasizing on problem-solving tasks for better knowledge construction sustainability.

Hmelo-Silver & Barrows (2008) described a detailed analysis of knowledge building in a problem-based learning group. Knowledge building involves increasing the collective knowledge of a group through social discourse. For knowledge building to occur in the classroom, the teacher needs to create opportunities for constructive discourse in order to support student learning and collective knowledge building. In problem-based learning, students learn through collaborative problem solving and reflecting on their experiences. The setting for this study is a group of second-year medical students working with an expert facilitator. The analysis was designed to understand how the facilitator provided opportunities for knowledge-building discourse and how the learners accomplished collective knowledge building. The results indicate that the group worked to progressively improve their ideas through engaging in knowledge-building discourse. The facilitator helped support knowledge building through asking open-ended metacognitive questions and catalyzing group progress. Students took responsibility for advancing the group's understanding as they asked many high-level questions and built on each others thinking to construct collaborative explanations.

Hogan, Nastasi & Pressley (1999) studied the social and cognitive processes involved in construction of shared understanding during an eighth grade science inquiry unit while constructing a conceptual artifact. In comparison to ineffective groups, Successful effective groups had many agreements and neutral reactions to other students' ideas whereas less successful groups were more likely to have disagreements. These results suggest that certain kinds of moves are associated with knowledge building discourse but they are less clear about how opportunities for these moves are provided.

Rosen & Rimor (2009) focused on academic online course in collaborative database learning environment and examines the conditions for effectiveness of collective and individual knowledge construction in this environment. The purpose of this study was to examine whether learners with a collaborative learning orientation differ from learners with an individual learning orientation, as was measured through their contribution to the process of knowledge construction in a collaborative online database environment. The results of the study showed differential achievements among learners with different learning orientations. The learners with collaborative learning orientation succeeded more in the collective criteria of knowledge construction compared to the less collaborative ones. On the other hand, the less collaborative participants within the forum gained higher scores in the personal criteria of knowledge construction compared to the collaborative ones. While the 'collaborative learners' contributed more collective knowledge, the 'individual learners' focused on constructing their own personal knowledge. These findings have important implications on planning, coordinating and evaluating collaborative learning environment.

Ellis (2001) examined a subject that is presented using both face-to-face and asynchronous online forms of communication, discussing the differences in terms of collaborative learning. The traditional form of collaborative learning has been via face-to-face groups working together. The on-line forum can provide a different collaborative learning environment, due to its student-centric, asynchronous, written form. As a result of an investigation into the differences between face-to-face and online asynchronous communication, insights into the impact on collaborative learning emerged.

Van Boxtel, Van der Linden & Kanselaar (2000) presented the results of an experimental study of the influence of task characteristics on the characteristics of elaboration of conceptual knowledge in social interaction. With a pre-test and post-test we measured individual learning outcomes. This study constructed a coding scheme that focuses on the

communicative functions and propositional content of utterances and on elaborative episodes. The subjects were 40 students who worked in dyads on a collaborative task about electricity in one of four conditions. And compared a concept mapping task with a poster task and investigated the effect of a phase of individual preparation. The post-test scores were significantly higher than the pre-test scores. Individual preparation created better learning results and the asking of more questions. The concept mapping conditions showed more discussion of electricity concepts, collaboratively elaborated conflicts and reasoning, but no higher individual learning outcomes. In the concept mapping conditions, elaboration was related to individual learning outcomes.

2.10 Collaborative Learning on Social Skill development

Tolmie et al (2009) measured the impact on work and play relations of a collaborative learning programme involving 575 students 9e12 years old in single- and mixed-age classes across urban and rural schools. Data were also collected on student interactions and teacher ratings of their group-work skills. Analysis of variance revealed significant gains for both types of relation. Multilevel modelling indicated that better work relations were the product of improving group skills, which offset tensions produced by transactive dialogue, and this effect fed through in turn to play relations. Although before intervention rural children were familiar with each other neither this nor age mix affected outcomes. The results suggest the social benefits of collaborative learning are a separate outcome of group work, rather than being either a pre-condition for, or a direct consequence of successful activity, but that initial training in group skills may serve to enhance these benefits.

Ferrer, L.M (2004) conducted a study have two parallel research agenda: (1) the development of social skills and pedagogical content knowledge in teacher candidates as they work collaboratively in pairs, and (2) the development of conceptual understanding and social skills in

elementary school students who are taught by teacher candidates with cooperative learning orientation. The extent of pedagogical content knowledge gained from the collaborative work by the teacher candidates was compared with those working individually. The social skills gained from collaboration were assessed through the use of observation rubrics and a checklist. The same checklist was used to rate the elementary students' participation as they carried out the science activities provided by the teacher candidates. Student understanding of the science concepts in the lessons taught was assessed by a test. Results show that success, in terms of enhanced understanding and social skills development was associated with varying levels of cognitive complexity of the lessons and higher levels of accountability.

