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Dr. Kishor Shrestha  
Research Centre for Educational Innovation and Development (CERID)  
Kathmandu, Nepal

Dr. Wayne Eastman  
College of the North Atlantic, Corner Brook  
Newfoundland, Canada

Dr. Jacqueline Hayden  
Early Childhood and Social Inclusion  
Macquarie University  
Australia

Tribhuvan University  
Research Centre for Educational Innovation and Development  
ECD Resource Centre  
Balkhu, Kathmandu, Nepal  
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Contributions
The journal invites articles and book reviews from academicians, researchers and practitioners from both Nepal and abroad. Manuscripts should be sent to one of the joint editors:

Dr. Kishor Shrestha
Research Centre for Educational Innovation and Development (CERID), Tribhuvan University, Balkhu, Kathmandu, Nepal.

OR

Dr. Wayne Eastman
College of the North Atlantic, 141 O'Connell Drive, Corner Brook, Newfoundland, A2H 6H6, Canada.

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ECD Resource Centre
Research Centre for Educational Innovation and Development (CERID) Tribhuvan University Balkhu, Kathmandu, Nepal e-mail: cerid@mos.com.np, URL: http://www.cerid.org
Fax: 00977 -1- 4274224

Cover Design and Computer Layout: Gautam Manandhar

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Preface

ECD Resource Centre established at the Research Centre for Educational Innovation and Development (CERID), Tribhuvan University with the support of the UNICEF Nepal has been undertaking different activities since its inception in 1997. Its major activities include research, publication, conference, networking, training, development of resource materials, dissemination of knowledge and information, and provision of technical support to individuals and organizations working in the field of early childhood. In the recent years it has undertaken two nationally important research studies—Parents'/Guardians' Knowledge, Attitude and Practices on Early Childhood Development and Primary Education; and Content and Age Validations of Early Learning and Development Standards (ELDS) of Nepal. Publication of the Journal of Early Childhood Development has become one of its regular features.

The publication of the journal is the direct outcome of the World Forum Networking project undertaken jointly by Dr. Kishor Shrestha of this Centre and Dr. Wayne Eastman of College of the North Atlantic, Canada. With the publication of the third volume of the journal, Dr. Jacqueline Hayden, Professor of Early Childhood and Social Inclusion of Macquarie University, Australia has joined the team of editors of the journal.

This volume consists of eight articles written by academicians, professionals and experts in the area of ECD. The articles cover a wide range of areas—Fulfilling young children’s rights to build the wealth of nations, An analysis of theories of intelligence underlying human intelligence from Darwin to Gardner, Working with children in media saturated world, Developmentally appropriate physical activity for young children, Importance of natural playgrounds and their impact on early childhood education and health, Learning through play in Malaysia, Integrated approach to portfolio development and Community based early childhood education programmes in Zambia. We hope the readers will find the articles included in this volume interesting and useful.
Fulfilling young children’s rights

I appreciate the collaborative spirit of Dr Kishor Shrestha, Dr Wayne Eastman and Dr Jacqueline Hayden to bring out this volume. On behalf of CERID, I would like to express my sincere thanks to Mr Shiva Bhusal of UNICEF Nepal for the support received in publishing this journal. I acknowledge the contributions made by all the writers whose articles have appeared in this volume. My special appreciation goes to Mr. Veda Nath Regmi for his support in editing the language. Appreciative thanks are also due to Mr Gautam Manandhar for the layout and cover design and Mr Bhakta Bahadur Shrestha for the printing.

April 2011

Prof. Arbinda Lal Bhomi, PhD.
Executive Director
CERID
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Fulfilling young children’s rights is to build the wealth of nations

Ragnhild Dybdahl, PhD.
Norad, Oslo

Background

The first UNESCO World Conference on Early Childhood Care and Education (ECCE) was held in 2010 under the slogan “Building the wealth of nations”. The fact that the conference took place is a sign that the importance of early childhood is beginning to be recognized also outside the Early Childhood Development (ECD) or Early Human Development (EHD) community.

The issues raised, and the discussions that were engaged in, before and during the conference brought inspiration, insights and reflections on many levels. This is a personal account of the conference as well as reflections on challenges and possible pathways ahead in our continued work to promote good development for the youngest children. The observations and quotes here are, to a large extent, based on my notes which I took during the conference.

1 In this paper different terms, including Early Human Development (EHD) and Early Childhood Development (ECD), are used interchangeably, and refer to the holistic concept adopted by the conference.
A conference for building the wealth of nations

It is fundamental – and this was also stated repeatedly during the conference – that all children have the right to good development, protection, provision and participation. We work to achieve good and healthy early childhood development because it is the right of all children, and childhood – whether early or later – has an intrinsic value. The term “The wealth of nations” points to early childhood as the first and foundational step for building the communities and nations through the intrinsic value of childhood at any age or stage.

The slogan “building the wealth of nations” also draws attention to the firm evidence base supporting investments in early childhood because it pays off – for individuals, communities and nations. The development of children is a foundation for a society’s development. The short term impact of early childhood on educational success is important, but the slogan also points to the crucial foundation of early childhood for all aspects of adult human capital and economic development of a society.

Nearly one thousand delegates from 120 countries met when the first UNESCO World Conference on Early Childhood Care and Education took place in Moscow between the 27th and 29th of September 2010. Among the participants were ministers of education, health and finance; country representatives of UNESCO; representatives of civil society; and researchers. The conference followed a Resolution adopted by the General conference of the 35th session of UNESCO in October 2009. The roots of the Resolution are found in the key global and normative instruments: the Convention on the Rights of the Child (1989), the World Declaration on Education for All (EFA; 1990) and the Dakar framework for action (2000).

The concept of early childhood

The understanding of the concept of Early Childhood Care and Education (ECCE) adopted by the conference and in the concept paper for the conference is a broad one – where the competencies and needs of children up to the age of eight are considered holistically – in terms of health, nutrition, stimulation, and learning, including their
emotional, cognitive, social and existential development. This was one of the fundamentally important aspects of the conference, although this holistic understanding was not always reflected in presentations or views at the conference. However, the fact that the concept of ECCE was a subject of attention and that a solid concept paper was developed, brings hope. UNICEF underlined this holistic concept in the following powerful statement: “ECCE is ECCE is not an education issue. It is much more than that” alluding to such areas as water and sanitation, food and nutrition, and parental education and support.

Keynote speakers included Jack Shonkoff, professor of pediatrics at Harvard Medical School and Chair of the National Scientific Council on the Developing Child in the United States, who spoke on brain research and child development; Danny Faure, Vice-President of the Seychelles; and professor Pat Engle, a leading researcher in the field of EHD.

The goals of the conference were to reaffirm ECCE as a right, take stock of the progress made on the EFA goal 1 on early childhood care and education; identify constraints, benchmarks, enablers and targets; and promote exchange of good practices.

The severity of the problem

There are 559 million children under the age of five in developing countries, of whom 90% live in countries where there are severe problems related to poverty and conflict. Although the number of children who die in infancy and early childhood has been significantly reduced, more than 8 million children do not live to see their 5th birthday. Moreover, amongst those who do survive, many do not have their rights to protection and the provision for healthy development fulfilled. It is estimated that more than 200 million children do not reach their developmental potential due to inadequate care, nutrition, protection, and early learning opportunities (Black & Ramakrishnan, 2009; Engle & Black, 2008, Grantham-McGregor et al., 2007). This represents a tremendous loss of human and economic development potential.
A number of risk factors, for which there is a strong evidence base, have been identified as posing grave risks against young children’s development, such as stunting, iodine and iron deficiencies, and poor cognitive and social-emotional stimulation. Many other factors also put children at risk, although the evidence base is less solid, for example, maternal depression, violence, and infectious diseases such as malaria and HIV (Walker et al., 2007).

Another problem is the lack of provision, protection and participation of older children encompassed by ECCE – including children experiencing neglect, maltreatment, and poor quality care and education. The high rates of drop-out and lack of learning in the first years of school are major problems. Poor quality in the early years of schooling accounts for some of these problems, but also poverty and child labour and other factors that stop children from going to school are important. However, the consequences of poor development in pregnancy and during the first years of life have severe consequences for children also when they start school and must be taken into account when explaining poor learning outcomes of formal schooling in developing countries.

These challenges, but also the enormous potential for solutions – concerning children from before birth to the age of eight – lie at the heart of the reasons for organizing the conference.

The paramount importance of early childhood

The importance of early childhood development provision (including care and education) is well documented but not taken seriously in policy development.

Investments made in the early years of a child’s life (from -9 months to 8 years), have powerful effects on that child’s future development, not least on the physical and mental health and learning aspects, throughout the life cycle. This is true for all, but nowhere is this clearer than for the poorest and most marginalized children. Although it is never too late to improve a child’s life, the first three years are crucial for their survival and thriving.
Frequent illness, severe stress, poor social and cognitive stimuli and malnutrition, have serious negative effects on children, not least on brain development, can be irreversible, and should be taken into account when explaining later problems of a child and society (Engle & Black, 2008).

Presentations at the conference, by for example, Professor Engle and Professor Shonkoff, pointed out that interventions later are costly and unlikely to have the same effect as if preventative measures had been put in place. By investing in the early years of a child, we avoid, to a large extent, investing in remedial programmes later on.

From a social economical point of view, support to the youngest children is a public policy initiative that promotes fairness and social justice as well as productivity in the economy and in society at large (Heckman, 2006). The rate of return of pre-school programmes on Human Development Investments are greater than those of other areas of education (Heckman & Masterov, 2004).

One unified science

In his powerful presentation Professor Shonkoff succeeded in conveying several important messages in an accessible way (see also www.developingchild.harvard.edu and www.developingchild.net). “Scientists disagree at the frontiers of knowledge - but what is the core here is what scientists do not disagree about”, he said. An integrated scientific framework could drive more effective investment and innovation across sectors. One of the challenges concerns how to make this very solid knowledge base from multiple sources of knowledge inform the poorly connected sectors that cater to early childhood needs. Shonkoff promotes “the understanding of the basic science of early childhood development, including its underlying neurobiology, to inform both public and private sector investment in young children and their families... (and a) set of core developmental concepts that have emerged from decades of rigorous research in neuroscience, developmental psychology, and the economics of human capital formation...” (Center on the developing child, 2010).
Prenatal influences are important. Development is a continuous process. Adequate nutrition and feeding practices, beginning in the prenatal period and earlier and extending through childhood, is essential for children’s health and development. Nutritional deficiencies on brain structure, functioning, and behavior have been documented in developmental neuroscience as have the impacts, both positive and negative, of interactions and opportunities in the environment (Black & Ramakrishnan, 2009).

Professor Shonkoff managed to explain how the explosion of research in neurobiology shows the strong interaction between genetics and early experience which literally shapes brain architecture and the active ingredient is the “serve and return” nature of children’s engagement in relationships with their caregivers in their family or community. The architecture of the brain as well as human abilities are built “from the bottom up,” with simple circuits and skills providing the scaffolding for more advanced circuits and skills over time, with lifelong consequences. The brain is a highly integrated organ and its multiple functions operate in a richly coordinated fashion. Cognitive, emotional and social capabilities are intertwined throughout the life course. Emotional well-being and social competence provide a strong foundation for emerging cognitive abilities, and together they comprise the foundation of human development.

**Long-term effects of trauma exposure in early childhood**

All young children are exposed to some degree of frustration and stress. This is part of a normal childhood and some stress exposure can indeed be beneficial. However, stress, loss, fear and pain can also be damaging -or traumatic- to all aspects of a child’s development.

The history of trauma studies is long, and the field of trauma studies has expanded rapidly over the last 30 years. Vulnerability, protective factors and resilience, the role of caregivers and the protective environment, and the role of physical, social, cognitive factors and existential are among the topics that have been subject of study. In view of the scale of the problem of traumatisation and the focus on
the need for psychosocial support to the children who are victims of conflicts and other potentially traumatizing conditions, many studies and interventions have been carried out. However, there is much debate on how these interventions should be and what effects they have (see for example Dybdahl, Kravic & Shrestha, 2010).

Traumatic stress is associated with prolonged activation of the body’s stress management systems. Events and conditions that potentially are most traumatizing are those that are severe, long-term, include extreme poverty, family chaos, physical or emotional abuse, chronic neglect, maternal depression, substance abuse, or repeated exposure to violence in the community or within the family.

Professor Shonkoff labels the most harmful form of stress “toxic stress”, perhaps a more accessible term than trauma, and emphasises that toxicity occurs in the absence of the buffering protection of adult support. Toxic stress in early childhood is associated with lasting effects on the nervous system through elevations of stress hormones and altered levels of brain chemicals that produce a physiological state that can harm the brain. The consequences can be serious and lifelong for learning, memory, self regulation, behavior, as well as physical and mental health. In particular, they may develop a lifetime of greater susceptibility to stress-related physical illnesses (e.g. cardiovascular disease, hypertension, and diabetes) as well as mental health problems (e.g. depression, anxiety, and substance abuse).

Professor Shonkoff’s message was that the essential “feature of toxic stress is the absence of consistent, supportive relationships to help the child cope and thereby bring the physiological response to threat back to baseline” (Global Children’s Initiative, www.developingchild.harvard.edu).

**The protective relationship: love works!**

Children need access to health and nutrition and a protective, interactive, and responsive social environment to facilitate early development. Considerations of caregiver sensitivity and family and environmental conditions are crucial, as we understand the
importance of protective relationship for children’s healthy development and resilience.

The old question of whether it must be the mother, or even a female, that provides this protective relationship was also addressed. “There are differences between men and women, but not in terms of the ability to provide protective relationships”, was Professor Shonkoff’s answer. The brain needs protective relationships, and does not discriminate based on gender.

Perhaps the greatest threat to a young child’s well-being is when the familiar caregiver are unable to meet the child’s needs for care and support. The probability of children’s survival is drastically reduced if the mother dies. The young child’s health and development depends greatly on the parents’ health and well-being – with a particular emphasis on the mother’s health during and after pregnancy. Therefore, investing in maternal health is a central element in early childhood development.

Love works, and we have to keep giving it!

**Biology is on our side - Time is not on our side**

“If we provide good things, the basic principle of biology will take over”, stated Professor Shonkoff. There is always the possibility of making things better, always. What biology tells us is that it gets harder with time. People live in all kinds of cultural contexts and the brain is prepared to do well in all those environments. The school system should accommodate brain development.

A child who has had devastating experiences and suffered severe neglect early on, is deprived of becoming what he would have been, but it does not mean that we cannot make things better. We invest a small percentage in early years, and less when it pays off. Shift the balance! Creating the right conditions for early childhood development is likely to be more effective and less costly than addressing problems at a later age.

Professor Shonkoff summed it up well: “Prevention is better than treatment. Earlier is better than later. Always. That’s biology”. If we
do not continue to provide what children need, we lose what we have gained. It’s not a booster – we must continue to provide what children need.

**We did not come here empty-handed**

In an interesting regional session on African perspectives on ECD, the sense that developing countries, and Africa in particular, has no or bad early childhood development care, provision and education was confronted with the powerful statement “We did not come here empty-handed”. Good practices should be shared and built on. A positive tone was set with the slogan “Africa – a continent of opportunities”. Professor Robert Serpell from Zambia, amongst others, gave an interesting account of African initiatives and resources. Many and rich strengths, resources and opportunities of African childhoods and childcare, as well as governmental and regional initiatives were given as examples. Research and practice emphasizing a contextual understanding of childcare was mentioned, including the interesting works by Bame Nsamenang on African childhood.

Well known researcher Bame Nsamenang argued for a change that would enable Africa to stop being “an importer of knowledge”. Africa should itself, to a larger degree, contribute to the knowledge production, not only for Africa’s sake, but for the promotion of the global common good that knowledge is. Increased capacity to take part in the research production and research dialogue by partners in developing countries should be one of our priorities to fight the unfairness of knowledge distribution, and to avoid under using and wasting valuable talents and lessons.

The Millennium Development Goals encompass early human development – such as fighting poverty, education, maternal and child health, gender equality and combating HIV/AIDS, malaria and other diseases. By viewing EHD in this perspective it is possible that we may make more of the resources. EHD should not be seen as an initiative but as an integral and important component of the development agenda and human rights.
One thing that struck me while preparing for the conference and throughout was that the child is rarely central in discussions, policies and programmes of early childhood development. The needs, strengths and rights of the child in his or her context should be at the centre, and should be the starting point of our efforts. If the child is in the centre, it may be easier to connect the sectors, as it would be the child’s needs rather than those of the sector that would be governing us.

**The niche of childhood**

Building on a wealth of theories and empirical studies from psychology, medicine, biology, nutrition, anthropology, pedagogic, and other fields, we are indeed not empty-handed. On a personal note, I was also encouraged that the two long-term areas of interest in which I have been engaged; namely cultural psychology (Dybdahl, 1998) and trauma psychology (Dybdahl, 2001) are both highly relevant to bring to the current EHD agenda.

