

Measuring the Quality in Early Childhood Education

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Abstract Early childhood education plays a very important role in laying a firm foundation for personality development of our young generation. Qualitatively rich early childhood education is the urgent need of the day as it determines the outcome of children in terms of productive and happy individuals. Measuring the quality of early childhood education is a complex task due to varied socio-economic conditions existing all over the world. After reviewing approximately ninety research papers, this paper throws light on recently emerged indicators measuring quality of early childhood education under the following heads:

- i. Availability of quality of facilities/resources, staff-to-child ratios and staff qualifications.
- ii. Curriculum design with appropriate content and its implementation strategies.
- iii. Staff-child interaction and developmentally appropriate practices.
- iv. Home environment, support for families and parent involvement as the back bone for achieving school readiness outcomes.
- v. Teacher education and training as the crucial influencing factors in measuring the classroom.

Key Words: Quality, Early Childhood Education, Curriculum, Staff-child Interaction, Home Environment

INTRODUCTION

Education has been economized and hence it has become a product for sale in the market. Consequently, its quality is a watch word at international level. Quality early childhood education has a big unexplored value for wise investment as it directly deals with creation of human capital for nation building. Experts advocate for the provision of high quality child-care and education for better child outcomes (Love et al., 2003; Myers, 2004; Peisner Feinberg, 2004). Researchers (Howes et al., 2008; Ishimine, Tayler & Thorpe, 2009) proposed two types of quality i.e. structural and process. Structural refers to measurable features such as centre facilities/resources, staff-to-child ratios and staff qualifications. Process quality includes the nature of

interactions between the child and teacher, child and child, teacher and teacher, as well as the nature of centre leadership and teacher pedagogical skills. Earlier studies considered (Moss, 1995; Raban, 2000) curriculum, under structural quality but recent studies (Ishimine, Tayler & Bennett, 2010) redefined curriculum as the planned learning opportunities for children, reaches across the two types of quality, like umbrella. Both structural and process are influenced by what teachers/staff plan and how they enact the curriculum in the moment. High process quality is characterized by frequent warm and positive interaction by teachers with children, harmonious peer interaction and clear teacher communication with children (Clarke-Stewart & Allhusen, 2005) and active involvement of families/parents is a major indicator in observing high quality (Mashburn et al., 2008; Myers, 2004).

Children often found the transition from preschool to primary school to be difficult as a wide gap existed between the education techniques of the two systems which led to increased dropout rates at the primary school level (Pandey, 2005). Preschools can provide extra social and language stimulation for those children from less advantaged backgrounds (Peisner-Feinberg, 2004), and it is evident that children who attend preschools are generally prepared for formal schooling than children without preschool experiences (Engle et al., 2007), have better school attendance and better results at the end of a year (Bartlett et al., 2003).

More advanced studies in developed world showed that it is the wisest investment for the world on preschool intervention as it saves \$95,000 per participant (Nelson et al., 2003) for each dollar spent on preschool; give a return of more than \$8 in later school service costs to a society (Barnett, 2007; Karoly and Bigelow, 2005) and divert child from crime life benefitting as high as \$ 1.7 to \$2.3 million (Cohen, 1998; Gilliam & Zigler, 2000).

High quality early childhood education benefits children of all social and economic groups and also helps children to prepare and succeed in schools and become better citizens. From 1962-1967 the High/Scope Perry Preschool Program in Ypsilanti, Michigan conducted a study on 123 low-income African American children who were assessed to be at risk of school failure. Out of 123, fifty-eight were randomly selected to attend a high quality two year preschool program for two-three years old and other did not attend preschool program. Teachers in this program held a bachelors degree in education and were assigned average of eight children and met with them for two and half hour per day, five days a week. The classroom and daily routine was organized in such a way so that one can choose their own activities and had opportunities to be alone or in group. Teachers conducted home visits every two weeks. Researchers followed the two groups for forty years and compared

results with those who did not attend preschools in their childhood. Results showed that children who attended preschools were more likely to have graduated from high schools (65 vs. 45%), were more likely to be employed (76 vs. 62%), had significantly higher median annual earnings (\$20, 800 vs. \$15,300), had higher percentage of home owners (37 vs. 28%), were more likely to have a saving accounts (36 vs. 55%) and significantly fewer months in prison or jail by age 40 (28 vs. 52%). It can be concluded that, forty years after the preschool experience the public gained \$12.90 for every dollar invested on the preschool program (Schweinhart, 2004).