Dollman, Morgan, Pergler, Russell & Watts (2007) improve student social skills through the use of cooperative learning, in order to develop a positive classroom environment that is conducive to learning. The action research project will involve approximately 95 students, 95 parents, and 200 teachers. It is the intent of the teacher researchers to improve students' social skills through the following strategies: roleplaying, jig sawing, think-pair-share, and graphic organizers. This study will be conducted for twelve consecutive weeks (from October 2, 2006 to December 18, 2006) in the 2006 fall semester. The teacher researchers hope that improved social skills will create a positive learning environment that will benefit all students. The teacher researchers agree with research that has shown the need for disciplinary measures is the result of acquisition deficits (student does not know the skill), performance deficits (student knows how to perform the skill, but fails to do so), fluency deficits (student knows how to perform skill, but demonstrates inadequate performance), and internal/external factors (negative motivation or depression) (NASP, retrieved 2006). Each week the instruction will involve a mini-lesson for skills, work in cooperative groups, problem solving etc., Researchers have advocated the implementation and use of cooperative learning in order to increase student achievement and

social skills development (Siegel, 2005). With the implementation of cooperative learning strategies, these teacher researchers hope to improve the social skills of their students.

Nevgi, Virtanen & Niemi (2006) focuses on the question of how to advance collaboration through the Web and support lifelong learning. First, the theoretical framework and architecture of a new web-based tool, the 'IQ Team', is introduced. IQ Team is an interactive online assessment and support system to learn social skills needed in cooperative work, and belongs in an interactive online assessing and tutoring system, 'IQ Form', developed for the Finnish Virtual University. IQ Team has three main elements: (1) interactive self-evaluation test banks, (2) online tutoring sets and (3) learning diaries. In the creation of IQ Team, the validation process was conducted with two samples ($n = 259$ and $n = 275$). The online students' social skills in different groups were explored, and the feedback data from different user groups were analysed. The online students scored high values for social skills, and no differences were discerned between university, Open University and technical students. The qualitative data ($n=35$) were collected in order to get users' feedback of the tool. The qualitative data consisted of interviews, open-ended questions and online discussions. The users of IQ Team reflected that the tool benefited them to become aware of their group work skills and developed their collaborative learning skills. IQ Team provides a powerful tool for online instruction and communication in higher education and in the Open University to promote joint-regulated learning.

Mercendetti (2010) investigated how social skills contribute to successful cooperative learning within the classroom. Six students participated in this study. They were selected from a suburban school district in western New York. The rating scale was adapted for the questionnaire used to assess the perception of social interaction critical to sixth graders in a cooperative group setting. The results reveal that there was ten percent decrease with the social skill of listening. The study showed the social skill of

problem solving did not have a significant change from the pre to post questionnaire.

2.11 Development Advantages and Benefits of Collaborative Learning

Jenkins, Laurence, Wayne & Vadasy (2003) reported teachers' perceptions of how cooperative learning benefits special education and remedial students, the percentage of these students who consistently participated in classroom cooperative learning activities, its efficacy for these students, and the kind of modifications teachers made for students with special needs. Teachers were generally positive about cooperative learning's efficacy for students with learning problems, while acknowledging that it worked better for some students than others. Major benefits were improved self-esteem, a safe learning environment, and better classroom success rates and products. The primary modification for special and remedial education students was selecting suitable partners for them.

Zahedi & Tabatabaei (2012) aimed at investigating the effect of collaborative learning on oral skill performance and motivation of Iranian EFL Learners. The participants were 72 adult students out of whom 50 were selected based on their performance on a general English placement test (Interchange Objective Placement Test) at the intermediate level in Shahreza Nahid Foruzan Art and Cultural Institute. A pretest-posttest control group design was used. The participants were divided into two groups; the experimental group was taught in collaborative learning for one semester using the techniques such as Learning Together and Pair Talk; the control group was taught in the conventional method. The data included: 1) the results of the two oral tasks, and 2) the results of the motivational questionnaire. The independent samples *t*-test and paired samples *t*-test were used to determine whether there were significant inter and intra-group differences. The results provided evidence that collaborative learning helps to enhance significantly the adult EFL learners' oral skill performance and their motivation toward learning English.