Regarding cultural psychology, and the relevance of context, the concept of The Developmental Niche (Super & Harkness, 1986) seems particularly useful. The framework was developed for taking a contextual perspective on childhood and places the child in the centre of its environment which it both influences and is influenced by, and development is seen as a function of interactions between the child and his or her environment. The niche consists of three components; a) the physical and social settings in which the child lives, b) the customs and child rearing practices, and c) the ideas, values and beliefs of the caregivers. This model is useful for studying the child in context, and could be used for early childhood studies and interventions. Using a framework such as this may also help address the differing conceptions of childhood and the contexts in which children live.

Although the extent to which the Millennium Development Goals (MDGs) have been a useful approach can be discussed, the links between the goals became evident throughout the conference. Representing a government that has put a particular emphasis on
MDG 4 and 5 (maternal and child health), the contribution to good early human development through maternal and newborn health is evident. The challenge lies in letting the unified science and strong knowledge base that we have on early childhood inform these policies and interventions.

Challenges

In spite of the many positive and encouraging presentations and discussions we are faced with serious challenges. The situation is not good for millions of young children, and the consequences for them, their communities and nations are likely to be grave. In order to make progress, I believe we need to tackle these challenges in a better fashion than we have done so far.

One challenge is co-operation. This includes co-operation between agencies (for example UNICEF, WHO and UNESCO); and sectors (for example health, social welfare and education). With multiple stakeholders, there is not one entity to assume responsibility. Our challenge lies in connecting the sectors and partners so that our resources are spent on improving children’s lives together, not ignoring, or competing with, each other. Similarly, the contributions of different fields should be recognized and efforts made to make each field contribute, and actively promote interdisciplinary co-operation – and not allow disciplines to compete. Evidence based recommendations emphasise that development programmes should start early, combine health and nutrition services with early learning, and have adequate quality, intensity, and duration (Engle et al., 2007).

Another challenge, although related to that of co-operation, lies in the concept of ECCE. We must allow for objections and dare to confront differing conceptions of childhood, good development and child care. The holistic understanding must not be for speeches only. Although a holistic view is promoted in papers and key notes, in reality, also during the Moscow conference, it often boils down to formal preschool and curriculum based institutions. The quality indicators, especially related to preschools, that were described both at the conference and elsewhere are often structural or on an input level,
such as staff qualifications and student-teacher ratio, while better, or real, quality indicators are largely ignored (Gilliam, 2009), as are the protective relationship and the child’s needs for good nutrition, health care, protection, stimulation and love. Process variables are active ingredients and actual or real quality while structural variables are moderators of quality (Gilliam, 2009).

The focus on formal preschools may also be part of the challenge of an often unspoken conflict between the emphasis on the family versus institutions. In fact, it is striking that the role of parents and family is given relatively little attention in the ECD community and EFA 1, whereas the role of parents, family and primary caregivers is central in many approaches to early human development, such as child psychology and attachment studies.

Evidence-based recommendations emphasise the involvement of families (Engle et al., 2007). Early childhood interventions should be implemented in infancy through families and caregivers, and group learning experiences should be added from 3 to 6 years, particularly for disadvantaged children. Programmes should rely on families as partners (Engle et al., 2007).

As pointed out in this paper, there are opportunities as well as challenges that relate to how to make the very solid knowledge base from multiple sources of knowledge inform poorly connected sectors, and how to solid the knowledge base that we have and continue to work to fill the knowledge gaps.

We should avoid making the arguments of the “right in itself” compete with “the Early childhood investments pay off” – these are both good arguments and are both valid and important. Development and survival is a right in itself and happy healthy childhood is an aim with intrinsic value. The fact that the costs of not investing in early childhood not only has serious negative long-term personal consequences, but also has severe social and economic consequences for communities, countries and regions should only add to the imperative of acting.
One challenge lies in the lack of political will and frameworks. This includes leadership frameworks and awareness. There is a need to raise technical expertise on early child development and global and regional ECD knowledge capacity to enhance aid efficiency and scale up investment in young children. Justifying investments in long-term effects may be hard for governments to justify.

One of the challenges that received most attention at the conference, and indeed often receives attention, is the lack of financing and funding. Although this is a major issue, it must not be used to cover up other shortcomings we are facing such as (potential) conflicts and dilemmas pointed to in this paper.

Selected conference messages

- Strong evidence is not leading to effective policy
- Policy framework is stronger for the over 3s than 0-3s
- Those who are marginalized have not got access to the programmes that will give them the best chance
- We must allow for objections
- Target the most vulnerable
- Better training for those who deliver services
- We talk together – we need to talk to those who are not already converted
- This is a national dialogue, not a sector dialogue
- ECCE is not an education issue. It is much more than that – water and sanitation, food and nutrition, parental education and support,
- Ages 6-8 is where the education sector fails children – donors and governments must give purposeful attention to the early years of schooling.
Conclusion

The child must be our focus and target for development policies and goals. If the child, with her and his needs, rights and resources is our starting point, rather than the sector, then we are in a better position. With the wide range of scientific research that exists today on early childhood development, there should be no reason to hesitate regarding the soundness of investments in this area. The challenge lies in how to do it. Academia, donors, governments, international agencies and civil society should be encouraged to work together towards strengthened evidence based policy development, capacity building and delivery of services. Shared good practices as well as empirical documentation of knowledge based efforts and on local solutions should assist us in finding ways to meet the challenges.

The young child’s health and development depends greatly on the parents’ health and well-being –particularly on the mother’s health, during and after pregnancy. Therefore, investing in maternal health is one of the pivotal elements of early childhood development. Girls’ education is a key investment for sound early childhood development. Future mothers’ education level is decisive for children’s health and educational opportunities.

Taking on child rights and development in countries where resources are scarce and unfairly distributed investments must be realistic and targeted. A first principle would be to build on what exists and works already, both politically, institutionally and culturally, with a focus on the most marginalized. In spite of the solid evidence and the knowledge that investing in young children pays off, we are failing badly at taking the steps that are necessary. We must join forces, across disciplines, sectors, organisations and countries, and use the many opportunities and resources that we have in order to make serious progress. As stated many times in Moscow: Let this conference be a turning point!
References


Journey of intelligence from Darwin to Gardner

Reeta Sonawat, PhD.
Swati Toshniwal
S.N.D.T. Women's University,
Mumbai, India

Abstract

The purpose of this paper is to focus on the concept of intelligence from Darwin to Gardner. The first section describes various definitions given by various authors followed by different measurement techniques given by psychologists to assess intelligence. The second section includes theories of intelligence underlying human intelligence from Darwin to Gardner. These theories seek to understand intelligence in terms of underlying hypothetical constructs: constructs as factors (Psychometric theories); mental processes (Cognitive theories); cognitive processes that interact with the environment (Cognitive-Contextual theories); or brain anatomy (Biological theories). The third section concludes with the importance of Multiple intelligences (MI) theory in the field of education, which emphasizes intelligences rather than intelligence.
Individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning and to overcome obstacles by taking thought. Although these individual differences can be substantial, they are never entirely consistent. A given person's intellectual performance will vary on different occasions, in different domains, as judged by different criteria. The present paper will highlight the journey of intelligence to multiple intelligences considering the following questions:

- How is intelligence defined?
- Can it be measured or assessed?
- Is it psychological or biological or cognitive or cognitive-contextual in nature?
- Is it intelligence or intelligences?

**Concept of intelligence**

The concept of intelligence attempts to clarify and organize a complex set of phenomena. Although considerable clarity has been achieved in some areas, no such conceptualization has yet answered all the important questions and none commands universal assent. There are different views of intelligence as there are different definitions proposed until the present (Sternberg & Detterman, 1986; Sternberg, 2000b).

Different psychologists have understood intelligence as a concept in different ways and consequently there stands a wide variety of definitions:

- Galton's (1880's) "Intelligence is a single general factor that provides basis for the more specific abilities that each of us possesses." (Lahey, 2002, p217)
- Stern's (1914) "Intelligence is a general capacity of an individual consciously to adjust his thinking to new requirements. It is general mental adaptability to new problems and conditions of life."
Moskowitz & Orgel’s (1969) “Intelligence is not a “thing” or a “substance” but a quality of the individual's behavior at a given time.”

Anastasi’s (1992) “Intelligence is not a single, unitary ability, but rather a composite of several functions. The term denotes that combination of abilities required for survival and advancement within a particular culture.”

Sternberg’s (1984) “Intelligence is the ability to adapt to and shape one's environment in order to meet one's needs or purposes” (Johnson, 2006, p 42)

Gardner’s (1993) “Intelligence is a bio-psychological potential to process information that can be activated in a cultural setting to solve the problems or create products that have value in culture.”

Leaving aside the nature of the terminology and language used in defining intelligence, we here emphasize the concept of intelligence. There is not a single entity that we can call intelligence. People are not more intelligent or less intelligent, but they are intelligent in different ways (Johnson, 2006). The psychological approach to the study of learning ability has focused on the concept of intelligence: a general theoretical construct that refers to the inferred ability of the individual. Many people misinterpret the concept of intelligence because they think that it refers to some fixed structural or genetic potential for learning. People sometimes equate intelligence with intelligence test scores. Test scores are ordinal rankings of behavioral complexity, expressed as numerical quantities. Fundamentally, a psychological test is an instrument for obtaining an objective and standardized sample of behavior (Anastasi, 1961).

Intelligence is a much too general and, in some respects, a poorly defined term; as learning ability refers to a person's current ability to perform a particular kind of tasks. Over the course of time, a person's learning abilities may change; and at any given time, he does not have equal abilities in all areas. A man may be very intelligent in acquiring mechanical skills but not so versatile in the area of language. His
abilities to acquire mechanical, verbal or social skills may change considerably with changes in age, motivational patterns, interests, etc. Therefore, it would be technically more correct to speak of “intelligences” rather than intelligence, as there are many ways to be intelligent that lead to varied conceptualizations (Guilford, 1959; Neisser et al., 1996).

Measuring intelligence

Psychologists have devised so many tests for the measurement of intelligence. Intelligence in all its meaning and application is not a thing; it is only an idea, an abstraction. Therefore, we can have its assessment and not measurement in physical terms. We measure the intelligence of an individual with the help of an intelligence test, then we try to interpret the resulting score in the light of the norms established (group performance) by the author of the test. In this way, one's intelligence is determined relatively to the classified group to which he belongs. Therefore, unlike in the case of a piece of cloth where absolute measurement is possible, we have relative measurement in the case of intelligence measurement (Mangal, 1999).

Linn and Gronlund (1995) note that one of the first considerations when devising an assessment instrument is to specify clearly what is to be assessed. Unfortunately, in regard to the traditional assessment of human intelligence, this basic tenent of assessment has been violated. In other words, some tests designed to measure human intelligence were developed without a clear definition of the very construct they were intended to measure. For example, age, intellectual ability level and specific aspects of the constructs were involved in factor analysis.

Retrospective views of intelligence

Scientific interest in measuring intelligence was aroused by the impact of the theory of evolution. Intelligence, conceived in an evolutionary framework, is a form of retaining and organizing perceptual input that enhances an organism’s chances of survival (Brown & Langer, 1990). By stressing individual variations in adaptive capacity as the
key to “survival of the fittest,” Darwin stimulated an immediate interest in the possibility of measuring the most crucial adaptive feature of man himself—his ability to learn. Galton was strongly influenced by Darwin’s thinking (Fancher, 2009). According to Tulsky (as cited in Galton, 1869), Galton stated that a man’s natural abilities are derived by inheritance, under exactly the same limitations as are the form and physical features of the whole organic world. This resulted in the development of many measurement techniques and complex statistical procedures. Galton believed that these tests measured more than just psychophysical abilities that included sensory acuity, physical strength and motor co-ordination. These abilities were the basis of intelligence and, hence, that his tasks were measures of intelligence (Ainsley & Robert, 1999). The psychologist Cattell (1890) took the Galtonian tradition to the United States. Cattell coined the term “mental tests” to refer to Galtonian measures. Their efforts were fruitful for psychology, but in terms of predicting intellectual success, these early studies were a failure; the obtained measures simply did not correlate significantly with intellectual measures and, in fact, correlated poorly with each other (Wissler, 1901). Wissler was first to use the coefficient of correlation to relate psychological measures and found that these measures are not related with academic performance (Brody, 1992). This led other investigators to conclude that the essence of human intelligence lies in complex rather than simple behaviors.

In 1904, an enlightened minister of public instruction in the Paris school system consulted with psychologist Alfred Binet about the problem of identifying and training students with special needs. Binet and Simon (1905) set out to obtain objective measures of children’s behavior, working on the assumption that the best predictors of academic success would be samples of complex intellectual behavior like vocabulary, counting, repeating sentences and problem solving. Emphasis on complex functioning paved the way for the first workable intelligence test. The original form of this test was expanded and revised, leading to new versions. A Stanford University psychologist, Terman, whose version came to be called the Stanford-Binet test (1916), took Binet’s early test to the United States. They also
introduced a new scoring concept called “intelligent quotient” (I.Q.). This test was revised and re-standardized in 1937 (Terman & Merrill, 1937). The Stanford-Binet test was revised by Merrill in 1960 (Terman & Merrill, 1960) and was later re-normed in 1973 (Terman & Merrill, 1973). This first formal intelligence assessment instrument has gone through numerous revisions, translations and reformations to become the Stanford-Binet, Fourth Edition (Thorndike, Hagen, & Sattler, 1986).

Originally published in 1939, this test was re-standardized and published as the Wechsler Adult Intelligence Scale (WAIS) in 1955 (Wechsler, 1939, 1955). It has since become the most widely used test for testing adults individually. Wechsler (1949) developed the Wechsler Intelligence Scale for Children (WISC) for use with children of ages 5 through to 15. Later, Wechsler (1967) developed the Wechsler Pre-School and Primary Scale of Intelligence (WPPSI) for children aged 4 to 6. Many tests including groups and individuals developed thereafter. During the past five decades, school counselors and school psychologists have overwhelmingly relied on the Weschler scales for programming and making decisions about special education services (Esters, Ittenbach, & Han 1997).

According to Kamphaus (as cited in Kaufman & Kaufman, 1983, 1993), the Kaufman Assessment Battery for Children and the Kaufman Adolescent and Adult Intelligence Test (K-ABC, KAIT) are two intelligence tests which utilize the simultaneous-successive framework. The K-ABC was developed to evaluate preschoolers, minority groups and children with learning disabilities. It is used to provide educational planning and placement, neurological assessment and research. The assessment is to be administered in a school or clinical setting and is intended for use with English speaking, bilingual or nonverbal children. The KAIT is an individually administered intelligence test battery composed of three intelligence scales: Fluid (Gf), Crystallized (Gc) and Composite Intelligence. The tests for fluid scale include paired-associative learning, deductive reasoning and a test of both inductive and deductive reasoning. The tests for crystallized scores contain
measures of lexical knowledge and listening ability. They require synthesis and integration, and memory for meaningful material. There are six subsets, three for Crystallized scale and three for Fluid scale. Together these scores yield composite scores for the composite intelligence scale.

When intelligence tests were first assembled, there was little attention paid to the underlying theory of intelligence. But soon the idea gained credence that the different abilities being tapped all fed into or reflected a single “general intelligence.” The intelligence tests so far discussed are essentially “omnibus” tests, in the sense that they are designed to measure intelligence by means of a composite rating of the individual's performances on a variety of different tasks. To an extent omnibus tests also reflect the theory that intelligence is a general attribute of the organism, expressed to some extent in all complex intellectual activities (Moskowitz & Orgel, 1969, p265). The notion of intelligence has fallen into disrepute, not only because of its association with eugenics, but because of the scientific strategy of searching for links between genes, $g$, and social behavior which characterizes much of conventional IQ research, appears psychologically empty (Anderson, 2001).

Theories of intelligence

There are several divergent theories about intelligence, which will be described in detail later in this section. Every thinking approach has its own different theory of what intelligence is, each from its own different perspective, with its own assumptions and often contradicting at least one other theory.

Theories of intelligence, as is the case with most scientific theories, have evolved through a succession of paradigms that have been put forward to clarify our understanding of the idea. The major paradigms have been those of psychological measurement (often called psychometrics); cognitive psychology, which concerns itself with the mental processes by which the mind functions; the merger of cognitive psychology with context (the interaction of the environment and processes of the mind); and biologic science, which considers the
neural bases of intelligence. Eysenck (1987, p21-67) described three forms of intelligence: biological (the genetic component); social (development of the genetic framework within an environment); and psychometric (specific abilities measured in psychological tests). However, all this presupposes is that intelligence is a real and definable entity.