I. Availability of Quality of Facilities/Resources, Staff-to-Child Ratios and Staff Qualifications

While measuring the quality in early childhood education, it has been identified that infrastructure which is supportive of children's need, low cost and culture specific is one of the essential elements for conducting any early childhood education program (Evans, 1996; Love et al., 2002; Myers, 2004). Availability of space per child, separate rooms and separate areas for various activities and corners (Chaudhari, 2006), attractively decorated rooms, clean and well organized space (Ishamine, 2011), good ventilation and lighting system (Kaul, 2000), helped teachers to conduct abundant activities and reflect the quality of physical environment. Inadequate infrastructure and learning material act as a deterrent for conduct of preschool education activities (Anuradha & Kamala, 2003; Sinha, 2008; Quadri & Manas, 2009; Vijayanti, 2010; Dixit et al., 2010).

Availability of sufficient toys, books and materials is one of the important indicators of quality (Myers, 2004). Having ample playing materials for individual children and also for group activities and it's availability for use by children is a positive sign of better quality and vice versa (Saini et al., 2002). Teaching aids like posters and puppets are useful for imparting education to children (Arora et al., 2003). Small number of children per class and per care-giver (Myers, 2004) is to be necessarily maintained as it helps adult child interaction (Evans, 1996; Love et al., 2002).

Olaleye, Florence and Omotayo (2009) assessed the quality of early childhood education in Ekiti State of Nigeria. A descriptive survey was conducted in twelve randomly selected private nursery schools in Ado-Ekiti Local Government area of Ekiti State. With the help of twenty items structured questionnaire named Quality Assessment Questionnaire (QAQ), 120 teachers and head teachers from randomly selected schools were included in the study. Results of the study showed that in the first part the quality of learning activities in pre-primary school was averagely high. Individual scores on linguistic skills (79.2%), learning rudiment of numbers through play (75%) and developing good health habits (66%) reflected high quality learning. Low

scores were seen on use of mother tongue (4.2%) and opportunity to develop artistic and creative skills (35%). In the second part, quality of teaching staff scored very low (19%) i.e. only 39.2% teachers had good knowledge of child development. Opportunities for re-training and self development were very low (20.8%); and only 30.8% teachers were interested in teaching young ones along with low remunerations (26.7%). Third part focused on conducive environment by the proprietor/proprietress showed that learning environment of preschools using the subscale scores is fairly good (62.5%), provision of adequate classroom space/ventilation (60%) was of average quality and availability of play ground equipments and material was 50%. Low quality in respect of provision of water (29.2%) was noticed. In the fourth part of learning outcomes the aspect of continuous assessment was averagely high (62.5%), record keeping (72.5%) and parents having access to learning outcomes (81.7%). Assessment covering a broad range of children's activities (48.3%), while rewarding for good performance recorded high score (73.3%). In the last part parents participation in the education of their children was low (40.8%), parents given adequate information about their children was average while parents involvement in academic activities such as field trips, etc. was low (40%). Organization of parents' forum score was average (55.8%), while parents' financial support for the school was low (29.2%).

Research evidences from developing countries on evaluating quality in early childhood education shows very clear link between quality of preschool education and availability of infrastructural facilities (Dixit et al., 2010; Quadri & Manhas, 2009; Anuradha & Kamala, 2003) including indoor and outdoor space (Dhingra & Sharma, 2011), preschool education material (Pandey 2005), conducting activities and attendance of children to the school (Dixit et al., 2010; Pandey et al., 2008).

II. Curriculum Design with Appropriate Content and its Implementation Strategies

Activity based, child centered, age appropriate, aiming to all round development which is adapted to context and flexible curriculum are basic elements of measuring quality (Evans, 1996; Love et al., 2002). It must also include provision for class, small group and individual activity and must give children the opportunity to choose from a variety of class resources to which children will naturally gravitate that help develop their understanding and skills, both emotionally and cognitively (Becker & Becker, 2009). In the studies (Ishmine et al., 2010; Ishmine, 2011) on "Quality in Early Childhood Education and Care" and "Quality in Early Childhood Education and Care: A Case Study of Disadvantaged," found that utilization of both forms i.e. structured and unstructured programs with clearly written documentation, clear outcomes, goals or themes based on child development and different kinds of skill focus (including social and academics aspects of child

development), nature of activities offered and the attention to individual children demonstrated high process quality (2011). On similar line, balanced program of structured and unstructured activities is found to be the best approach for the early childhood education and care (Clarke-Stewart & Allhusan, 2005; Sylva et al., 2003).