Laal & Ghodsi (2011) outlined benefits of learning in collaboration style, begins with the concept of the term and continues with the advantages created by collaborative methods. This paper sets out major benefits of collaborative learning into four categories of; social, psychological, academic, and assessment benefits. Collaborative learning is an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product outlined benefits of learning in collaboration style, begins with the concept of the term and continues with the advantages created by collaborative methods. This paper sets out major benefits of collaborative learning into four categories of; social, psychological, academic, and assessment benefits. Each of them is further subdivided to more specific themes.

Man (2001) reported a research on the use of collaborative learning strategies in a computer course at a secondary school. An experimental design was used to compare the difference in achievement and students' attitude between students taught using collaborative learning and students taught in the traditional individual learning.

The 8 classes were classified to high or low ability class according to the group's pretest performance in each class; Results revealed that students performed better on achievement (syntactic knowledge and schematic knowledge) and were more positive toward learning programming activities when they were working in collaborative groups than when they were working on the same activities individually. The study also included a measure of achievement based on different students' abilities. The analysis of which resulted in a significant interaction between students' ability and academic achievement. More improvement in academic achievement was recorded in high ability students than low ability students regardless of their learning strategy. Finally, recommendations on practical implication of the results on teaching in computer room or multimedia room by using collaborative learning were discussed and direction for future research was made.

Dahlstrom (2012) Collaborative testing has been suggested to serve as a good learning activity, for example, compared to individual testing. The aim of the present study was to measure learning at different levels of knowledge during a collaborative final exam in a course in basic methods and statistical procedures. Results on pre- and post-tests taken individually (N ¼ 30) before and after the collaborative part of the final exam confirmed learning effects at the uni- and multi-structural levels, as well as on the relational level of Biggs' structure of the observed learning outcome (SOLO) taxonomy (Biggs & Collins, 1982). Low performers at pre-test raised their test scores more than high performers. No differences could be generalized at the extended level of knowledge. Results also suggest that it might be preferable to collaborate without first deciding on questions individually. The experimental design can be applied when evaluating learning, at different levels of knowledge, during a variety of learning activities.

Chau (2005) investigated the impact of collaborative assessment on language development and learning. It involved two groups of second-year students at the Hong Kong Polytechnic University enrolled on English in the Workplace (EIW) course in 2002 and 2003. Two questions were explored: 1) What benefits and difficulties exist in collaborative assessment? 2) What effects does collaborative assessment have on learning? The paper begins with an account of the procedures adopted for the study, followed by its findings and a discussion of the findings. Students cited the attitude of the tutor, unfamiliarity with collaborative assessment and time constraints as the main difficulties encountered but noted perceptible gain in areas of language, recta-language and effect. There is also evidence which points to a shift of participants' roles from 'passive learner' to 'active participant' as well as change in the use of learning strategies.

2.12 Collaborative learning for Children with Special Needs in Inclusive Schools

Valeria & Theng (2011) investigated the use of collaborative learning communicated through facial expression can assist the learning of children with disabilities. Testing was conducted on 20 participants, with 10 children with cerebral palsy, and 10 children with autism. Pre-test and post-test experiment was used in conducting this research. The overall results show that children gain improvement in using the collaborative learning program.

Wishart, Willis, Cebula & Pitcairn (2007) explored Collaborative learning: comparison of outcomes for typically developing children and children with intellectual disabilities. Collaborative learning is widely used in mainstream education but rarely utilized with children who have intellectual disabilities, possibly on the assumption that the metacognitive skills on which it capitalizes are less likely to be available. Effects of collaborative learning experience on a core cognitive skill, sorting by category were investigated in three child groups: typically developing (TD) children, children with nonspecific intellectual disabilities (NSID) and children with Down syndrome (DS). Following collaboration, sorting performance improved significantly in lower ability partners in TD-TD pairings, with this pattern reversed in NSID-NSID pairings. Neither partner improved significantly in DS-NSID pairings, suggesting that the sociability attributed to children with DS did not necessarily support either their or their partner's learning in this social context.

Ford (2013) pointed that several strategies are available to support educating students with learning disabilities in inclusive classrooms including: co-teaching, differentiated instruction, and peer-mediated instruction and interventions. Theories suggested the practice of inclusion is congruent with social justice, but evidence suggests mixed results regarding academic achievement typically occur. However, results of providing separate pullout instructional services are not necessarily more likely to

achieve desired results. Therefore, educators will need to make placement decisions considering the resources available in their school, in addition to the skill level of the students they work with, in order to make proper decisions regarding least restrictive environment. Doing that puts the student at the center of educational planning rather than ideological belief.