**Psychometric theories**

The psychometric theory has been one of psychology’s stronger foundations and a major contributor to the recognition of psychology as a scientific discipline (Eysenck, 1981). Psychometric theories help to understand the structure of intelligence and that underlying it is a psychological model according to which intelligence is a composite of abilities measured by mental tests. A large part of the psychometric theory concerns mathematical methods (Nunnally, 1978, 701p). These tests often include analogies, classification/identification, and series completion. This model is often quantified by assuming that each test score is a weighted linear composite of scores on the underlying abilities. For example, performance on a number-series test might be a weighted composite of number, reasoning, and possibly memory abilities for a complex series. Because the mathematical model is additive, it assumes that less of one ability can be compensated for by more of another ability in test performance. For instance, two people could gain equivalent scores on a number-series test if a deficiency in number ability in the one person relative to the other was compensated for by superiority in reasoning ability.

The first of the major psychometric theories was that of the Spearman (1904). People who did well on one mental ability test tended to do well on the others, and people who did not do well on one of them also tended not to do well on the others. Thus, Spearman devised a technique for statistical analysis, which he called factor analysis, which examines patterns of individual differences in test scores and is said to provide an analysis of the underlying sources of these individual differences. Noting that different tests of intelligence (verbal, performance, numerical etc.) tend to correlate positively with each other, Spearman concluded that all intellectual functions share or
draw upon a common factor \((g)\). It is associated with the mental processes that were distinct from memory, physical abilities and senses. Spearman also hypothesized the existence of many specific factors, called \(s\), such as verbal, mathematical and artistic skills. Spearman felt that every skill involves some amount of the \(g\) factor and, in addition, a variety of \(s\) factors. Later, Spearman (1927) modified the two-factor theory to include intermediate factors, called group factors. These were not as specific as the \(s\) factors but not as general as the \(g\) factor.

Thurstone (1938) disagreed not only with Spearman’s theory but also with his isolation of a single factor of general intelligence. He argued that the appearance of just a single factor was an artifact of the way Spearman did his factor analysis and that if the analysis were done in a different and more appropriate way, seven factors would appear, which Thurstone referred to as the "primary mental abilities". The seven primary mental abilities identified by Thurstone were verbal comprehension (as involved in the knowledge of vocabulary and in reading); verbal fluency (as involved in writing and in producing words); number (as involved in solving fairly simple numerical computation and arithmetical reasoning problems); spatial visualization (as involved in mentally visualizing and manipulating objects, as is required to fit a set of suitcases into an automobile trunk); inductive reasoning (as involved in completing a number series or in predicting the future based upon past experience); memory (as involved in remembering people’s names or faces); and perceptual speed (as involved in rapidly proofreading to discover typographical errors in a typed text). Thurstone managed an elegant mathematical solution that resolved the apparently contradictory results, and the final version of his theory was a compromise that accounted for the presence of both a general factor and the seven specific abilities. This compromise helped lay the groundwork for future researchers who proposed hierarchical theories and theories of multiple intelligences (Ruzgis, 1994).

Vernon (1961) and Cattell (1963, 1971) suggested another possibility that both were right in some sense. In the view of Vernon and Cattell,
abilities are hierarchical. At the top of the hierarchy is $g$, or general ability. However, below $g$ in the hierarchy are successive levels of gradually narrowing abilities, ending with Spearman's specific abilities. Cattell suggested that general ability can be subdivided into two further kinds of abilities, fluid and crystallized. Fluid abilities are the reasoning and problem-solving abilities measured by tests such as the analogies, classifications and series completions described above. Crystallized abilities can be derived from fluid abilities and be viewed as their products, which would include vocabulary, general information and knowledge about specific fields. Horn (1979) suggested that crystallized ability more or less increases over the life span, whereas fluid ability increases in the earlier years and decreases in the later ones.

Psychologists agreed that a broader subdivision of abilities was needed than was provided by Spearman, but not all of these agreed that the subdivision should be hierarchical. Guilford (1959), an American psychologist, proposed a “structure-of-intellect theory”, which in its earlier versions postulated 120 abilities. Guilford (1967) argued that abilities can be divided into five kinds of operations, four kinds of contents and six kinds of products. These various facets of intelligence combine multiplicatively, for a total of 5, 4, 6, or 120 separate abilities. An example of such an ability would be cognition (operation) of semantic (content) relations (product), which would be involved in recognizing the relation between lawyer and client in the analogy problem, lawyer : client :: doctor : ?. Guilford (1982) increased the number of abilities proposed by his theory, raising the total to 150 and 180 in 1988 (Guilford, 1988). Guilford has had an enormous influence on the psychology of creativity. In many ways, he is the father of modern creativity research. Yet his conception of creativity was, we suggest, flawed in certain respects (Sternberg & Grigorenko, 2001).

It had become apparent that there were problems with psychometric theories, not just individually but as a basic approach. For one thing, the number of abilities seemed to be getting out of hand. A movement that had started by postulating one important ability ($g$) had come, in
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one of its major manifestations, to postulating 180. Any method that could support so many theories seemed somewhat suspect, at least in the use to which it was being put. Psychologists are still debating how many and what type of intelligences there are (Shlinger, 2003). Most significant, however, was the seeming inability of psychometric theories to say anything substantial about the processes underlying intelligence. It is one thing to discuss "general ability" or "fluid ability", but quite another to describe just what is happening in people's minds when they are exercising the ability in question. The cognitive psychologists proposed a solution to these problems, which was to study directly the mental processes underlying intelligence and perhaps relate them to the factors of intelligence proposed by the psychometricians (Messick, 1992; Anderson, 2001; Johnson, 2006)

Cognitive developmental and cognitive theories

During the era of psychometric theories, the study of intelligence was dominated by those investigating individual differences in people's test scores. The interpretation of g has changed over time. It initially represented a factor resulting from factor analysis but it has evolved semantically into general intelligence as a mental capacity and more recently into general cognitive ability (Plomin, 1999).

Cronbach (1957), a leader in the testing field, decried the fact that some psychologists study individual differences and others study commonalities in human behavior, but never do the two meet. In Cronbach’s address, his plea to unite the "two disciplines of scientific psychology" led, in part, to the development of cognitive theories of intelligence and of the underlying processes posited by these theories. Without an understanding of the processes underlying intelligence, it is possible to come to misleading, if not wrong, conclusions when evaluating overall test scores or other assessments of performance. Suppose, for example, that a student does poorly on the type of verbal analogies questions commonly found on psychometric tests. A possible conclusion is that the student does not reason well. An equally plausible interpretation, however, is that the student does not understand the words or is unable to read them in the first place. A student seeing the analogy, audacious: pusillanimous:: mitigate : ?,
might be unable to solve it because of a lack of reasoning ability, but a more likely possibility is that the student does not know the meanings of the words. A cognitive analysis enables the interpreter of the test score to determine both the degree to which the poor score is due to low reasoning ability and the degree to which it is a result of not understanding the words. It is important to distinguish between the two interpretations of the low score, because they have different implications for understanding the intelligence of the student. A student might be an excellent reasoned, but have only a modest vocabulary, or vice versa.

Modern cognitive theory might be traced to Piaget's descriptions of qualitative developmental differences in how children understand the world and approach the solution of problems. The Piagetian perspective was augmented significantly by Vygotsky's elaboration of the probable verbal and interpersonal underpinnings of general cognitive processes and, most significantly, his concept of the zone of proximal development. The basic Vygotskyian notion that the nature of changes attained in a tutorial situation provides a much better estimate of learning ability, has markedly influenced the work of persons in dynamic assessment. Sternberg's triarchic theory of intelligence attempts to describe the information processing components of intelligent behavior with a variety of applications (Reschly & Daniel, 1990).

The developmental tradition emphasizes similarities in intellectual growth and the importance of organism-environment interactions. The landmark work in intellectual development has not come out of psychometry, but rather out of a tradition forged by the Piaget (1972). Over the course of a long career, Piaget formulated what became one of the monumental theories in the history of psychology. Two of its main aspects concern the mechanisms by which intellectual development takes place and the periods through which children develop. As modeled by Piaget, the child explores the world, observes regularities and generalizes, much as a scientist does. The first part of Piaget's theory recognizes two fundamental cognitive processes that work in somewhat reciprocal fashion. The first is what Piaget called
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assimilation, a process that involves incorporating new information into an already existing cognitive structure. For example, a preschooler who sees her first camel and calls out 'horse' shifts through her collection of schemes until she finds one that resembles the strange-looking creature. The child already has a cognitive structure, what Piaget called a "schema". In case of the second process, accommodation, this forms a new cognitive structure that can incorporate the new information. For example, a preschooler who calls a camel a "lumpy horse" has noticed that certain characteristics of camels are not like those of horses and revised her "horse schema" accordingly. Cognitive development, according to Piaget, represents a dynamic equilibrium between the two processes of assimilation and accommodation.

The second part of Piaget’s theory postulates that there are four major periods in intellectual development. The first, the sensorimotor period, extends from birth through to roughly two years of age. During this period, a child learns how to modify reflexes to make them more adaptive, to coordinate actions, to retrieve hidden objects and, eventually, to begin representing information mentally. During the second, preoperational period from about two to seven years of age, a child experiences the growth of language and mental imagery and learns to focus on single perceptual dimensions, such as colour and size. The third, concrete-operational period from about seven to 12 years of age is the time during which a child develops an important set of skills referred to as conservation skills. For example, suppose that water is poured from a wide, short beaker into a tall and narrow one. A preoperational child that is asked which beaker has more water will say that the second beaker does (the tall, thin one); a concrete-operational child, however, will recognize that the amount of water in the beakers must be the same. Finally, children emerge into the fourth, formal-operational period, which begins at about age 12 and continues throughout life. The formal-operational child develops thinking skills in all logical combinations and learns to think with abstract concepts. For example, a concrete-operational child asked to determine all possible orderings, or permutations, of four digits, such as 3-7-5-8, will have great difficulty doing so. The formal-
operational child, however, will adopt a strategy of systematically varying alternations of digits, starting perhaps with the last digit and working toward the first. This systematic way of thinking is not possible for the normal concrete-operational child.

Piaget's theory had a major impact on the views of intellectual development, but the theory no longer has the widespread acceptance it once had, particularly from the 1950's to the 1970's. Some researchers bemoan the fact that Piaget's theories lacked scientific evidence. Furthermore, Piaget's analysis of findings was influenced by his theory. He may have underestimated the role of the child's activity in relation to thought processes. Most researchers acknowledge that merely observing does not lead to an understanding of children's development. Piaget's theory assumes that development is unidirectional with all children reaching each stage at approximately at the same age. By examining the world and society, much more data is gathered. Vygotsky was also critical of Piaget's assumption that developmental growth was independent of experience and based on a universal characteristic (Driscoll, 1994).

Vygotsky (1962) argued that all intellectual abilities are social in origin. Language and thought first appear in early interactions with parents, and continue to develop through contact with teachers and others. Traditional intelligence tests ignore what Vygotsky called the "zone of proximal development" i.e., the level of performance that a child might reach with appropriate help from a supportive adult. Such tests are "static", and measure only the intelligence that is already fully developed. "Dynamic" testing, in which the examiner provides guided and graded feedback, can go further to give some indication of the child's latent potential.

The cognitive perspective helps to define the scope of a theory of intelligence by further emphasizing the dynamics of cognition through its concentration on precise theories of the knowledge and processes that allow individuals to perform intellectual tasks. A number of cognitive theories of intelligence have evolved over the period of time. Hunt, Frost and Lunneborg (1973) showed one way in which psychometrics and cognitive modeling could be combined.
Instead of starting with conventional psychometric tests, they began with tasks that experimental psychologists were using in their laboratories to study the basic phenomena of cognition, such as perception, learning and memory. They showed that individual differences in these tasks, which had never before been taken seriously, were in fact related (although rather weakly) to patterns of individual differences in psychometric intelligence test scores. These results, they argued, showed that the basic cognitive processes might be the building blocks of intelligence. Hunt, Frost and Lunneborg provided a paradigm for the merger of the study of cognition and intelligence, a paradigm that later came to be called the cognitive-correlates approaches (Pellegrino & Glaser, 1979).

For many years, various psychologists have challenged the idea that cognitive processing is primarily serial. They have suggested that cognitive processing is primarily parallel, meaning that humans actually process large amounts of information simultaneously. It has long been known that the brain works in such a way, and it seems reasonable that cognitive models should reflect this reality. Learning good strategies for processing information is especially important to cognitive development (Siegler, 2006). However, it is difficult to distinguish between serial and parallel models of information processing, just as it had been difficult earlier to distinguish between different factor models of human intelligence. Rumelhart and McClelland (1986) proposed "parallel distributed processing" models of the mind. These models postulated that many types of information processing occur at once, rather than just one at a time.

The Planning, Attention, Simultaneous, and Successive (PASS) theory of intelligence (Das, Naglieri, & Kirby, 1994) is another contemporary theory of cognition. PASS theory allows for a broad range of cognitively mediated responses to form a problem with an emphasis on process rather than product. The attentional processes enable the individual to attend selectively to relevant stimuli while ignoring stimuli irrelevant to the problem at hand. Simultaneous processing, as the name implies, enables the individual to process simultaneously several interrelated components of a problem while successively
processing, again as indicated by its name, allowing for the integration of linearly related stimuli.

Even with computer modeling, some major problems regarding the nature of intelligence do remain. It seemed, therefore, that not only cognition, but also the context in which cognition operates, had to be taken into account.

**Cognitive-contextual theories**

No theory developed within any of the perspectives addresses all of the important elements and issues mentioned above. Hence, cognitive-contextual theories represent an interesting blending of psychometric, developmental and cognitive perspectives.

Cognitive-contextual theories deal with the way that cognitive processes operate in various environmental contexts. Two of the major theories of this type are those of the American psychologist Gardner and that of Sternberg. Most notably, the work of Gardner and Sternberg was questioning whether or not intelligence should be within the sole domain of the psychometricians. They approached intelligence in terms of one's ability to achieve success in one's socio-cultural context (Messick, 1992).

Sternberg (1985) suggested an alternative approach to studying the cognitive processes underlying human intelligence. He argued that Hunt and his colleagues had found only a weak relation between basic cognitive tasks and psychometric test scores because the tasks they were using were at too low a level. Although low-level cognitive processes may be involved in intelligence, according to Sternberg they are peripheral rather than central. He proposed that psychologists should study the tasks found on the intelligence tests and then determine the mental processes and strategies that people use to perform those tasks. Sternberg's "triarchic theory of intelligence" has taken into account both cognition and context. Sternberg agreed with Gardner that conventional notions of intelligence were too narrow. However, he disagreed as to how psychologists should go beyond traditional conceptions, suggesting that abilities such as musical and bodily-kinesthetic ones are talents rather than intelligences in that
they are fairly specific and are not prerequisites for adaptation in most cultures. Sternberg’s triarchic theory of intelligence is made up of three interacting sub theories. The first, the componential sub theory, spells out the information-processing skills that underlie intelligent behavior. Its main elements are: metacognition, strategy application and knowledge acquisition. The second is the experiential sub theory, which states that highly intelligent individuals, compared to the less intelligent ones, process information more skillfully in novel situations. Its main elements are: novelty of task and automatization of skills. The third is the contextual sub-theory, which includes adapting, shaping and selecting. It proposes that intelligent people skillfully adapt their information-processing skills to fit in with their personal desires and demands of the everyday world around them. When they cannot adapt to a situation, they try to shape or change it to meet their needs. If they cannot shape it, they select new contexts that are consistent with their goals. Sternberg’s theory emphasizes the complexity of intelligent behavior and the wide variety of human mental skills. But Sternberg’s ideas are relevant to the controversy surrounding cultural bias in intelligence testing.

In parallel to above theory, Gardner (1983) proposed a theory of "multiple intelligences". Gardner proposed that most concepts of intelligence had been ethnocentric and culturally biased; his was universal, based upon biologic and cross-cultural data as well as upon data derived from the cognitive performance of a wide array of people. Earlier theorists had gone so far as to contend that intelligence comprises multiple abilities. But Gardner went a step further, arguing that there is no single intelligence. In his view, intelligences are multiple, including, at a minimum, linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intra personal intelligence. Some of these intelligences are quite similar to the abilities proposed by the psychometric theorists, but others are not. For example, the idea of a musical intelligence is relatively new, as is the idea of a bodily-kinesthetic intelligence, which encompasses the particular faculties of athletes and dancers. Later he added naturalistic and existential intelligence in his theory.
Biologic theories

Some theorists, however, have taken a radically different approach, seeking to understand intelligence directly in terms of its biologic bases without intervening hypothetical constructs. These theorists, usually called reductionists, believe that a true understanding of intelligence can result only from the identification of its biologic substrates. Some investigators have recently turned to the study of the brain as a basis for new ideas about what intelligence is and how to measure it. Developments of the brain anatomy and physiology concerning the arborization of cortical neurons, cerebral glucose metabolism, evoked potentials, nerve conduction velocity and sex hormones give new ideas about what intelligence is and how to measure it (Neisser et al., 1996). For example, the brain is studied using PET and MRI scans to understand individual differences in intelligence. The biological approaches give us high hopes that many anomalies about intelligence will be resolved in the near future by advances of research methods. Although relatively little is known about the biologic bases of intelligence, progress has been made on three different fronts, all involving studies of brain operation.