The most effective early child development programs are those that provide direct learning experiences for children and their families, are of high intensity, targeted towards younger and more disadvantaged children, are integrated, with other systems such as nutrition or family support, and are of long duration (Engle et al., 2011).

Hatcher and Squibh (2011) state that developing competency amongst teacher in planning curriculum activities that integrate children's interest in weather and climate has to be in a meaningful way. It should be incorporated by creating science activities for monitoring temperature and wind, activities and materials to support children's concepts as well as practice scientific tools of inquiry. Areas of numeracy, science, literacy and social science might be added to improve the quality of preschool experiences. A preschool child requires exposure to active learning in using language, in representing experiences and ideas, in developing logical reasoning, classification, serrations, number concepts, in understanding spatial relations and in understanding time (Anand et al., 1999).

Following study shows clear link between change in curriculum, materials and the teacher's way of instruction. Moore et al., (2008) conducted a study on "Evaluating an Improved Quality Preschool Programme in Rural Bangladesh," in five districts, in overall twelve schools, i.e. six regular and six pilot schools. Tools used for the study were ECERS-R (Harms et al., 1998), WPPSI-III (2002) for testing cognitive development of children in the age group of four to seven years and social development was assessed with the Play Observation Scale (Rubin, 2003). School readiness was assessed with 'A School Readiness Test' developed especially for Bangladesh. Refresher training was provided to pretest and posttest and all researchers had university degrees. Pairs of researchers were sent to villages for two days to collect data with the help of interview and observational data. A Group (regular, pilot) x Time (pretest, posttest) ANOVA was conducted on each subscale. For both subscales the ANOVA yielded a significant main effect of time. Activities, $F(1, 10)=20.81, p=.001$, and Program $(1,10)=20.25, p=.001$. Thus, the results showed improvements in quality over intervention period. Paired t-test comparing pretest with posttest scores showed a significant improvement for the pilot preschools on activities $t=5.86, p=.002$ and program, $t=10.04, p=.0001$. MANCOVA was conducted on the four cognitive measures (vocabulary, matrix reasoning, block design and school readiness).

This yielded a significant Group*Time interaction, $F(1,130)=12.61$, $p=.001$, and a significant Group* Time *Cognitive Test interaction, $F(3,130)=3.24$, $p=.02$. For matrix reasoning, block design and school readiness, the pilot group made greater improvement over the intervention period compared to the regular group. The mean score for each preschools Cognitive test was correlated with the schools quality score. Performance on school readiness correlated significantly with activities $(11)=.69$, $p=.01$ and Program Structure, $r(11)=.63$, $p=.03$. Results related to three parts of curriculum i.e. storytelling, math, free play and teacher-child communication showed that teachers were not skilled at encouraging participation and asked simple memory based or close ended questions rather than questions related to their comprehension of the story that would promote language development. They were not rotating books though books were enjoyed by children highlighting the need of equipping/training teachers with more challenging questions to engage children. In terms of math, though material was varied but concepts were not, hence repetitive activities children lost interest. Creative use of math bags was not added and they responded well to structured program. During free play, puzzles were less popular which might be due to its poor quality and quick damage. Moreover, teachers were also unfamiliar with the concept of puzzles and its introduction to children. This highlighted the need for teachers to be given exercise in their training sessions to verbally coach children on the use of new materials. On teacher-child communication, positive change was seen as they made an effort to engage with children, interact with an individual or a small group on the contrary to being either passive or highly instructional during play time in previous year.

A model of relationship between curriculum and quality is proposed recently (Ishimine et al., 2010). It shows that the process as well as structural quality in early childhood education and curriculum influence each other and are essential to construct overall quality in early childhood education setting. Structural components, such as staff-child ratio, group size, staff qualifications, physical resources all influence the way the curriculum may be conceptualized and applied in centre. This model further states that process quality and curriculum are interdependent as seen in pedagogy which is essential to curriculum yet also powerfully affects process quality. A change in pedagogy within the curriculum e. g. a new method for managing behavior, giving feedback or teaching reading will affect the process quality. Similarly the pedagogical approach of a centre e.g. more free play oriented, more academic skills focused will influence how the curriculum is conceptualized.