Fitch & Hulgin (2007) examined the effectiveness of Collaborative Learning Assessment through Dialogue (CLAD) on reading achievement in inclusive classrooms. The CLAD process involved students collaboratively completing multiple-choice quizzes, using dialogue and critical thinking to reach consensus and receiving immediate feedback on their responses. The procedure was implemented in 3rd-grade classroom. The effectiveness of CLAD was assessed through a comparison of students scores on a state reading achievement test designed to measure their ability to construct, examine and extend meaning in text. Both intervention and comparison groups showed significant improvement in reading achievement scores.

Taylor (2008) presented a qualitative investigation of the effects of social competence on the participation of students with learning disabilities (LD) in the science learning processes associated with collaborative, guided inquiry learning. An inclusive Grade 2 classroom provided the setting for the study. Detailed classroom observations were the primary source of data. In addition, the researcher conducted two interviews with the teacher, and collected samples of students' written work. The purpose of the research was to investigate: (a) How do teachers and peers mediate the participation of students with LD in collaborative, guided inquiry science activities, (b) What learning processes do students with LD participate in during collaborative, guided inquiry science activities, and (c) What components of social competence support and constrain the participation of students with LD during collaborative, guided inquiry science activities?

The findings of the study suggest five key ideas for research and teaching in collaborative, guided inquiry science in inclusive classrooms.

using a variety of collaborative learning formats (whole-class, small-group, and pairs) Second, creating an inclusive community. Third, careful selection of partners for students with LD is important for a positive learning experience. Fourth, a variety of strategies are needed to promote active participation and positive social interactions for students with and without LD during collaborative, guided inquiry learning. Fifth, adopting a general approach to teaching collaborative inquiry that crosses curriculum borders may enhance success of inclusive teaching practices.

Winarni (2011) reviewed the School-based inclusive education will work best, if supported by positive attitudes and beliefs, plans are available special equipment and assistive technology to access curricular programs, physical environment adapted to make it more accessible for students with disabilities, support system, itinerant teacher collaboration with subject teachers, community support, and learning method that uses cooperative learning approach. The five basic elements of cooperative learning are: 1) Positive interdependence, 2) Individual and Group Accountability, 3) Interpersonal and Small Group Skills, 4) Face-to-Face Promotive Interaction, 4) Group Processing. Activities that use Cooperative Learning from Kagan are: jigsaw, think-pair-share, three-step interview, number heads together, team pair solo, circle the sage, partners.

Ainscow, Booth & Dyson (2007) provided an account of the methodological lessons and emerging findings of a collaborative action research network in England. The Network involves teams of researchers from three universities in working alongside school and local education authority practitioners as they explore ways of developing more inclusive practices. The analysis of these experiences throws light on the nature of the tensions between national policies for raising standards, as determined by the aggregation of test and examination scores, and policies for reducing marginalization and exclusion within the English education service. The paper also explained what has been learnt about the potential benefits of partnerships between practitioners and academics.

Johnson, Johnson, Scott & Ramolae (1985) studied 26 learning disabled and 128 regular education students were assigned to one of three conditions: (a) mixed-sex cooperative, (b) single-sex cooperative, and (c) individualistic. Students in the cooperative learning condition shared one set of materials; students in the individual learning condition were given their own sets of materials and instructed not to talk to each other. Bonus points were awarded if team scores in the cooperative condition or individual scores in the individualistic condition reached a set criterion. The curriculum was a science unit on electricity and electrical energy; the measure of achievement was a 37-item multiple-choice test. In planned comparison, cooperative learning promoted higher achievement than did individual learning for the students with handicaps only.

Gillies & Ashman (1998) investigated the behaviours, interaction and learning outcomes of children with learning difficulties who participated in structured and unstructured group activities of the 152, 3rd grade children who worked in four - person, gender -balanced groups, 22 children were identified as having learning difficulties requiring up to three hours of specialist teacher support for their learning each week. The children worked in their groups for one six week. The results showed that the children the instructional groups were involved in group activities and provide more directions and help other group members than their peers in the instructional groups. Furthermore children in the structured groups obtained a significantly higher performance on the comprehension questionnaire than in the instructional group.

Johnson et al (1989) examined the effects of collaborative skills training on promoting positive interactions between children with intellectual disabilities were non disabled peers who worked on group based science activities over a 3 week period. The results showed that group interacted more with their peers with an intellectual disability by looking at them, talking with them, and working cooperatively together.

It is evident from the above description of various studies to ascertain the effect of Collaborative learning in enhancing the Learning of Special Needs. Most of the studies have been conducted abroad using online. Studies are so diverse in respect of sample, design, treatment and analysis that no generalizations can be made. Further in Indian context, there is a need to undertake researches keeping in view of strategies for enhancing the learning outcomes.