Multiple intelligences theory adopts holistic viewpoint

Gardner has never claimed that MI theory represents the definitive description of human cognitive capacities. Rather, he maintains that relatively independent, yet interacting, intelligences provide a better understanding of the variety and scope of human cognitive feats than do the competing accounts. An MI approach demands a change of minds among researchers and educators; it requires an interdisciplinary perspective, cultural sensitivity and an interactionist-dynamic research methodology. The first two reasons support Gardner's decision to incorporate anthropological studies and case materials from a variety of cultures in devising and revising his theory. The third reason supports his decision to include developmental findings and to push for assessment criteria and environments that are intelligence-fair, are individual-focused (rather than "average kid"-focused), and capture the often dynamic
interactions among intelligences. The advantage of this approach is that it better explains the wide variety of “intelligent” performances among children and adults depending on the level of training, context, culture and innate predispositions. An MI approach better addresses the incongruities and imbalances of intelligent behavior, not only between individuals, but also within individuals. Finally, an MI approach does not overprivilege the “average” person, rather it makes room in the scholarly debate for experts whose intelligence profiles fit perfectly with a cultural domain; creators whose intelligence profiles are incongruous with a cultural domain in a fruitful, surprising way; and savants and brain-damaged patients who exhibit a striking disparity among abilities (Gardner and Moran, 2006).

Multiple intelligences theory broadened the viewpoint of researchers and educators around the world. They started to think in different ways to provide resilient outcomes (Kornhaber, 2004; Shepard, 2004; Diaz-Lefebvre, 2006).

**Conclusion**

Even after surveys of the landscape of intelligence, no standard definition of intelligence was found. In turn, many scientists have proposed many ways to measure intelligence. In the beginning, intelligence had been conceptualized as a qualitatively unique faculty (or faculties) with a relatively fixed quantity that individuals possess and that could be tested by conventional intelligence tests. Measuring intelligence without any underlying theory is like placing the sundial in shade. The concept of intelligence was characterized by a general underlying ability and certain task or domain-specific abilities that constituted the basis of several major theories of intelligence. Thus, whole host of theories of intelligence have evolved over the time. Darwin's theory was the important milestone to psychometric theory as it pushed other scientist towards the concept of intelligence. Later emerged the cognitive, biologic and cognitive-contextual theories to overcome the shortcoming of the preceding ones. The MI theory rendered the holistic approach, as it emphasized the pluralistic notion
of intelligence where interaction among intelligences have been found to be important for understanding how people’s minds work.

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Remote control childhood: Working with children in a media saturated world

Diane E. Levin, PhD
Wheelock College, Boston, USA

[A PERSONAL NOTE TO READERS: Much of what I say in this article has been confirmed by teachers with whom I have worked in such other countries as Australia, Ireland and Northern Ireland, New Zealand, South Africa and South Korea. However, the ideas voiced here are based primarily on the work I have in the United States. As you read, please consider how what I say does and does not apply to your work with children in Nepal, and adapt it accordingly.]

From at the earliest ages, media culture touches the lives of children growing up today. It profoundly influences what they learn as well as how they learn. I call today’s situation remote control childhood because so much of children’s knowledge and behavior is directly

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2 By media culture I mean both all the screens—such as TV’s, movies, computers—and all the products that are linked to the screens—such as toys that replicate what children see on the screen and clothing with images from the screen.
influenced by their involvement with media and media related products (Levin, 1998).

There is a growing body of research and anecdotal evidence that supports the validity of my concerns about the impact of media culture. For instance, young girls’ are increasingly concerned with appearance, boys are more involved with violent themes, and children are more obsessed about getting the “right” toy linked to a TV show or movie (Levin & Carlsson-Paige, 1995; Linn, 2004, Schor, 2005; Strasburger 2009). More and more of children’s attitudes, values and behavior seems to be controlled by and imitates what they see on the screen, instead of children actively creating their own behavior and ideas. These changes led me to coin of the term, “remote control childhood” (Levin, 1998).

The multiple ways media affects children can be divided into two broad categories. First, children learn content from media culture about sexualized and violent behavior and consumerism. Second, as children have more second-hand rather than direct experiences, the very process by which children learn is transformed in ways that can undermine play, problem solving, active learning and social development—they can become more “remote controlled” rather than active agents. It is through an understanding of these two issues and the relationships between them that we can truly begin to develop strategies for counteracting the ways media culture is undermining development and promoting the positive aspects of media culture in children’s lives.

Content Issues: Media Culture Teaches Children Harmful Lessons

Today’s media is teaching children lessons that often go against what we aim to teach children at home and in school and can make our jobs as educators and parents harder.

Buy, buy and buy more. Because of how young children think, they are especially vulnerable to the exploitative messages used by marketers to sell them things. For instance, when they see advertising or product-based programs, they focus on the most graphic, concrete aspects of what they see and do not put the product they see in a
meaningful context (Levin and Carlsson-Paige, 2003; Linn, 2003). Thus, if a toy linked to a TV show is made to look exciting when the child in the ad uses it, young children will think it will be exciting when they use it too.

No matter what a child already has, there is always something new and more desirable and not having it can lead to feelings of deprivation. This situation creates stress in homes and competition among children in school over who has the latest, most glorified, most coveted new item. Often happiness comes from getting the coveted item, not from using it. This buying frenzy can cause children to focus their energy more on “I want it,” than many more important motivators like “I can do it” (Levin, 2004).

Gender stereotypes. Beginning in the preschool years, children try to define their gender identity as a girl or a boy. One way they do this is by looking in the world around them to see what girls and boys do. Often because of how they think, they look for the most graphic examples of differences between boys and girls to figure out what is and is not appropriate for their gender.

Media producers and marketers of products linked to children’s media use extreme gender divisions and stereotypes—violence for boys and sexualization and appearance for girls to capture boys’ and girls’ attention. As children rely on these highly stereotyped media messages to define their gender, they develop narrow definitions for themselves, thereby limiting their opportunities to develop a full range of their human potential (Levin & Kilbourne, 2009).

Tough guys. The violence that boys see in the media and in toys linked to that media is having a worrisome effect. It tells them they need to be tough and ready to fight and the toys help them act this toughness out over and over again.

Research has shown that children who view a lot of entertainment violence in the media are more likely to view violence as an effective way of settling conflicts. They become emotionally desensitized toward violence in real life. And they develop the perception that the world is a violent and mean place. In addition, children exposed to
violent programming at a young age have a higher tendency for violent and aggressive behavior later in life than children who are not so exposed (American Academy of Pediatrics, 2000; Von Feilitzen, 2009).

**Sexy girls.** Preschool girls are exposed to images of sexy appearance, clothing and behavior they cannot fully understand. It influences how they think about being female and their bodies. It affects what they want to be, do, and wear. Girls quickly learn to see themselves and other girls as objects judging each other by how they look. Boys learn to judge girls as objects—by how they look—too (Levin & Kilbourne, 2008). Teachers should not be surprised when children bring this sexualized content into the classroom—for instance, girls focusing on being princesses or doing sexy dances like they see on TV, or wearing sexy clothes that inhibit their physical activity.

**Process issues: Media culture affects how children learn**

When children are glued to a screen or controlled by toys linked to what they see on a screen, they are not involved in interacting directly with their environment; that is, they are not playing, exploring, interacting. They are taking in someone else’s script designed to grab their attention, tell them what to do and sell them things. And then, when they are not directly viewing, children often play with realistic replicas of what they see on the screen which channel them into trying to imitate scripts from the media, not work out their own ideas or engaging in creative play.

As a result of growing up in this remote controlled environment, children can become disconnected from the real world experiences they need for optimal development and learning, and rely more on the fast-paced stimulation they get from screens.

**Problem solving deficit disorder (PSDD).** Parents and professionals who work with children who are very involved with media culture say these children are bored a lot, and they have trouble becoming deeply engaged in less structured, more open-ended activities. They seem to lack creativity and imagination and experience difficulty engaging in play of their own making (Miller & Almon, 2009) in
playing cooperatively with others or resolving conflicts without aggression. They do better when they are told what to do, and prefer structured activities at school or DVDs to watch and videogames to play at home. They ask for new things all the time, but quickly become bored once they have them. Parents who can afford it often enroll their children in organized after-school activities so they will not be bored or nag to spend more and more of their free time involved with a screen. I have come to call this condition *problem solving deficit disorder* (Levin, 19).

PSDD undermines optimal academic learning as well as learning how to solve conflicts and social problems with others. In the long run, it can lead to remote controlled people who exhibit conformist behavior, accept orders without questioning, and miss out on the joy that can come from figuring out how to solve an interesting problem on one’s own and the sense of power and competence that this can bring.

**Compassion deficit disorder (CDD):** Many teachers say they spend more time trying to maintain safety in their classrooms than in the past. They also say they are seeing younger children exhibit the kind of bullying and teasing that used to be characteristic of older children.

Children learn how to interact positively with others through a gradual process. Children use personal experiences—such as how they are treated and how they see people treating each other—to build ideas about how people treat each other. It is vital that children have experiences that help them learn these skills when they are young, because research suggests that patterns of behavior at age eight are related to behavior in adulthood (Eron, Gentry, Schlegel, 1994).

Screen time takes a great deal of time away from directly interacting and learning how to interact with other children in the real world. When children have fewer opportunities to learn positive social behavior from direct experience, they can be deprived of developing increasingly reciprocal and empathetic social skills. This can contribute to more anti-social and mean-spirited behavior because children have not learned what else to do when they have a conflict. I call this *compassion deficit disorder* (Levin, 2009).
From remote control to children in control: What schools can do

There is much we can do to counteract RCC and promote healthy development and learning. We can:

**Work with parents to help them use media thoughtfully in the home.** Parents are often criticized for not setting more effective limits with their children around media and commercial culture issues. Working together with parents to counteract the perils children face is the best way to help them learn to do so.

**Try to protect children as much as possible from exposure to media and products that can teach harmful lessons.** You can help families: 1) make good decisions about the media and toys in their children’s lives; 2) create rules and routines for what media children consume, and 3) set guidelines for what, when, and how children should acquire new things and take part in shopping. When children know what will happen and when, home life is less stressful because they are less likely to keep nagging their parents for more and more and parents retain better control of their children’s access to media. Teachers Resisting Unhealthy Children’s Entertainment (www.truceteachers.org) prepares materials to help families of younger children deal with the media on their children’s lives.

**Talk with children about what they see to help them make sense and influence the lessons they are learning.** Children need a safe place to process what they see and hear in the media instead of having to try to figure everything out themselves without the guidance of caring adults. Teachers can create classrooms that recognize and work to meet this need. Let children know that they are interested in what children see and what questions they have. The teacher can clear up misconceptions and make comments that influence children’s thinking.

**Help children become creative players and problem solvers and develop a broad range of interests, skills and behaviors that get beyond what they see on the screen.** This often involves taking a narrow, remote controlled interest that children have learned from the
screen and working to expand it into something over which children can have control, be creative and expand in a variety ways. For instance, in one class where girls were obsessed with being princesses and would rarely play with boys, the teacher created a curriculum project with the theme “Princesses and Princes.” One area of the classroom became a castle, the reading area had fiction and non-fiction books about competent and strong princesses and princes from many cultures, and the art area became the place to crowns and swords made out of cardboard and foil.

A project like this: 1/ helps children become more creative players, using toys, props, and ideas in open-ended rather than scripted ways; 2/ counteracts PSDD by helping children develop their own solutions to problems that come up as they create their characters and scripts; 3/ promotes expanded gender roles; and, 4/ combats CDD by fostering positive relationships as children work together and take each other’s point of view to build new ideas together.

Working together
The more parents and educators succeed in working together to support children’s development and learning in this increasingly media-saturated world, the more effective our efforts to use media appropriately and limit the harm are likely to be. We also need to work together to demand that our governments, and the media and the toy industries create a healthier media environment for children, with more appropriate content and less intensive marketing. By working together to reduce the power of media in children’s lives and actively supporting the development of more positive media for children, we can help ensure a healthier environment in which children can grow.

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Abstract

Being active for life through regular physical activity begins at an early age. Quality physical activity not only enhances a child’s fundamental motor skills but it promotes positive attitudes towards a path of lifetime fitness. By age five, all the fundamental movement patterns have emerged. Thus, the strongest practical implication for a variety of developmentally appropriate movement experiences for children under five is that it is during this time that basic motor skills are being developed. Movement for preschoolers has one primary goal: fun activities that lead to a lifelong habit of regular physical activity. When shaping young children’s attitudes towards physical activity early childhood educators can play a significant role molding children’s attitudes and behaviours towards active play. Early learning educators should be aware that for the child, movement is one of the most utilized vehicles of nonverbal interaction and expression. The early years represent a crucial time in laying the foundation for children’s physical competency. It may be suggested that physical play is not only a prerequisite for physical and emotional development, it is also the most accessible and natural vehicle to use in the promotion of the development of children's intellect.
Canadians have one of the highest standards of living in the world, yet studies have demonstrated that physical fitness levels begin to decrease at the age of five. Physical activity is a crucial component of early childhood. Research has established that more than three fourths of a child’s basic motor movements are attained by twelve years of age (Eastman, 1996). Consequently, a wide variety of carefully planned movement experiences at an early age is a necessary prerequisite for later motor development.

Being active for life through regular physical activity begins at an early age. Daily physical activity helps children:

- Develop cardiovascular fitness, strength, flexibility and bone density;
- Maintain a healthy body weight;
- Reduce the risk of several diseases and health problems;
- The ability for the child to carry out their daily tasks more easily and less fatigue (Healthy Canadians, 2010).

Quality physical activity not only enhances a child's fundamental motor skills but it promotes positive attitudes towards a path of lifetime fitness (Eastman, 2000).

An old Chinese proverb states that "A journey of a thousand miles begins with one step." The prevention of obesity should begin with infant feeding and continue throughout life. Childhood obesity has become a societal issue. Recent studies (Klich, 1998) have found that the longer a child remains obese the more predisposed that child will be to becoming an obese adult. In most cases dieting is not recommended for overweight children. Families often wonder what is an adequate daily caloric intake for preschoolers. In general, there is no prescribed specific amount of energy for children. However, the approximate energy intake for a two or three year old is 1,300 kcal per day, whereas, a four to six year old would require 1,800 kcal. The key to maintaining a healthy weight is to ensure that there is a balance between energy intake and energy expenditure. If dieting is not an option for children, then what can families and caregivers do to
address obesity concerns? One suggestion is daily physical activity. (Eastman, 2008).

Wayne Gretzky, one of Canada's greatest athletes, was not born playing hockey. It seems to me that it is less important that a child become a superstar, than it is for a child to learn how to control the large muscles in the legs, arms and neck in order to be able to run, jump, skip, hop, climb, ride a bicycle - and even play hockey. By age five, all the fundamental movement patterns have emerged. Thus, the strongest practical implication for a wide variety of movement experiences for children under five is that it is during this time that basic motor skills are being developed. Young children require ample opportunities to pursue daily physical activities (Eastman, 1992).

**Principles of physical activity for young children**

Movement for preschoolers has one primary goal: fun activities that lead to a lifelong habit of regular physical activity. A healthy physical activity curriculum is based on sound principles about how young children develop motor skills:

- Children develop physical skills by manipulation and movement in a setting.
- Every child has unique needs and interests.
- Children enjoy structure and movement with a purpose.
- Preschoolers have developed some control of fine motor skills but still need to develop control of large muscles.
- Preschoolers have short attention spans (Sanders 1992; Eastman, 1995)

The National Association for Sports and Physical Fitness is a proactive organization that encourages movement and fitness from birth through adulthood. Listed below is NASPE's physical activities guidelines for children up to five years of age:

- Infants should have the opportunity to move or interact for several short periods per day; for example placing them on their stomachs and let them kick and move.
• Toddlers need structured and unstructured physical movement opportunities. Aim for 30 minutes of supervised activity combined with 60 minutes of free play, and try not to let them sit for longer than one hour at a time unless they are asleep.

• Preschoolers should have 60 minutes of daily guided movement activities, and a minimum of 60 minutes to hours of unstructured free play time (Cosmato, 201).

Benefits of active play

When shaping young children's attitudes towards physical active living early childhood educators can play a significant role in molding children's attitudes and behaviours towards physical activity. The following principles serve as a guide to balanced physical activity programs:

• Focus on the whole child and stress the physical, emotional, social and spiritual value of living actively.

• Provide equal opportunities for physical activity regardless of age, gender, language, ethnic background and ability.