III. Staff–Child Interaction and Developmentally Appropriate Practices

Quality of staff-child interaction is one of the most important indicators of quality care. It refers to the teachers' warmth, the appropriateness of their language, their politeness and respect for children (Howes et al., 2008; Mashburn et al., 2008).

One of the important indicator of the quality of early childhood education and care is sensitive and responsive care giving (Sakellariou M. & Rentzou K. 2011) to the child's needs and signals, positive efficacy, frequent verbal and social interaction and cognitive stimulation (Fontaine et al., 2006; Carl, 2007). Being supportive, establishing trust, encouraging individualization, being a role model and demonstrating mutual respect are the five types of interaction suggested for the measurement of quality in staff-child interaction (Lara-Cinisomo et al., 2000).

Multiple observations supported by in-depth interview by Ishimine (2011) showed that constantly supportive staff with their warm, positive and abundant verbal praising created a stimulating and positive atmosphere, contributing significantly to a quality child care experience. Observations give clear evidence that supportive, responsive and informative staff-child interactions are the indicators of good quality. Clear verbal feedback helps children to learn what is right and what is wrong and is the most effective approach to build positive staff-child interaction. Positive Guidance Policy in which the child was given positive reinforcement; positive role modeling by adults, intervention techniques and redirection proved to be very useful in establishing strong staff-child interaction. Mealtime cognitive conversations helped children to widen the understanding of concepts as well as offer role models for vocabulary and grammar (Massey, 2004).

A survey was conducted by Sakellariou, M. & Rentzou K. (2011) on 'Cypriot Pre-service Kindergarten Teachers' Beliefs and Intentions about the Importance of Teacher/Child Interactions with sixty eight female pre-service teachers with the help of Belief-Intention Scale' (Wilcox-Herzog and Ward, 2004). Results show that great emphasis was placed on the developmentally appropriate, sensitive and participative interaction with children. They favored teachers' role as facilitator of children's knowledge. High scores were observed on positive and sensitive interaction. More emphasis on educational activities rather than routine care giving was seen.

Ihm Kwon (2002) examined the changing curriculum for early childhood education in England and showed that the child centered educational model is introduced with raising standards. Along with integrated learning, literacy and numeracy is also emphasized, i.e. particular achievements expected of

four-five year olds leaving the matter of appropriateness aside, more formal instruction in literacy and numeracy teaching is directly and indirectly imposed upon young children.

Developmentally Appropriate Practices

According to a joint statement of International reading Association (IRA) and National Association for the Education of Young Child (NAEYC) adopted in 1998; to teach in developmentally appropriate ways, teachers must understand both the continuum of reading and writing development and children's individual and cultural variations. It further includes-

- i. Positive, nurturing relationships with adults who engage in responsive conversation with individual children, model reading and writing behavior and foster children's interest in reading and writing;
- ii. Print-rich environments that provide opportunities and tools for children to see and use written language for a variety of purposes, with teachers' drawing children's attention to specific letters and words;
- iii. Adults daily reading high quality books to individual children or small groups, including books that positively reflect children's identity, home language and culture;
- iv. Opportunities for children to talk about what is read and to focus on the sounds and parts of language as well as the meanings;
- v. Teaching strategies and experiences that develop phonemic awareness, such as songs, finger-plays, games poems and stories in which phonemic patterns such as rhyme and alliteration are salient;
- vi. Opportunities to engage in plays that incorporate literacy tools, such as writing grocery lists in dramatic play, making signs in block building and using icons and words in exploring a computer game and
- vii. First hand experiences that expand children's vocabulary, such as trips in the community and exposure to various tools, objects and materials.

Opportunities for children to develop in co-ordination and interaction with meaningful experiences are needed for young children to acquire high level of learning skills associated with literacy development (Reutzel et al., 2005). Word knowledge is developed through knowledge-building experiences (Neuman, 2001).

Repeating a familiar nursery song and encouraging children to insert their own word, playing an excerpt of music and telling children to write about or draw an illustration of how it makes them feel, discussions followed by musical instrument playing support early literacy development (Clarke & Robinson, 2006).