• Promote positive self-image, self-esteem and personal control by developing activities where all children can achieve some measure of success (Eastman, 2000).

The attitudes young children form toward active play often determine their later involvement in physical activity. Hence, positive experiences with movement during the early years can do much to enhance an individual's long-term quality of life. The cognitive, emotional, social and physiological benefits to being a physically active child includes:

• Movement is an important part of a child's physical, mental and emotional development.

• Activity satisfies a child’s curiosity of movement.

• Children experience good feelings when early childhood educators, parents, other adults and older siblings are involved in physical activity and active play with them.
• Activity helps young children feel good about themselves.
• Games and physical activity foster socialization with other children and development of social skills.
• Children develop positive, life-long attitudes towards physical activity.
• Young children solve problems and gain success through challenge and exploration.
• Regular activity increases a child's level of fitness.
• Active children develop positive, healthy lifestyle practices.
• Physical activity reduces the risk of heart disease, diabetes, osteoporosis and other diseases.
• Physical activity helps young children deal with stress more effectively.
• Active children enjoy a higher energy level.
• Children who are active perform well at mental tasks.
• Active children have high levels of concentration and discipline.

A Child-centred approach

A variety of daily physical activities recognizes and reinforces children's love of active play.

When offering physical activity programs, you need to know about and respect growth patterns, encouraging appropriate physical activity at each developmental stage. Offer a variety of choices of meaningful activities based on the needs, interests and abilities of each child in your care.

Infants discover their surroundings through movement and manipulation. When they commence crawling, they enjoy exploring; with this characteristic in mind, you can create a challenging setting that encourages crawling. Try an activity like "crawl with me" as the child learns to crawl, guide her around objects and encourage her to crawl under tables, around chairs, both forward and backward.
The active play movement recommends that early childhood educators and young children take part daily in a variety of physical activities. Toddlers and preschoolers prefer active play that emphasizes swinging, sliding, balancing, riding and pulling wheeled toys, water play and climbing. They also enjoy loosely organized games like "Simon Says" and hide-and-seek. Toddlers especially enjoy activities where they can attempt the fundamental movements of walking, jumping and kicking, and throwing and catching. If you provide various sized balls and bean bags, toddlers can begin developing the preceding motor patterns. Preschoolers enjoy active play involving body parts. They are refining their abilities to kick and strike. Play games that encourage such skills in small cooperative groups. Keep activities fun and non-threatening by encouraging physical activity as a choice of play each day. Never require children to perform. Because each infant, toddler and preschooler progresses at their own rate, it is best to encourage motor development activities within their capabilities (Eastman, 2000).

A child's play environment is their developmental workshop. Throughout the day, simply provide young children with opportunities to be physically active. Encourage an approach that is "for children and by children." Design movement experiences so that each child can gain success, with the setting and the activities presented informally. Physical activities for young children should be diverse and arranged so that children can achieve a broad range of motor experiences. Use contemporary, honest and positive approaches that encourage a sense of belonging. A child-centered approach ensures that movement activities are fun and that they offer young children ample praise and encouragement. These measures will enhance a positive attitude towards being physically active (Eastman, 2000).

Six myths

Myths about physical activity abound in our culture. We can all work to dispel them (Eastman, 2000).
<table>
<thead>
<tr>
<th>Myth</th>
<th>Reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Infants, toddlers and preschoolers are naturally active, so you do not need to be concerned with their level of physical activity.</td>
<td>1. Many circumstances in the daily lives of very young children prevent them from being physically active. Care providers need to consciously incorporate a wide range of daily physical activities into their program.</td>
</tr>
<tr>
<td>2. Boys play roughly and girls play passively.</td>
<td>2. Gender stereotypes towards physical activity contribute to lower fitness levels of girls and perpetuate stereotypical gender behaviours.</td>
</tr>
<tr>
<td>3. Structured activities best meet the active living requirement of very young children.</td>
<td>3. For early childhood educators, the best approach is to make unstructured or naturally occurring physical activities part of a child's daily routine.</td>
</tr>
<tr>
<td>4. Children with chronic conditions and disabilities cannot participate in physical activity.</td>
<td>4. By adapting equipment and the environment, early childhood educators can help young children with disabilities lead active lives.</td>
</tr>
<tr>
<td>5. Play pens and infant swings are appropriate for early childhood educators to use as active play equipment.</td>
<td>5. These pieces of equipment are often used to pacify and babysit. They limit the mobility of infants and toddlers.</td>
</tr>
<tr>
<td>6. Expensive, brand name equipment offers better opportunities for physical activity.</td>
<td>6. Inexpensive homemade equipment (e.g., bean bags, wool balls, skipping ropes) can promote creative, active play.</td>
</tr>
</tbody>
</table>
A Potpourri of physical activities for young children

Infants, toddlers and preschoolers have limits and early childhood educators need to know what they are. Typical developmental patterns of infants, toddlers and preschoolers are outlined below, along with samples of appropriate physical activities for children within each age span.

Infants

Children's motor skills begin to develop the instant they are born and continue to develop throughout their lives. A variety of safe movement experiences are critical for the healthy growth of all babies. Infants are absorbed in individual play, touching, holding, observing and tasting everything within their reach. As they play, they learn about their limits.

A basic daily routine might be:

- a relaxation exercise, like toweling a baby dry or gently massaging legs and arms with baby oil. This establishes trust and ensures that additional activities are relaxed, fun and effective.
- some stretching and bending exercises to increase flexibility and range of motion.
- "you-and-me" exercises to improve strength endurance, flexibility, and coordination.
- talking, laughing and loving are vital components of each session.

Most movements of very young infants are natural reflexes. At about three or four months, these reflexes gradually disappear and are replaced by learned motor skills. Motor development of newborns to six-month-old infants mainly involves reaching and grasping, rolling over, sitting, crawling and standing. The best forms of active play for infants in this age category are "you-and-me" exercises. Physical activities to initiate with infants include: leg stretches; hand squeezes;
supportive curl-ups; toothbrush tickle - light movements on the soles of the foot automatically make the foot tighten or move, toning the foot muscles; tummy squeeze - with your whole hand, grasp the stomach gently and feel the baby pulling in her tummy; and head raises.

During these initial motor development stages, focus on simple games. For example: peek-a-boo; kissing - alternately kissing the baby on one hand (or foot) and then the other; bubble breaking - encouraging the baby to reach and burst soap bubbles; and singing action games, like pat-a-cake and This Little Piggy Went to Market (toes and fingers).

Babies

From six to 12 months, infants gain control over their initially awkward movements and begin establishing the motor skills that will be with them for the rest of their lives. Motor development stages include: reaching and grasping, sitting, crawling and standing, and walking. "You-and-me" exercises can continue in this age group. Such activities might include: curl-ups - assisting the child to move from his back to a sitting position; stand up - helping the baby rise to a standing position; rowing - sitting the baby between your legs, both grasp a narrow broom handle and gently reach forward and backward in a rowing motion.

Simple games that entertain six- to 12-month old babies include: pull and tug, using a variety of objects like a towel; action singing rhymes; mirror games - a floor mirror encourages visual motor activities; and climb about - having the child crawl over objects placed on the floor like rolled up pillows. Remember that infants progress at their own rate; your role is to facilitate their development and to have fun. A young child should not be pressured to perform.

As children approach their second year of life, their motor capabilities have increased and it becomes more difficult for them to stay still for long periods of time. Change physical activity sessions frequently and have shorter exercise sessions. The motor development stages of
the 12 to 18 month period include: reaching, grasping, releasing and manipulating, sitting, crawling, climbing and walking.

A few "you-and-me" exercises for this age group are: pedaling - the child lies on her back and pedals with her legs; arm circles; helicopter - the child lies on his stomach and moves the hands and feet in a kicking motion; and watch me - have the child imitate your actions. Simple games to play are Jack-in-the-Box and follow-the-leader. Examples of singing rhyme games are Head and Shoulders and Hokey-Pokey (Eastman, 2000).

**Toddlers**

As children reach the 18 to 24 month stage, they enjoy asserting their independence by performing physical activities with little or no assistance. Toddler motor development stages include: reaching, grasping, releasing and manipulation, climbing, walking, running and jumping. Examples of "you-and-me" exercises for toddlers are: the wet dog shake - shaking arms and legs like a wet dog; flower growing - pretending to be a flower growing; helicopter; and the tight rope - walking along a piece of masking tape on the floor. Active games for toddlers include: follow the leader; singing songs with repetition, like wheels on the bus; musical chairs (remember to have a chair for each child); cookie monster tag - the adult (cookie monster) chases the child (cookie), then hugs him when he is caught; target games, like tossing ball into a waste basket; hide-and-seek; "you-and-me" treasures (looking for treasures while taking a neighborhood walk together).

**Preschoolers**

A healthy three, four or five year-old's motor development abilities include: reaching, grasping, releasing, manipulating, climbing, walking, running, jumping and landing, throwing and catching. As with infants and toddlers, "you-and-me" exercises could also be helpful for this group. Since exercise plays an important role in helping preschoolers attain their goals, search for ways to ensure that young children get involved in physical activity. These opportunities
will help to foster a lifelong desire for movement. Physical activities for preschoolers should be diverse.

Incorporating physical activity into daily schedules is the best approach. Encourage outdoor play and take walks. By age five, children may be ready for more structured play such as tag or soccer. Outlined below are movement designs that early childhood educators can easily use to help children develop physical skills.

A Web Approach: Successful activities focus on large-muscle pursuits that are active, challenging and easy to explain and understand. Your web can be as broad as your imagination. An example of the theme approach could be space and direction. Skill development would include: moving through space; high and low movements; moving body parts towards, away from, in front of, behind and around objects.

Skill/Theme Travel Maps: Use a skill/theme travel map to foster skill development in young children. This approach progresses from simple, easy-to-learn and developmentally-appropriate activities, to more advanced levels. Locomotor skills (walking, running), non-manipulative skills (turning and balancing) and manipulative skills (kicking, throwing) are three broad categories of skill themes. Movement concepts describe how skills are performed. For example, if running is the skill theme, movement concepts such as fast, zig zag, and forward can be used to describe the theme. To enhance catching, design a catching travel map such as: catching balloons catching scarves dropping and catching large playground balls. This could lead to catching beanbags that are thrown through hoops to catching balls thrown through hoops (Eastman, 2000).

Aerobic exercise: Young children usually have few experiences with structured aerobic activities. However, aerobic play can be ideal for a preschool environment. Aerobics can be best explained to preschoolers as activities that make us huff and puff or breathe hard. The primary goal is to introduce preschoolers to the idea of exerting themselves while having fun. Aerobic exercising for young children can follow the same sequences as for adults: a warm-up-action song; an energetic workout, using large muscles; and a cool-
Fulfilling young children's rights

down-transition time bridging active to tranquil play. It was previously stated that young children should have at least 60 minutes of daily active play. Furthermore, most of the 60 minutes should be moderate to vigorous aerobic physical activity.

Games are another component of preschool movement programs. Games should be simple, emphasizing large muscles pursuits. The preferred focus is on personal challenge rather than competition. A large-muscle curriculum stimulates young children through activities such as climbing, jumping, running and rolling. Appropriate preschooler games include:

• Use basic patterns with no more than three steps in a sequence.
• Have a minimum of verbal instruction.
• Offer continuous participation.
• Allow children some choices of action games. (e.g., "Squirrel in the Trees" and "Punchinello")

Conclusion

If movement has so much meaning to the young child, then just what activities should encompass a viable movement program and how would educators carry out such a curriculum? Physical activity programs for an early childhood setting must be developmentally appropriate as well as stimulating and, most of all, fun; hence contributing to comprehensive framework of motor development. Experiences which enhance motor development can be pursued through movement both with and without equipment. Early childhood educators need to expose young children to activities which include locomotor and non-locomotor activities, manipulative pursuits, and developmentally appropriate games. Jones (1989) once wrote: "The early years represent a crucial time in laying the foundation for children's physical competency. It may be suggested that physical play is not only a pre-requisite for physical and emotional development, it is also the most accessible and natural
vehicle to use in the promotion of the development of children's intellect" (p. 167).

Recognizing the role that physical activity has in assisting young children attain desired objectives, early childhood educators should continually be investigating avenues for involving children in movement experiences. Early learning educators should be aware that for the child, movement is one of the most utilized vehicles of nonverbal interaction and expression. All children enjoy physical activity. Playing makes a child happy (Eastman, 1994).

References


Fulfilling young children’s rights


Natural playgrounds and their impact on early childhood education and health

George R Smith, PhD
School of Agricultural and Consumer Sciences
Tennessee State University
Nashville

Overview

Natural playgrounds have recently gained wide attention related to their reported benefits as outdoor learning facilities. This research on natural playgrounds is based on a literature review, documented experiences, and field research undertaken during a 9-month process of designing six Early Head Start office natural playground sites in Tennessee. Dr. Smith’s experience as designer of a seventh natural playground located in a more affluent middle class/high income community in south Nashville, Tennessee is also examined. The history of natural playgrounds is highlighted and key issues related to education and health benefits of natural playgrounds are examined. Design approaches are compared and contrasted between traditional and natural playground facilities in terms of their impact...
on childhood education and health benefits. A specific discussion is provided on the value of stakeholder input processes for each of these sites. Substantiated observations and conclusions are discussed regarding the potential benefits to children who participate in natural playgrounds outdoor education facilities.

**History of natural playgrounds**

Natural Playgrounds are an alternative concept that replaces man-made play structures with natural elements based on the premise that outdoor experiences have an enhanced positive impact on children’s physical, social and intellectual development (Keeler, 2008). Natural playgrounds are designed as outdoor educational environments emphasizing natural elements as learning tools, which include water, soil, wind, topography, and plant materials. In many cases natural playgrounds also incorporate vegetable and fruit-producing plants due to their value as a safe and nutritious food source and an educational tool. These unique facilities are increasing in popularity. Much has been written recently about the value of the natural components of these playgrounds. Proponents vigorously promote their positive impact in facilitating high quality childhood educational opportunities and additional benefits including reducing incidents of childhood obesity (Moore and Wong, 1997; Boise, 2010 and others).

Early in the 21st century Richard Louv’s “Last Child in the Woods” (Algonquin Books, 2005) offered a rallying point for an emerging movement in child outdoor education. He berated the current disconnect between nature and children, while at the same time vigorously promoted the benefits of outdoor learning environments. His was not the first voice, but was one of the most noticed in the current dialogue on nature-based outdoor education. In many ways the current nature-focused childhood education movement is not a new invention, but rather a return to the values of past generations. For example, native North American culture has developed and practiced traditions of nature-based childhood learning for centuries. Friedrich Frobel coined the name “kindergarten” meaning ‘children’s garden’ for the Play and Activity Institute which he founded in Germany in 1837.
Sorensen, a Danish Landscape Architect, designed ‘junk playgrounds’ in Europe in the 1930s. These playgrounds provided children with an unstructured space with ‘loose parts’, plants and materials with which they could create and construct whatever their imaginations conjured up. This idea evolved into the ‘adventure playground’ concept, which was more structured and programmed. The first adventure playground in Europe opened in Emdrup, Denmark in 1943. Over the next 30 years these play environments spread throughout Europe and the United States. In European countries adventure playground were very popular. Regardless, in the United States they suffered from concern over litigation due to potential injuries. Only a handful of Adventure Playgrounds are currently in operation in the US.

A swell of interest in nature-based outdoor education has occurred over the last decade. This interest is primarily, but not exclusively, focused on natural playgrounds. The natural playgrounds movement has generated a variety of perspectives and approaches to the conceptualization and development of these outdoor educational facilities. Much interest and effort has been focused on the value of natural playground environments as a creative outdoor educational facility. For example, the Natural Learning Initiative headed by Professor Robin Moore (College of Design, North Carolina State University) provides a vehicle for research, teaching and outreach activities related to the design and programming of natural playscapes, which are created specifically for childhood outdoor educational programs. However, alternative venues have been explored and developed including Mindstretchers, a Scottish institute that opened the first Natural Kindergarten in Scotland in 2006. This facility contains both an indoor natural learning environment and a natural woodland facility located out of doors. They also offer a ‘forest school’ facility for educating children and training adults. Regardless of location, a consistent theme of these facilities is the positive educational and health benefits of connecting children to natural environments.
Issues

The research program discussed herein has identified three key issues related to natural playgrounds and children, including the influences of natural playgrounds on intellectual growth of children, the benefits of children’s interactions with natural playgrounds environments related to health issues including nutrition and prevention of childhood obesity, and the design of natural playgrounds including the relationship of design to the quality of experience of children using the facility. These issues are interrelated and overlapping. An underlying sub issue related to all the three key issues but not covered in this stage of research is the debate on the concept of “natural”; specifically, how is “natural” defined and how does degree of ‘natural’ impact on health and education-related benefits derived by natural playground participants?

There is a consensus among researchers and proponents of nature-based learning that children who have access to natural environments for educational, recreational and social purposes can potentially receive significant educational benefits from their outdoor experiences. Dr Sara-Ann Munoz (2009) of the Sustainable Development Research Center makes the argument that a greater engagement with the outdoors throughout the curriculum (not just in play or organized sports activities) for primary and secondary school aged children can bring benefits associated with a greater connection with nature. She adds that several concerted efforts have been made to connect education with natural settings and at the same time provide more opportunities for children to spend longer amounts of time outdoors. During a review of 12 studies Blair (2009) found that 9 of the 12 studies concluded that there are positive impacts of school children’s involvement in gardening in areas of science achievement and food consumption behavior. Based on this work Blair concluded that school gardening can have a positive impact on both student achievement and behavior.

In recent years there has been a surge in development of nature-based learning curriculum, which more or less reflects established mainstream childhood education curriculum. There currently exist
different approaches to nature-based learning that have core principles and approaches in common. Essential goals of nature-based learning activities include experience-based learning; development of social relationships through direct contact with different environments and people; facilitation of the child’s own activities, structures, and games; fostering strong community through meeting other children and adults; and addressing the special needs of children, such as those in the city, to have their own space.

Moore and Wong (1997) discuss 8 components that effectively contribute to ‘development of the whole child’. These include the following elements: moving to counter the growing sedentary lifestyles of today’s children; imagining, the ability to conceive multiple realities other than their own and to learn from that experience; learning to live together, and thereby establishing and developing social skills; boosting the basics, including smell, visual, audio, tactile, taste, and also perception and communication skills; science inside and out, with emphasis on tapping into the natural context of the playscape and using it as a learning lab for science and math education; whole-life learning, including learning about culture, history, health and mortality; animation, a non-formal method of working with children that brings out their vitality and motivation inherent in group activity; and community commons, where participants of all ages can gather and interact socially and creatively.

In the book Play for All Guidelines Moore, Goltsman, and Iacofano (1992) provide substantive descriptive guidelines for achieving child development objectives as the following table illustrates.

**TABLE #1: Child development objectives**

1. Opportunities for motor skills development
2. Opportunity for decision-making – environments that allow for children making decisions about their own activities
3. Opportunity for learning – demonstrating properties and relationships among physical objects, space and self demonstrated in the play environment
4. Opportunity for dramatic play – the natural environment provides the stage and props for imaginative and cooperative play

5. Opportunity for social development – natural playscape provides and supports positive interpersonal interaction and socialization as well as positive environment for development of role playing, self-esteem and emotional development.

6. Playing should be fun – smiling faces and laughter

Source: Play for All Guidelines (Moore, Robin, M. Goltsman, and D. Iacofano, 1992)

Moore and Marcus make strong arguments for the link between today’s health threats to children and the benefits of contact with nature for children, including improvements in children’s mental, social and physical health. Munoz (2009) supports this statement. She emphasizes that “children have been identified as one of the key social groups that could gain health benefits from use of the outdoors – but also one that requires evidence-based policy directed towards their needs”. She continues, stating “there is an emerging research and policy interest in the health and wellbeing outcomes associated with use of outdoor spaces (Sustainable Development Commission, 2008)... Research has shown that access to greenspace has a positive impact on health (de Vries et. al., 2003; Mitchell and Popham, 2007).”

There appears to be a division of perspectives related to design of outdoor natural playgrounds. Harrington and Beach (2007) emphasize that “developmentally appropriate outdoor environments” should be designed with children’s age and abilities in mind. Munoz (2007) makes the points that some research “also argues for the engagement of children with more ‘wild’ and less ‘designed’ spaces, whereas other (research) calls for children to play a larger role within the design of play spaces in an attempt to create spaces that truly meet their play needs.” Moore and Marcus (2008) are proponents of designed natural environments. To illustrate their view they provide examples of designed environments that promote and support children’s contact with nature, including examples of innovative childcare centers and preschools, school grounds,
neighborhood parks, and community institutions. Moore and Marcus emphasize the need to understand and incorporate children’s ideas and preferences into the planning and design of spaces.

Harrington and Beach (2007) address a range of findings related to children and designed outdoor play spaces in their report to the Vancouver BC Department of Social Planning. Building on evidence-based research regarding impacts of natural environments on children they conclude that “consistent contact with the outdoors improves children’s cognitive development by improving awareness, curiosity, observational skills, and reasoning”. They add that contact with natural environments can reduce children’s stress levels and promotes positive social intelligence and positive social interactions. Harrington and Beach also conclude that children who have contact with the outdoors score higher on tests for concentration and self discipline, “and the greener the better the scores.”

Case Study: Tennessee State University Early Head Start natural playgrounds

In 2009 the Tennessee State University’s Comprehensive Area Resources Efforts (Tennessee CARES) Early Head Start Program secured grant funding to design and construct 6 natural playgrounds at their Early Head Start sites in the rural communities of Humboldt, Trenton, Dresden, Martin, and Paris Tennessee. The Tennessee CARES Early Head Start programs provide educational opportunities and parenting support for infant and toddler children and their parents. These programs provide much needed support services for primarily single parent, low income, and minority families. Ms. Janice Lovell, Coordinator with the Tennessee State University Center of Excellence in Learning Sciences organized these efforts. In March, 2010 Assistant Professor Dr George Smith, a Landscape Architect with the School of Agricultural and Consumer Sciences was invited to prepare the designs for these natural play facilities and coordinate their construction. The designs have been completed and construction is scheduled to commence early in 2011.
The design approach to natural playground typically differs significantly from the design approach to traditional playgrounds. There are several reasons for this. First, the main goals of natural playgrounds are to provide high quality education for children, engage them in healthy and challenging physical activity, and facilitate development of strong social skills. Contrary to this, the main goals of traditional playgrounds are to provide a safe and convenient venue for children’s play. Second, natural playgrounds add value to children’s overall development. Traditional playgrounds entertain children in a safe outdoor environment, which provides a temporary relief from the more ridged sterile indoor learning environment.

There are several other significant differences that are worth identifying. Traditional playgrounds are not usually designed so much as they are ‘arranged and assembled’ by the owner/operator of the playground. Numerous commercial companies supply standard prefabricated and assembled play equipment including the standard issue swing sets and teeter totters. Natural plants and other elements are almost exclusively absent from traditional playgrounds. Asphalt is a common surface element. On the other hand the degree of success of a natural playground in achieving its educational, health, and related goals depends to a significant extent on its design and the process by which the design was arrived at.

Natural playground design processes usually include extensive and thorough stakeholder participation in that process. This is done for purposes of exploring issues and opportunities from the end user perspective. The benefit derived from a strong stakeholder input process cannot be underestimated. During the design process for the Tennessee State University Early Head Start natural playgrounds, teachers and administrators were involved continuously in discussions. Extensive site reviews were held, which included the teachers and administrators for all sites. The teachers from each of the 6 Early Head Start site offices then held a separate meeting at which they tried their hand at designing their ideal natural playground for their individual sites. In the case of the design of the south Nashville
TN natural playground site the stakeholder participation process took this a step further by also interviewing the students who would use the facility, in an effort to include their input on the design concept development.

The result of these extensive consultation processes is that all site designs were widely accepted by all people involved in the design process, and the natural learning concept goals and objectives were enthusiastically embraced by the individuals who will benefit most. This level of emersion in the process and acceptance of the outcome is necessary in order to create a natural playground facility which will be of maximum benefit to all. Figure #1 below provides an example of one of the finished site designs, which is the product of this thorough process.

**Figure #1: Dresden TN Early Head Start natural playground design**
Conclusion

Based on a review of current research it can be concluded that there is a growing interest in exploring the positive benefits to children that result from their experiences with natural environments. These include educational and health benefits. Relatively speaking, current research on nature-based learning is in the early stages of discovery. More focus is needed on defining connections between nature-based learning and education. Another important topic of research investigation is the question of what constitutes ‘nature’ and how degree of ‘natural’ influences the quality of the experiences derived by children’s participation in outdoor environments. Kaplan and Kaplan (1989) have undertaken extensive research related to human experiences with nature and the human perspective of nature. There is a need to build on this and related research efforts in order to further investigate the issues and define the opportunities that can be derived from natural playgrounds and their role in improving childhood health and education.

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Learning through play in Malaysian preschool classrooms

Ng Soo Boon, PhD
Curriculum Development Centre
Ministry of Education, Malaysia

Abstract

Children play all the time. It has always been proclaimed that incidental learning does occur during play; however, this learning can be further enhanced, systematized and formally instituted if teachers realize the potentials of learning through play. Learning through Play (LTP) was therefore given prominence in the first Malaysian National Preschool Curriculum which was implemented nationwide in the beginning of 2003, and the current National Preschool Curriculum Standard which was implemented nationwide in the beginning of 2010. Findings from research on the Implementation of the National Preschool Curriculum conducted with Malaysian preschool teachers in 2007 indicated that the teachers had realized the importance of LTP and had a positive attitude towards this teaching and learning approach. In the actual classroom setting, LTP was implemented in multiple ways using various methodologies. A more recent study was conducted specifically on how Ministry of Education (MOE) preschool teachers used innovation in bringing LTP alive in the classroom. Classroom observations and interviews were conducted. Findings indicated that LTP in MOE preschools was realized through activities which were meaningful,
exciting, and kinesthetic; which promoted a sense of inquiry and autonomy. LTP is most often understood as an approach in the mind of the teachers; this has inhibited them in exploring the LTP concept further in their daily teaching and learning.

Prologue

Children play all the time, whether alone or with others. They could be so immersed in their play that they are oblivious of the things around them; such is the nature of children. Play is work for children (Lillard, 1972; Rousseau in Isbell, R.T. & Raines, S.C., 2007). Through this work they interact with their environment: the physical world, the natural world and the human world. Through this work, again, they form their self-concept and discover their self-identity. Realizing this nature of children, early childhood educators throughout the world build upon the basic principle of learning through play. Research findings and theories have suggested the supportive influence of play in the development of social competence, cognitive development, language development, skill development as well as imagination and creativity (Fomberg, D.P., 2002; Hoorn, J.V., Nourot, P.M., Scales, B., & Alward, K.R., 2003). This paper delves into the concept and implementation of Learning through Play (LTP) as espoused in the Malaysian National Preschool Curriculum (NPC) as well as the Malaysian National Preschool Curriculum Standards (NPCS). The gap between the aspired and the implemented curriculum is a normal phenomenon (Ng, 2004; Hacker, 1997; National Institute for Educational Research Japan 1999; Noor Azlan, 1987; Sharifah Nor Puteh, 1994). This paper discusses the gap between the aspired and the implemented curriculum and possible solutions to address this gap.

National Preschool Curriculum

Preschool in Malaysia was formally introduced as a part of the national education system under the Education Act 1996. Preschool refers to schooling for children aged 4-6 years. In 2003, a circular was sent to all early childhood education providers, public and private, which stated that a National Preschool Curriculum (NPC) had been
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formulated and pointed out the need for them to adhere to it in their teaching and learning practices. Five years later, NPC was reviewed and subsequently the National Preschool Curriculum Standard (NPCS) was implemented in the beginning of 2010. Both the NPC and NPCS were developed based on the National Education Philosophy (NEP) which emphasized the development of an intellectually, spiritually, emotionally and physically balanced individual.

Building upon the spirit of NEP, as well as the theories of early childhood development, NPC as well as NPCS aim to enrich the potentials of Malaysian children in all aspects of development; ensuring that children will master basic skills and get inculcated with positive attitudes, and preparing them for a smooth transition to Primary School Education.

NPC and NPCS advise teachers that the most appropriate approaches for teaching in preschools is the thematic approach, the integrated approach and LTP. Students should be given a chance for group activities as well as individual activities. Learning centers need to be set up within the preschool classroom according to each component/strand in the curriculum and furnished with materials that stimulate the development and growth of the children. Learning at this stage looks and feels like play to the child. Formal lessons are much less effective for stimulating holistic development.

The content areas, types of skills, pedagogy and evaluation models of NPC and NPCS are very much similar. The basic difference is in the continuity of the primary school curriculum and the curriculum design. NPCS uses similar strands and curriculum designs to the primary and secondary school curriculum. Learning outcomes in NPCS are content validated as well as age validated.

Learning through play (LTP) in the NPC and NPCS

Learning through play (LTP) is defined as a planned and structured approach providing the opportunity for students to learn in a meaningful and fun way (Curriculum Development Center (CDC), 2003; CDC, 2010). NPC and NPCS suggest that students explore, discover and construct their understandings of the environment
through experiential learning in this fun and relaxed manner. In this way their cognitive skills, inquisitiveness, motor skills as well as their creativity could be enhanced (CDC, 2003; CDC, 2010).

NPC and NPCS provide some guiding principles or tips to this approach. It is suggested that activities in preschools should be flexible and not stereotyped. Teaching and learning activities in preschool classrooms need to adhere to the following characteristics:

- Providing opportunities for children to explore the environment
- Free play as well as planned play
- Flexibility of time
- Exploring or testing one’s own ideas
- Concentrating on the task in hand

Activities involving all the senses such as visual, audio, smell, touch and taste

Through these activities, LTP enhances learning, cognitive ability, socialization, acquisition of emotional skills, development of physical and manipulative skills, inventiveness, and provides plenty of opportunities for self-expression (CDD, 2010).

**Findings from the study on the implementation of the National Preschool Curriculum in MOE preschools (2007/8)**

In 2007 the Curriculum Development Division, Ministry of Education, conducted a study on the implementation of NPC. The study adopted the *Stake’s Congruence-Contingency Model for Educational Evaluation* developed by Robert E. Stake in the 1960s. This model is chosen to evaluate actual practice against curriculum aspirations based on NPC. One of the pedagogies recommended in the NPC is LTP so this aspect was being explored along with other aspects of the NPC. Questionnaires were administered to all the Ministry of Education (MOE) preschool teachers; a total of 3649 of these teachers returned the questionnaires, and this constituted 61.8% of the total population of the MOE preschool teachers. In this study, a total of 28 classrooms were observed and 28 teachers were interviewed (CDC, 2008a, 2008b;
Findings from this study related to LTP are elaborated in the following sections.

Preschool teachers perception of Learning through Play

Part 1 of the questionnaire explored the reflection or perception of preschool teachers in regard to their own teaching. Most of the teachers reiterated that they used the LTP approach in their daily teaching (Refer to Table 1).

Table 1: Mean for Questionnaire Items in Teaching and Learning Approaches

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>N</th>
<th>mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I always use the Learning through Play approach</td>
<td>3585</td>
<td>3.88</td>
<td>0.769</td>
</tr>
<tr>
<td>2</td>
<td>I find that students are able to achieve the learning outcomes better if the Learning through Play approach is used</td>
<td>3569</td>
<td>3.93</td>
<td>0.774</td>
</tr>
<tr>
<td>3</td>
<td>I understand the teaching and learning approaches stated in NPC</td>
<td>3640</td>
<td>3.97</td>
<td>0.653</td>
</tr>
</tbody>
</table>


Note: Likert Scale 1-5 was used

Data from Table 1 indicate a relatively high and positive perception of the effectiveness of LTP. Teachers found that students were able to achieve learning outcomes when LTP was used (mean = 3.93).

Preschool Teachers’ Understanding of LTP

Many MOE preschool teachers felt that they understood the LTP approach (mean = 3.97, refer to Table 1). However, there is a need to ascertain the level of their understanding of the LTP approach. Hence, a total of 28 classrooms were observed and 28 teachers were interviewed.

During the interviews, respondents were asked to explain their understanding of the LTP. Many of them could not provide a more comprehensive definition of LTP. Most of them loosely equated LTP...
to “student-centered, hands-on, students having fun”. Among the more substantial responses are:

- “If the material used can be used as a toy, that activity is LTP”
- “Not rigid, student-centered, hands-on; students carried [on] the activity in a happy ambience”
- “Not too sure of the concept; as long as they are happy and interested, that is play”
- “Not too sure of the concept, with songs, with body movements, that is play”
- “As you play you obtain knowledge”

The following activities were provided by the interviewees as examples of LTP:

- Use rubber foam to build words
- Make flowers from colored paper
- Play with traditional game, block, puzzles
- Use dough to make alphabets
- Close your eyes, using smell to guess the liquid given
- Use blocks to build school (toys)
- Play with sand

There were a few respondents who felt that they did not conduct LTP in their classroom but through classroom observation researchers found characteristics of LTP in the activities they conducted.

Problems faced by teachers in implementing LTP

In interviews conducted most teachers reiterated that play is important. Through the LTP approach, students become more disciplined, better able to remember, understand the lesson better, and found and the lessons less boring. However, they were quick to point out the shortcomings of LTP. Teachers faced problems of classroom control. As students became more active, they would not
listen to instructions, they would disturb their friends and they would not pay attention.