A study was conducted by Szente J. et al., (2002) to explore the beliefs of Hungarian teachers and parents of Children in preschool and Grade 1 as they

relate to the construct of developmentally appropriate practices identified by the NAEYC. Fourteen teachers and fourteen parents were included. Q-methodology and interview were utilized to collect, analyze and interpret the data. Four themes arose from the interviews with the two participants who represented a set of beliefs that focused on children's individual development and learning (view point A). These themes were: 1. building a caring community, 2. selecting and presenting learning activities in ways that are sensitive to young children's needs, 3. constructing a curriculum that reflects differences in children's development and ability, 4. family involvement is dependent upon teacher's decisions. The fourth theme is considered to be developmentally inappropriate by NAEYC standard.

Four themes arose from the interviews with the two participants who represented the view point that focused on teaching children according to the traditional teaching methods (viewpoint B). These themes were: 1. teaching children to assimilate into a group, 2. providing children with activities for meaningful learning and play, 3. constructing a curriculum without placing much attention on individual children's ability and interest, and; 4. providing parents with opportunities to get involved. The first three are considered to be largely developmentally inappropriate while the fourth theme is considered to be developmentally appropriate by NAEYC standards.

Four themes arose from the interviews with the two participants who represented the viewpoint focusing on respecting diversity in schools, in children and in families (viewpoint C). These themes being: 1. respecting children's need, 2. facilitating children's learning, 3. designing a curriculum to help children achieve developmental and learning goals, 4. parent involvement is based on mutual respect.

Activities that cover multiple dimensions of learning and development and encourage reasoning problem solving and are pertinent and culturally appropriate, opportunities for children to initiate and to be in larger or smaller group or alone are the indicators of quality (Myers, 2004).

The role of play in learning is an important issue as the numbers of preschool age children entering public school program increase, many of which are highly focused on academics (Logue & Harvey, 2010) specially teaching of 3R's.e. reading, writing and arithmetic, neglecting the physical, social, emotional and language, aesthetic and creative development of child (Hangsing, 2011).

Using reinforcement in developmentally appropriate early childhood classrooms, Duncan et al., (2000) noted that reinforcers frequently used by teachers generally fall within one of three categories: social (praise, smile,

hugs, pat on back, light squeeze on shoulder), activity (extra play ground time, a special recording or tape, a party, table washer or other desirable privilege, playing with an intriguing new toy), tangible (stickers, prizes, trinkets, tokens). These three categories can be viewed along a continuum ranging from the least to the most intrusive. Social reinforcers are the least intrusive in that they mimic the natural consequences of positive pro-social behavior. At the other end of the continuum are tangible reinforcers. These involve the introduction of rewards that ordinarily may not be part of the routine. In selecting a reinforcement the goal is to select the least intrusive reinforce that is likely to be effective. If reinforcers other than social ones are necessary, teacher should develop a plan to move gradually toward social reinforcers. Once a decision has been made to use reinforcement strategies, teachers must carefully consider implementation to ensure that the strategies are effective and to minimize any potential effects on the child's intrinsic motivation. This process can be viewed as consisting of four stages: 1. behavior identification, 2. selection of reinforcers, 3. Implementation, 4. and evaluating and fading.

McDonnell et al., (2001) in their study on teachers' views concerning individualized intervention and support roles within developmentally appropriate preschools surveyed 500 stratified sample of teachers working in early childhood programs organized by NAEYC. A seven page questionnaire was designed to answer a series of questions on teachers' opinions concerning individualized intervention. It was conducted with the objectives to gain an understanding of the views of general education preschool teachers in developmentally appropriate practice program about key issues related to the supported inclusion of preschool children with developmental delays. Results of this study show that 80% of the responding teachers indicated that it was either important or very important to provide individualized intervention on specific learning goals for all preschool children. Preschool teachers rated such individualized planning and teaching as important or very important. Majority of the teachers indicated that a preschool special education, an early childhood or preschool teacher or a teaching assistant who was jointly supervised by the preschool special educator and general educators would be an appropriate provider of specialized one-on-one intervention. More than three fourth of the responding teachers indicated intervention should look like a play activity, with the adult working with the child in the classroom. The most frequently selected option was to have an extra adult join a play group or activity and provide instruction within the context of the activity. Majority of preschool teachers indicated that an early childhood special education teacher (71%), an early childhood or preschool teacher (59%) or a teaching assistant who was jointly supervised by preschool classroom and special education teacher (59%) could appropriately provide specialized one-on-one intervention recommended for a preschool child with disabilities. It

emphasizes availability of training and support for working with child with disabilities at preschool level.