Three of the respondents (N=28) were very negative about play; one of them said, “It is awkward to teach according to LTP”. They said that they used the approach but they felt that learning objectives were not achieved through this approach. One of them questioned the learning objectives that can be achieved through activities such as “jigsaw puzzle”. All three of them felt that LTP can only be effective if the students are in a mood to play, and they felt that it is difficult to assess this mood.

Two teachers placed their limits on the use of LTP. Their opinions were that LTP could only be used once or twice per week, the rationale being, “This class is naughty, cannot use play too often, [it is] difficult to control [the] class” as well as “… LTP would not achieve learning objectives”.

**Implementation of LTP**

Data from Table 1 also indicate that preschool teachers used LTP for all components in the Preschool Curriculum (average mean = 3.88). Only 0.78% (average) teachers did not use LTP. This study includes 28 classroom observations and interviews with teachers. One of the areas observed was LTP. Four scales were used: unsatisfactory, average, good and irrelevant. Findings showed that only 6 of the 28 classrooms used teaching and learning that was rated as good from the aspect of LTP, and that 13 were unsatisfactory. For 10 of these observations, the general comment was: teacher-centered, didactic, academic, focused on the white board in front of the class. This finding shows that although teachers felt that they conducted LTP, researchers felt that the LTP they conducted was unsatisfactory. There appears

**Conclusion**

Responses to the questionnaires suggested that in general teachers agreed that LTP is important. Qualitative data from interviews and classroom observations indicated that though teachers were generally positive towards LTP, some spoke negatively about LTP. Researchers
have also rated almost half of the LTP observed as unsatisfactory. There are discrepancies between teachers’ viewpoints and researchers’ observations. However, it needs to be noted that the observation was conducted only once for each teacher and by one researcher. Although the researchers (four of them) involved in this study were from the same office and often met for discussion, there could still be discrepancies in their evaluations. Interviews were recorded and transcribed. This limitation has prompted the researcher to conduct the case study described below a year later.

A Case study on the characteristic of LTP in Malaysian preschools

Findings from the Study on the Implementation of NPC (2007/2008), which indicated that Malaysian preschool teachers understood the importance of LTP but were not very confident about how to conduct LTP, has pointed to the necessity for MOE to provide assistance to these teachers. However, to better help these teachers, there is a need to find out what actually goes on in preschool classrooms with regard to LTP. Subsequently, a case study on the characteristics of LTP in Malaysian preschools was conducted in 2009.

The case study was conceptualized using secondary data. This secondary data came from the verbatim and detailed reports of 24 classroom observations made from 2006 to 2008 by a sole researcher (the writer of this article). Of these classroom observations six were made for the study on the Implementation of National Preschool Curriculum (2007) mentioned above, seven were made for the Preschool Innovative Teacher competition, and the rest were made for study by the researcher. These schools were spread out over the different states of Malaysia.

Literature revealed that LTP happens if the following characteristics are reflected in a child as he/she participates in the activity (Davy, 2001; Formberg, 2002):

- Always smiles or laughs while participating in the activity
- Wants to repeat the activity, rushes to put up hands
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- Actively participates in the activity
- Rushes to participate in the activity
- Carries out the activity seriously and diligently
- Does not want to stop participating in the activity
- Fully concentrates in the activity

Since these characteristics reflect the LTP approach in the classroom, it is operationally defined as ‘LTP evidence’ in this study. The 24 classroom observations, verbatim and detailed, were analyzed to identify incidents showing the LTP evidence above. Analysis of the data was done by coding. The first stage of coding was the ‘open coding’ where data was broken down or taken apart into discrete parts to be compared between each other (Strauss & Corbin, 1990). These parts were then classified or categorized according to similar characteristics. The constant comparative methodology was used. Table 2, which records the categories of activities, was found to have shown evidence of LTP and examples of activities. These categories emerged from the data. Coding was then validated by another early childhood expert.

**Table 2: Categories of activities where the children show evidence of LTP**

<table>
<thead>
<tr>
<th>No.</th>
<th>Categories of Activities</th>
<th>Actual examples (extracted from the researcher’s verbatim observation report)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Asking questions relating to students’ daily life</td>
<td>Examples of questions: What kinds of vegetables have seeds? Have you eaten vegetables with seeds? Who likes this vegetable? (CT) Who wears buju kurung? (RNS) Talk about datuk’s house (KSP) Meaning of colors of national flag (PS)</td>
</tr>
<tr>
<td>2</td>
<td>Teacher doing something unexpected by the students, doing</td>
<td>Teacher asks students to draw together with her picture of a tomato. As the teacher draws a cartoon picture of a tomato, with hair, eyes,</td>
</tr>
<tr>
<td>No.</td>
<td>Categories of Activities</td>
<td>Actual examples (extracted from the researcher’s verbatim observation report)</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>something not of routine (novelty)</td>
<td>hands, legs, students get very excited. (CT) Teacher puts all major alphabets on cards and sticks it to the easel, students are very curious about how the cards could stick to the wall. They discover the cards had magnets at the back. They start to ask the teacher what the use of the magnet is. The teacher asks students to come out one by one to pick up alphabet cards and form words on the easel and read it. Many students volunteer, they eagerly await their turn to form words. One student asks, “Teacher why are there so many ‘a’s?’” Putting a tag with alphabets and pictures or words around each student's neck. Each of them needs to read their own alphabet and also their friends. Teacher then asks how to spell ‘nasi’ and asks students with the relevant alphabet to go to the front to show the rest. (In08) Teacher uses a puppet called “Moo moo” in teaching. Teacher says Moo moo wants a beautiful card with the national flag. Teacher asks the students if they can draw it for Moo moo. Students get very enthusiastic and excited. Subsequently, the name Moo moo is mentioned many times</td>
</tr>
<tr>
<td>No.</td>
<td>Categories of Activities</td>
<td>Actual examples (extracted from the researcher’s verbatim observation report)</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>and students are allowed to touch and handle Moo moo. (YH)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students use body posture to form alphabet. (P)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blindfold, smell and guess the content of the glass (milk, milo etc). (BL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blindfold and explore if the object is long or short. (BL)</td>
</tr>
<tr>
<td>3</td>
<td>Kinesthetic activities while learning other things</td>
<td>Clapping hands two times, four times and speak out the number, slapping thighs. (CT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asking students to paste picture of vegetables such as brinjals and lady-fingers besides the words on the board. (T)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students go round the class wearing cards around their neck to form words with their friends. (IS08)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forming words with foam. (BT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asking students to search for the hidden flags. (PS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning alphabets through body movements. (GP)</td>
</tr>
<tr>
<td>4</td>
<td>Singing songs</td>
<td>Singing along with videos.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Singing in unison, clapping according to the tempo of the songs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alphabet songs with action.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sing songs with action.</td>
</tr>
<tr>
<td>No.</td>
<td>Categories of Activities</td>
<td>Actual examples (extracted from the researcher’s verbatim observation report)</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use songs to get students’ attention when they become noisy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sing songs, read the lyrics, then sing songs.</td>
</tr>
<tr>
<td>5</td>
<td>Teacher entertains students questions</td>
<td>Students ask questions: “Apples have seeds too, why didn’t the teacher include apples in the pictures of vegetables with seeds?” (CT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Why [does] his book have a chop on it and why not mine?” One student says, teacher explained it is from the headmaster.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students become more involved and active when teachers entertain their questions.</td>
</tr>
<tr>
<td>6</td>
<td>Spirit of competing. Students want their voice to be heard</td>
<td>Teachers asked students to comment on their friends drawing or writing, e.g. by asking: “Whose picture is the nicest?” Students rush to answer, students want to voice their opinion.</td>
</tr>
<tr>
<td>7</td>
<td>Using concrete objects</td>
<td>Using plastic vegetables (brinjal, bitter gourd, cucumber) to ask students what it is. (CT, T)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Point to objects which are long, short, heavy, light. (BL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teacher taking out empty yoghurt drink containers from a plastic bag. Students count and write the number on the easel. Then teachers write numbers on the easel and ask</td>
</tr>
</tbody>
</table>
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### Categories of Activities

<table>
<thead>
<tr>
<th>No.</th>
<th>Categories of Activities</th>
<th>Actual examples (extracted from the researcher’s verbatim observation report)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Autonomy given to the students</td>
<td>Free play. (YH)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Free play during recess, with toys, with computers. (BT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Free play with lens, models of teeth. (GP)</td>
</tr>
<tr>
<td>9</td>
<td>Working together</td>
<td>Cleaning the classroom together, taking broom, dustpan. (BL)</td>
</tr>
<tr>
<td>10</td>
<td>Outdoor activity</td>
<td>Bringing students outdoors to look at things to identify which is taller, e.g. between two basketball poles, plants. (BL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teacher brings students out for a game of drop handkerchief and run. (TD)</td>
</tr>
<tr>
<td>11</td>
<td>Doing something meaningful</td>
<td>Making teacher’s day card. (BT)</td>
</tr>
<tr>
<td>12</td>
<td>Using interesting and colorful material</td>
<td>Reading from prepared booklet for self learning. (AP)</td>
</tr>
</tbody>
</table>

Note: Letters in brackets refers to the initials of the subjects (children) observed.

Categories of activities in Table 2 can be further condensed and consolidated into categories of elements of LTP as in Table 3.

### Table 3: Categories of Elements of LTP in Malaysian Preschools

<table>
<thead>
<tr>
<th>No.</th>
<th>Categories of Elements of LTP</th>
<th>Categories of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sense of Inquiry</td>
<td>Teachers entertain students' questions</td>
</tr>
<tr>
<td>2</td>
<td>Kinesthetic</td>
<td>Singing songs</td>
</tr>
<tr>
<td>No.</td>
<td>Categories of Elements of LTP</td>
<td>Categories of Activities</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outdoor activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using concrete objects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using interesting and colorful materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kinesthetic activities while learning other things</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Working together</td>
</tr>
<tr>
<td>3</td>
<td>Element of excitement</td>
<td>Teacher doing something unexpected for the students, doing something not of routine (novelty)</td>
</tr>
<tr>
<td>4</td>
<td>Autonomy</td>
<td>Autonomy given to the students. Spirit of competing. Students want their voice to be heard.</td>
</tr>
<tr>
<td>5</td>
<td>Meaningful</td>
<td>Doing something meaningful. Asking questions relating to students' daily life.</td>
</tr>
</tbody>
</table>

Analyses of the verbatim and detailed reports of classroom observations actually revealed many actual instances of LTP implementation. Only two classrooms did not show any instances of LTP. However, in some cases, instances of LTP only occurred in a very short time span.

Findings from this case study provide more concrete and useful tips to preschool teachers to assist them in using LTP in their teaching and learning activities. From this study, it was found in the Malaysian context that activities which provoke a sense of inquiry and excitement give autonomy to students and, are meaningful. Activities which are kinesthetic in nature are the kind of activities students would tirelessly want to repeat and would rush to participate in. This actually provides momentum for an interesting and effective lesson.
LTP as an approach

The anecdotes below are selected from the researcher’s notes from among the 24 detailed classroom observations. It is interesting to note that the teachers do not consider the activities they have conducted as play despite the elements of LTP were observed among the children.

Anecdote 1: Using games

The teacher was pregnant; she was due for delivery in the next few days. The class was a bit restless; the teacher decided to bring all of them outdoors to play a game. She asked the children to sit in a big circle on the cemented court just outside the preschool classroom. She then gave a handkerchief to one child (Child A) and asked him to run behind the children, circling them. She tells Child A to drop the handkerchief behind one of his classmates (Child B) and run. Child B needs to pick up the handkerchief and run after Child A who has to run to occupy the seat previously occupied by Child B. However, if Child B managed to hit Child A with the handkerchief, Child A would lose and repeat the process whilst Child B would sit down. The children cheered on as their friends ran with the handkerchief. They were having fun. In between the chasing, some children complained that their classmates only chose to place the handkerchief behind their friends and that that is not fair. One boy complained that girls only picked girls: A Malay girl said that the Chinese boy only chose the Chinese boy. Anyway, they were eager to participate. Through all these episodes the teacher only told them not to give only to their friends but to be fair. She did not touch on the gender and race issue. The kids played for around 15 minutes and went back to the classroom. They were less aggressive after the game and settled down to do some work the teacher subsequently gave them.

After the children went off, an informal interview was conducted with the teacher. Touching on the issue of LTP, the teacher did not see the episode described above as learning through play; to her it was a physical exercise and a game only.

Observation conducted in a School YHM (2006)
Anecdote 2: Learning numbers and letters of the alphabet in a fun way

Students sat around the teacher. The teacher told the class that the theme of the day was ‘food’. The teacher had a conversation with the children about the food they ate in the morning. The teacher then gave each child a tag to be put around their neck; the teacher herself took one to wear, too. On one side of the tag were numbers and on the other side pictures of food and the names of foods with the suku-kat: For example, one boy (number 1) spotted the picture of rice and the word ‘Na Si’ (the suku kata here is Na Si). Teacher asked the child with number 1 to go to the front and asked him to read the word of the picture at the back of that tag. The children went out according to their numbers and read the words behind their own tags; they were attentive and showed their eagerness to answer.

After the lesson an informal interview was conducted. The teacher explained that she used the cards in a variety of ways, sometimes she asked the students to go in front to form words with their alphabet cards hanging around them. Each day each child was given a card, and each of them was required to try as best as possible to master that letter or word. The card would be changed once the students had mastered it. She said the students loved it and parents were impressed with it, too. Throughout the conversation the teacher never mentioned that that was LTP. She was excited about her method where her students could master letters of the alphabet in two months. When asked about her methodology, she only mentioned use of cards.

– Observation on School IS (2008)

Anecdote 3: Incorporating play to teach language

The students sat in front of a magnetic easel. On the magnetic easel, the teacher had placed rows and columns of little cards. Each card had a letter of the alphabet on it. The students had just finished reading some words in the Malay language. The teacher asked the students to come forward to form words using the cards; they were required to stick the cards to the magnetic easel board. Students
enthusiastically volunteered to come forward but the room was rather noisy and the teacher had to ask the students to take their turn. The teacher had also told the students; “If you make noise again, I'll send you to the Headmaster’s room”. There was excitement around. One boy stood up and told the teacher: 'There are many cards with ‘a’ there compared with the other letters.' To this the teacher said; they are because there are many words with the letter ‘a’.

After the lesson an informal interview was conducted, when the researcher asked the teacher if she used the LTP approach, she said yes and she gave examples of playing with dough and forming letters of the alphabet with it. She did not refer to her lesson today as consisting of elements of play.

– Observation on School CT (2007)

**Anecdote 4: Free play (during recess)**

Students ate together during the recess time. After food the students went straight to various learning centers to pick up things to play. Some children played with blocks, building models from the Manipulative Centre. Some were seen role-playing, using the miniature pots and pans. Two other students were playing with lenses in the Cognitive Development Centre. This preschool class had relatively well equipped learning centers compared to other schools. In fact, prior to the recess time or during the intermission between activities, while some students had finished their task early, others were seen walking to the learning centers either to read or to play with things. It was apparent that this had been a routine and children automatically went to the learning centers of their choice. They did not forget to put back the toys after they have used it.

During the informal discussion time, after the lessons, the teacher confirmed that she had inculcated this habit in the students, but she did not refer to this as play.

– Observation on school YH(2006)

In the study on the Implementation of the National Preschool Curriculum (CDD, MOE Malaysia, 2007), respondents identified
examples of LTP as playing with block, using dough, making flower, using rubber foam to build words. Malaysian preschool teachers had associated LTP with specific activities, not as characteristic of play. This was probably their dilemma: they had realized the importance of LTP and believed they had used it but when asked to elaborate they could not do it. They need to realize that activities which provoke a sense of inquiry and a feeling of excitement, give autonomy to students are meaningful to the students and that activities which are kinesthetic in nature are the kind of activities that students in Malaysia would tirelessly want to repeat and rush to participate. This constitutes the approach of LTP. LTP must not be seen as chunks of specific activities but as something meaningful that do persist throughout the lesson.

Epilogue

The hindrance to LTP is the lack of knowledge of the approach. It is important for teachers to identify the characteristics of LTP rather than relate it to particular methods of teaching. Fromberg (2002) described play as voluntary, meaningful, symbolic, rule-governed, pleasurable and episodic. In the few anecdotes given above, elements of LTP are present. However, in some cases teachers did not use them to achieve higher learning outcomes. LTP needs to be understood in a wider perspective as provided in NPC. It is the strand for all that happens in the daily life of a preschool classroom. It is important to emphasize the characteristics of LTP rather than deliberate on it as mere approach of teaching in a preschool classroom. One cannot deny that play had occurred in all the anecdotes quoted above. However, use of play element can be optimized if teachers realize what they are doing or promoting.