IV. Home environment, support for families and parent involvement as the back bone for achieving school readiness outcomes

Improvement in the quality of home environment during preschool period positively related to children's development of language. Irrespective of the earlier quality of the home environment, if parents provide high level stimulation later, just before their children enter kindergarten, their efforts may support children's academic skills. Intervention efforts to enhance home environments may be effective in improving children's school readiness (Hee Son & Morrison, 2010).

Availability of poor quality home environment may lead to hostility, aggression and develop behavior problems (Tripathi, 2000); attention seeking behavior, hyperactivity, impulsivity oppositional behavior and conduct problems in the first domain of dysfunction and depression and anxiety in the second domain of dysfunction (Shanta et al., 1999).

A review report by Engle (2011) on early child development in low-income and middle income countries to assess the effectiveness of early child development interventions such as parenting support and preschool enrolment suggests that early child development can be improved through the above interventions with effects greater for programs of higher quality and for the most vulnerable children. Other promising interventions for the promotion of early child development include children's educational media, interventions with children at high risk and combining the promotion of early child development with conditional cash transfer programs. Effective investments in early child development have the potential to reduce inequalities perpetuated by poverty, poor nutrition and restricted learning opportunities. A simulation model of the potential long term economic effects of increasing preschool enrolment of 25% or 50% in every low-income and middle-income country showed a benefit to cost ratio ranging from 6.4 to 17.6 depending on the preschool enrolment rate and discount rate.

In his commentary titled, "Preschool Intervention Programs and the Process of Changing," Nix (2003), wrote that preschool intervention programs must have at least two components, one targeting child functioning and one targeting parenting skills to achieve long term gains.

Building a sense of belonging, where both parents and children identified with the child care centre contributes significantly to high process quality in child care centre (Ishimine, 2011). Children who receive classroom intervention only or combined with parent training had fewer behavioral

problems, less aggression and delinquent behavior and better adaptive behavior and social skills compared to parent training alone and controls (Barkley et al., 2000). Similarly in terms of school readiness 248 children who participated in a family literacy program from public preschools made greater gains in vocabulary, story comprehension, sound awareness, and print concepts and had better overall language skills than the control group (Jardan et al., 2000).

Similarly, more advanced and long term effects such as higher rates of school completion, completion of more years in education and lower rates of school dropouts, juvenile arrest and grade retention are the results found by Reynolds et al., (2001) in their fifteen years of follow up treatment given to children and their mothers from public schools. Along with this training especially to mothers, material for literacy stimulation to help their children and regular home visits by trained community helper supported to the children in achieving better performance at primary level (Kagiticbasi, 2001).

A study was conducted by Mendez (2010) on 'How can parents get involved in preschool? Barriers and engagement in education by Ethnic Minority parents of children attending Head Start.' 288 families were selected out of which 111 served as control group and 177 served as the intervention group. Study measures were administered to care-givers by a trained graduate student using a standardized interview either in person or on telephone. Data was collected in the beginning and in the last month of the school year. Teacher rating and children testing were done twice a year and finally before and after intervention. Total nine workshops were conducted for each intervention cohort. Children assessments were done by using Peabody Picture Vocabulary Test-Third Edition (PPVT-III; Dunn & Dunn, 1997) to study receptive language development and Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R; Woodcock and Johnson, 1989) for assessing the academic skills and for assessing practical problem solving in math i.e. counting, addition or subtraction operations. The PENN Interactive Peer Play Scale (PIPPS) is used to assess children's social competence and problem behavior with peers. Results shows that significant positive correlations were found between The Companion Curriculum (TCC) participation and children school readiness outcomes. TCC workshop attendance correlated with Letters Named ($r=.32$, $P=.001$), PPVT -III standers scores ($r=.25$, $P=.001$) the WJ-R Letter - Word Identification Sub-Scale ($r=.25$, $P=.01$), and the WJ-R Applied Math Problems Subscales ($r=.23$, $p=.01$), as measured at Time1. Similar results were found at Time 2 except WJ-R Applied Math Problems Subscale ($r=.15$, $p=.07$). TCC workshop attendance positively correlated with Letters Named ($r=.23$, $p=.01$), PPVT-III standard scores ($r=.26$, $p=.001$), and the WJ-R Letter Word Identification subscale ($r=.22$, $p=.01$). These results show linkages between parent

involvement and children's school readiness outcomes. Parent involvement in school activities for young children positively affects school readiness and acclimation to primary school (Reynolds et al., 1996).

Preschool intervention program that has an educational component for children shows greater initial improvement in cognitive development and if it is followed up in later life intervention doubles up in cognitive development, so it is necessary to give ongoing intervention (Nelson et al., 2003) to uphold its effect. The problem in cognitive development, social, emotional behavior and parent family wellness creating learning problems and behavioral problems amongst children occurring due to harsh and insensitive parenting cannot be changed quickly but can be minimized with ongoing intervention for parents and children (Nix, 2003).

Above evidences show great importance of measuring quality of home environment available for preschool children has a direct impact on the quality of reading readiness outcomes of the children.

V. Teacher Education and Training as the Crucial Influencing Factors on Classroom Quality

Teacher is the most important resource in bringing out quality of education in any set up. Teacher can raise the standard of educational experiences by excellent use of available resources. Motivated and appropriately trained teacher to work with young children through the experiential hand-on training recognized with status of teachers, rewarded with appropriate pay is recommended (Evans, 1996; Love et al., 2002; Myers, 2004). It is evident from the research that teachers with proper qualification specially in child development are far better in maintaining the quality of preschool education and those preschool teachers whose educational standards and receiving pre-service training are high and receiving time to time in-service training perform better as far as quality of conduct is concerned.

Better educated teachers have more knowledge and skills which makes them more effective as they have larger vocabularies to which young children are exposed, are better at constructing and individualizing lesson plans and are better problem solvers when they encounter challenges in the classroom such as a child with a learning difficulty or a child upset by a death in the family (Barnett, 2004). Lower quality preschool programs are associated with less qualified and more poorly paid teachers and have much smaller effects on learning and development.

The knowledge and skill required of an effective preschool teacher have increased as science has revealed more about the capacities of young children, how they learn best and the importance of early learning for later school

success (Barnett, 2004). Higher quality educational programs have staff that hold a minimum of a bachelor degree and have more specialized training in child development and teaching young children than staff of lower quality educational programs (Whitebook, 2003). Fullan (2001) emphasized the need for skilled colleagues to equip teachers in improving knowledge and skills by providing ongoing opportunities to try out new ideas within their classroom.

Issue of pre-service and in-service training and its quality is a major concern in quality preschool education (Whitbeck, 2000). Ample field experience during training, committed faculty and good resources (Darling-Hammond, 1999) are the emerged indicators of quality in teacher training program (Whitbeck, 2000; Darling-Hammond et al., 2002). Pre-service training and in-service training should prepare teachers to handle children's stress (Onchwari, 2009; Beck and Kosnik, 2002).

Introducing teachers training by the experts from child development and preschool education which has child focused style of learning, compatible with the local organizations emphasis on individualized and child friendly learning may help to improve the quality (Moore et al., 2008). Teachers' course work in childhood education has greatest influence on their beliefs and attitudes about type of play (Logue M., 2010).

Preschool teachers are not very highly qualified in many Asian countries. And therefore, supervision and supports are critical to improve quality of services (Rao & Sun J., 2010).

Cerabone K. (2007) conducted an experimental study to explore the possible relationship between attending professional development workshop and improving classroom quality of preschool teachers. Classroom quality was measured using a five point Likert scale, and measured teachers' application of literacy strategies in the preschool setting. A sample of thirty-four participants who had attended an initial professional development workshop on literacy was divided in three groups. Of which the first group, the control group (eleven teachers) did not attend additional workshop. Results showed that regardless of the type of professional development provided all three groups indicated growth. Teachers' participation in the work group format of professional development (Group 1) had the most growth than teachers' attendance of traditional knowledge based training (Group 2). Group 1 and 2 had more growth over time than group 3 who attended non-continuous professional development. For growth over time the groups had $r=.298$, $p=.05$. So it is clear that higher quality educational program have a staff with minimum of a bachelor's degree and have more specialized training in child development and teaching young children than staff of lower quality educational programs (Whitebook, 2003). Emphasis on strengthening early

childhood professional development is seen as the key to quality education and also it enhances children's school readiness (Zaslow & Martinez-Beck, 2006).

Though training helps to increase the skills for all teachers (Burcinal et al., 2002), it contributes to environmental quality and caregiver-child interaction, level of class quality of teachers with bachelor's degree with Early Care and Education content was more than their counterparts who had less than a bachelor's degree. So it is found that training alone is not useful for increasing interaction with children in class.

Gelfer et al., (2004) gave guidelines for developing portfolios to evaluate teachers' performance in early childhood education. It includes planning, organization of instruction, presentation of knowledge, teacher-student interaction, assessment and evaluation, classroom guidance, curriculum development and non- instructional professional assignments/responsibilities and professional development. Portfolios may serve as a potentially effective method to encourage teachers to evaluate their own abilities and enhance their skills. They are the means to enhance positive work attitude and improve the quality of the programs. To build confidence, commitment and enthusiasm among faculty portfolios provide clear measure for development.

Webster-Stratton et al., (2001) in their research titled 'Preventing Conduct Problems, Promoting Social Competence: A Parent and Teacher Training Partnership in Head Start found that in Teacher training component of their research which has a content on teaching positive classroom management techniques, discipline strategies, way to improve children social competence and problem solving skills show to be effective in increasing parent, teacher bonding and class management techniques. In the same study, parent intervention showed increase on positive parental, behaviors and decreased negative parenting behaviors and increased parent-teacher bonding. While seeing the effect of intervention on parent and child it is evident that parenting education and support can improve children's cognitive and psychological development (Aboud & Akhter, 2011, Cooper et al., 2009) especially in disadvantaged population.

Research on classroom quality shows that it is more defined by what teachers actually do in the class than by teacher training, certification or other traditional measures of teacher quality i.e. it redirects again on teacher-student interactions in the classroom (Mashburn et al., 2008).

DISCUSSION

Measuring the quality in early childhood education is a complex task as it involves many interdependent and interwoven factors such as quality of resources availability, curriculum framework, staff-child interaction, developmentally appropriate practices, home environment and teacher training. Research data suggests that clean, safe and child friendly infrastructural availability, separate space for various activities, well decorated rooms, sufficient toys and educational material, appropriate child-teacher ratio with overall conducive environment are the indicators of quality in early childhood education.

It is evident from the recent studies that process quality, structural quality and curriculum framework influence each other. A well planned curriculum with lot of child centered activities to provide first hand experiences and to develop various skills related to language, science and reading readiness are proposed by recent researchers.

Staff child interaction and developmentally appropriate practices are at the heart of research worldwide. Warm, positive, supportive, sensitive, encouraging and individualized interaction by teachers who act as a role model for communication is strongly proposed in the reviewed research.

Parent education and involvement in their children's early childhood education has a major influence on overall quality of management of early childhood education programs. Improving the quality of home environment for stimulating children for achieving potential growth and development in early years is the strong influencing factor found all over the world hence family intervention programs proved to be economically benefited for long duration.

Teacher education and training are very important indicators that are at the focal point for measuring the quality in early childhood education as they influence the managerial skills of the teacher when on job. Better educated teachers, knowledge based, motivational, rigorous and time to time intense training by experts, sufficient field work, with opportunities for personality development is seen to be a need of a day for improving the quality of early childhood education classrooms.

CONCLUSION

In spite of its socio-economic and developmental benefits, quality of early childhood education is still on world's desk for discussion. Measuring the quality is at the focal point of research in early childhood education. It is

found that availability of infrastructural facilities and other resources is a crucial issue specially in developing nation which is affecting on the quality of early childhood education, but other factors such as curriculum planning with appropriate content, time to time and intense teacher training with varied field experiences can help to find culture specific answers to impart and measure the quality of early childhood education. Parent support for creating learning, conducive family environment is still to be focused for better and long term positive effects of preschool education. Staff-child interaction is at the heart of measuring the quality of early childhood education and for this, teacher qualification and worthy training which will prepare teachers for devotional service has a great importance for adding wisdom in managing and measuring the quality in early childhood education.

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