References


Fulfilling young children’s rights


Curriculum Development Centre, CDC (2008a) *A study on the implementation of preschool curriculum [Laporan Kajian Pelaksanaan Kurikulum Prasekolah Kebangsaan]*. Malaysia: Ministry of Education.


An Integrated approach to portfolio development

Ingrid Crowther, EdD.
Canada

Abstract

A prior learning assessment and recognition (PLAR) process (Workplace PLAR) was utilized for a group of thirty learners in communities in Northern Manitoba, Canada. All individuals were working in the ECE field without the appropriate training or credentials. An integrated approach using computer and communication skills and a portfolio process was used to build essential skills for PLAR completion and eventual completion of the Early Childhood Education (ECE) diploma program.

Introduction

Findings from a major Canadian Study, Producing Results in Prior Learning (Arscott, et al., 2007), found that many of the participants in a prior learning assessment process found the PLAR process onerous because of a perceived lack of ability to communicate using professional language and to produce a professionally looking portfolio using computer skills. In many college-based programs,
communication and computer skills are core requirements to the completion of a diploma.

This study shows that by integrating communication and computer skills into a PLAR portfolio process, participants gained valuable skills to more effectively document their learnings and also essential skills to complete the diploma requirements.

**Background information**

Twenty-four of the individuals within the Workplace PLAR program were Aboriginal and two thirds of these individuals lived in remote communities. Six of the individuals had completed their secondary education and some post secondary education. All twenty-four had full time employment within early childhood settings. Twenty of these individuals had not completed post secondary education. This is common for Aboriginal individuals living on isolated reserves. Richards (2008) states that only 36% of men and 42% of women who live on reserves attain a high school completion.

Many individuals working in northern communities, including the thirty students participating in this study, are working with young children without appropriate training or credentials. Because the communities are mostly remote and isolated, leaving the community to attain training, however useful, is resisted. There is a high cost factor to leaving the community. This includes a financial burden to the families and the community and a burden to individual families many of them with young children in the preschool years. Bringing education and training opportunities to individuals where they live is required. Research has shown that children benefit from early childhood programs especially if the family members have lower academic achievements. “In the case of children of parents of low educational achievement early childhood programs provide significant benefit.” (Richards, 2008, page 2-3). The challenge is to provide appropriate training in local communities and valuing learning that occurs there.

The Aboriginal population, especially in Western Canada, is growing rapidly. Currently one out of thirteen individuals in Western Canada
are Aboriginal with one in eight children under four years old or younger. In Manitoba, this ratio is even higher. One in four children are four years old or younger (Richards, 2008). Consequently, the need for appropriate education and training is severe and will only become direr in the future. Investigating ways to address the need effectively has yet to be identified.

Literacy levels in these communities are generally low, often below literacy benchmarks considered to be essential for success. There is little research available regarding on-reserve literacy levels, “nonetheless, based on the educational achievement of Aboriginal peoples and first-hand experience of service providers, it is estimated that a larger proportion of Aboriginal peoples have lower literacy skills than the average Canadian as per the results of the 1994 International Adult Literacy Survey” (Longfield, 2003, p. 31). Improved literacy is one necessary step toward larger long-term goals related to employment and community sustainability.

In addition, “Many Aboriginal people do not relate to current definitions of literacy. For example, oral language is highly valued in the Aboriginal culture, as much as, if not more than, writing and reading. However, learning effective oral communication is not a component of most literacy initiatives” (Longfield, 2003, p. 31). Coming to terms with differences in cultural norms will have to be incorporated into upgrading provisions. Given the complexities of the situation related to isolated and remote populations, low levels of formal educational completion, community norms and intensification of unmet needs, a model of education and training that can address all of these elements will be of interest.

**Reason for model**

Early childhood education seemed a logical starting point for the implementation of a program that could address multiple concerns effectively. There are a growing number of Aboriginal children in families with low educational experiences and since it is desirable to include children in daycare settings to improve their long term
learning potential, training of the childcare providers would seem to be a high priority.

Many individuals living in northern communities lack access, as well as opportunity to engage in post secondary education. Many are working without appropriate credentials. Since individuals who are working also gain knowledge, skills, and attitudes while working, a PLAR process was implemented. The PLAR process used a portfolio development process. See Figure 1.

The six months PLAR process used was a program-based PLAR model. “Program-based prior learning assessment involves the assessment of the documentation of knowledge, skills, and attitudes relevant to a particular program of study. The credit awarded may be part or all of a program. It is distinguished from other types of PLAR -most commonly course-based PLAR- inasmuch as the credit part awarded is for more than a single credit course but may instead cover larger amounts of learning such as a semester or a year of study (Arscott, Crowther, Young, and Ungarian, 2007, p. 33). The maximum amount of credit that could be awarded was 75% of the total diploma program.

**Figure 1 – Workplace PLAR**

![Figure 1 – Workplace PLAR](image-url)
To improve the literacy skills, the Workplace PLAR Model integrated both computer and communication literacy within the portfolio process. All students started the process through the formal course, taking in computer and personal communication skills. Both courses were taught by integrating core requirements of the ECE skill set (The skills set contains all outcomes and competencies that must be demonstrated by any graduate of the ECE program). See figure 2.

**Figure 2 – Integrated PLAR, Communications and Computer Skills Model**

**Methodology**

At the beginning of the process, all students were asked to submit in writing the reasons why they wished to work with children. These writings were analyzed according to the rubric developed in Appendix A. All students were observed and interviewed with regards to their computer literacy. Results are recorded in Appendix B.

In order to increase communication and computer skills, all students participated in five weekend workshops (ten days, sixty-six hours). Weekend workshops were used to minimize the time away from families and from the workforce. The focus of these workshops was to integrate communications and computer skills as part of the development of a portfolio.
Between the weekend workshops, students continued to work via distance on specific assignments between workshops. They had opportunities to connect via e-mail, fax, and telephone with the facilitator. This process also required students to continue to implement written communication and computer skills as well as oral communication skills during telephone discussions.

At the end of the process written competencies and computer competencies were assessed. Samples of written competencies were collected from all participants and assessed (Appendix C) and course grades were assigned (Appendix D).

Results

Computer skills
There was a remarkable improvement by all participants in computer skills. All twenty-six individuals obtained a minimum of a B grade. All students were able to prepare a professional portfolio using computer technology. Portfolios demonstrated the students’ abilities to enhance the product through the use of computer technology to create graphics displays and tables of information, upload photographs to demonstrate workplace skills, and generate diagrams such as floor plans. Further demonstration of skills in computer technology was evident in students’ abilities to interact effectively with each other and faculty members through email. Students demonstrated skill in using the Internet for research by preparing reports on reliable sources of information available on the Web. All students were required to disseminate their understanding of personal learning through power point presentations.

Communication skills
The integration of computer and communication literacy skills with the portfolio development was highly effective. All twenty-six individuals obtained a minimum of a B grade. Remarkable progress was noted in how students learned to use email as an effective way of communication. Overall, written communication skills improved
dramatically in fluency, coherency, and the use of and understanding of professional language. Presentations during weekend workshops demonstrated that students were using more appropriate formats to present their information. Students generated reports, research papers, and essays to demonstrate their competence.

Although the ability to read and understand what had been read was not measured formally, students showed increased confidence in reading materials and discussing what had been read during their classroom presentations.

Portfolio results

Twenty-five of the individuals who engaged in the portfolio process started with low educational experiences, non-existent computer skills, and a poor ability to communicate in writing.

All twenty-five individuals who completed a portfolio were awarded credit for computer and communication courses. In addition, all were awarded further credit ranging from three to twenty-three courses in the ECE diploma program. The average attainment was equivalent to one semester of credit. One individual achieved the equivalent of three semesters of credit. A total of five individuals were only able to complete the communication and computer competence in the six months time frame.

Summary

The integration of computer and communication literacy with the portfolio development was a highly effective methodology. Individuals not only gained the skills to develop effective portfolios, but also gained the skills for continued success in the completion of an ECE diploma. In addition, gains in self-confidence and pride in achievement can best be expressed in the words of one individual. “I never thought I had the skills. When I show my husband and my grown-up children what I have done, they don’t believe I can do this. I am so proud of myself. Thank you Ingrid, you have started me on my goal to get a diploma. I will be the first in my family to do this.”
Conclusion

The methodology used in this project supports the research on developing best practices for adult learning (Flint, Zakos, and 2002; Fernsten, 2005). Research in best practices indicates that adults are seeking post-secondary education in increasing numbers, and that their inclusion in formal education in increasing numbers. Furthermore their inclusion in formal education systems requires institutional flexibility to meet the needs of these on-traditional students. (Arscott et. al. 2007, page 94)

The methodologies used also help to “debunk” one of the myths surrounding PLAR and experiential learning. It has often been stated, “PLAR is giving away credits.” The results of this study clearly identifies, that the students involved in the process earned their credits in measurable ways.

PLAR as a process in any educational institutions has set policies and guidelines. However, no policies have been developed to look at using the portfolio process itself to build competence in these two areas. Better polices need to be developed to recognize the process of building a portfolio as an integrated process to develop professional communication and computer skills.

PLAR has been used effectively in a wide number of disciplines – physician education, nursing, teaching, ECE, human resources, and a number of trades. The PLAR integrated portfolio process should be tried with in additional disciplines to replicate the findings of this study.

Finally, using the integrated portfolio process as outlined leads to an increased number of individuals engaging in continuing education. The twenty-five individuals who started this process would not have gained entry status into a diploma program without some form of academic upgrading. When previous learnings are acknowledged, individuals gain necessary individualized skills to gain competence, motivation is enhanced and success rates increase. All twenty-five students are continuing their efforts to reach diploma status.
### Appendix A

#### Writing Skills Rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th># of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td># ideas expressed</td>
<td>3 about love of children</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>5 about love of working with children</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6 about love of working with children and raising their own children</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>10 love of working with children, need to become better educated, need to offer better quality to children in program, desire to obtain credential</td>
<td>5</td>
</tr>
<tr>
<td>Sentence type</td>
<td>Simply – subj. and verb, first person dialogue</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Compound sentences, joined by and, but</td>
<td>5</td>
</tr>
<tr>
<td>Context</td>
<td>Personal feelings about working with children</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Personal feelings and wanting to be more educated</td>
<td>5</td>
</tr>
<tr>
<td>Word choice</td>
<td>Simple everyday words concerning working with children</td>
<td>26</td>
</tr>
<tr>
<td>Flow</td>
<td>Choppy – switched from one idea to the next without connection between ideas</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Brief, easy to follow, ideas linked</td>
<td>9</td>
</tr>
</tbody>
</table>
Minimum of one page of dialogue, easy to follow, connections between ideas 5

No paragraph formation, up to one page of continuous dialogue 13

Some appropriate paragraph formation with at least one paragraph expressing unrelated ideas 9

**Writing Skills Rubric**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th># of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paragraph formation (cont.)</td>
<td>Appropriate paragraph formation</td>
<td>4</td>
</tr>
<tr>
<td>Spelling errors</td>
<td>5 – 8</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>3 - 5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>1 - 3</td>
<td>4</td>
</tr>
<tr>
<td>Grammatical errors</td>
<td>5 - 8</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>3 – 5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>1 - 3</td>
<td>6</td>
</tr>
<tr>
<td>Punctuation</td>
<td>No punctuation</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Incorrect use of punctuation</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Periods and commas used consistently</td>
<td>5</td>
</tr>
<tr>
<td>Capitalization</td>
<td>No capitalization used</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Inconsistent use of capitalization</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Consistent use of capitalization</td>
<td>5</td>
</tr>
</tbody>
</table>

**Appendix B**

**Computer Skills Rubric**

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Description</th>
<th># of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>No skills</td>
<td>Could not turn computer off</td>
<td>10</td>
</tr>
</tbody>
</table>
### Simple word processing

<table>
<thead>
<tr>
<th>or on</th>
<th>Description</th>
<th># of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple word processing</td>
<td>Word processing to create simple documents</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Not able to use email</td>
<td></td>
</tr>
<tr>
<td>Equivalent to one computer course</td>
<td>Individuals received transfer credit for ECE computer skills</td>
<td>4</td>
</tr>
<tr>
<td>Equivalent to 2 computer courses</td>
<td>Individuals received transfer credit for ECE computer skills</td>
<td>2</td>
</tr>
</tbody>
</table>

### Appendix C – Post Analysis of Writing Skills

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th># of Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td># ideas expressed</td>
<td>Individuals submitted a life history paper that articulated personal learning. Range of ideas expressed and supported was 9 to 20.</td>
<td>26</td>
</tr>
<tr>
<td>Sentence type</td>
<td>Simple sentence structures only</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Compound sentences expressing linked ideas</td>
<td>21</td>
</tr>
<tr>
<td>Context</td>
<td>Personal feelings about learning</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Value of learning experiences</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Rationalization of the importance of the learning at that time</td>
<td>7</td>
</tr>
<tr>
<td>Word choice</td>
<td>Inclusion of ECE specific professional jargon</td>
<td>26</td>
</tr>
</tbody>
</table>
Flow: Life History paper broken down into paragraphs. Format flowed from: Introductory paragraph Discussion of learning paragraphs Summary paragraph

Spelling errors: Students used computers to write the assignment No spelling errors

Grammatical errors: Students used computers to write assignments No grammatical errors

Punctuation: Periods used consistently No grammatical errors
Commas
Incorrect use of punctuation

Capitalization: Appropriate use of capitalization

Appendix D – Marks Obtained

<table>
<thead>
<tr>
<th>Course</th>
<th>Marks Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Computers</td>
<td>12</td>
</tr>
<tr>
<td>Communications</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Three individuals received transfer credit for the computer course and 7 individuals received transfer credit for the communication course.
References


Flint, T. (2005). *How well are we serving our adult learners?* Chicago: CAEL


An Evaluation of Community based Early Childhood Education
Programmes in Zambia: A case of four selected districts

Beatrice Matafwali, Ph.D
Ecloss Munsaka, Ph.D
University of Zambia,
School of Education, Department of Educational Psychology,
Sociology and Special Education, Zambia

Abstract

Early Childhood Education programmes in Zambia are still in their infancy. Much work still requires to be done to ensure the establishment of quality programmes. To enhance the quality of early childhood education, there is a need to put in place comprehensive monitoring and evaluation programmes. It seems not much has been done in the area of monitoring and evaluation, particularly for those programmes in poor communities. This study, therefore sought to evaluate the performance of early childhood education programmes in four selected districts of Zambia. Quantitative and qualitative designs were used to conduct this study. The sample comprised of the following categories of participants: three Ministry of Education officials; three Ministry of Health officials; three officials from the Ministry of Local Government and Housing; seven service providers; 120 parents, 60 teachers/caregivers; and 72 children. The findings indicated that there were inadequacies in these areas of early childhood programmes: approaches used;
Introduction

The importance of early childhood care and development has been well documented (see Brooks-Gunns, 2003; Harter, 1999). Most of these studies have indicated that early childhood education in addition to preparing children for conventional school helps improve children’s self-esteem and social interaction skills. Early childhood education has also been found to improve children’s ability to control their emotions. Other studies (e.g. Heckman & Masterov, 2004) have observed that children who pass through high quality early childhood education programmes have higher completion rates, and they are also less likely to engage in deviant behaviour, and as such are less likely to drop out of school before completion. Thus, the provision of quality early childhood education is a fundamental requirement for any country that wants to meaningfully improve its education system.

While provisions for the establishment of early childhood education programmes in Zambia were made as far back as 1957, seven years before Zambia gained her independence (see chapter 313 of the Laws of Zambia), it was not until the beginning of the 21st century that the provision of early childhood education began to receive serious attention. With the United Nations’ requirement that all countries around the world provide universal basic education by 2015, establishing early childhood institutions became a fundamental requirement for Zambia (United Nations, 1990). Thus, most of the efforts in Zambia have been directed towards the introduction of early childhood education programmes in as many locations in the country as possible. For this reason, not much seems to have been done in the area of assessment and evaluation of early childhood programmes. Ironically, though, being relatively new in the country, early childhood education programmes need constant, thorough assessment and evaluation for them to take root. The current study, therefore, aimed to carry out an evaluation of early childhood education programmes in some selected districts in four provinces of Zambia.
As a basis for conducting comprehensive assessment and evaluation of early childhood education programmes, the National Association for the Education of Young Children (NAEYC) and National Association of Early Childhood Specialist/State Departments of Education (NAECS/SDE) (2003) suggested that the following questions be asked about the education and development of children: What should children be taught in early childhood programmes? How can we know if children are developing as they should and if what they are learning is helping them develop well? How can we tell if the designed curriculum in early childhood education programmes is doing a good job? As can be seen, at the core of these questions lie issues of curricula, teaching/learning materials, teaching personnel, infrastructure, assessment and evaluation. These were the issues that the current study addressed.

The need of a good curriculum for early childhood programmes is obvious; the curriculum is the navigational device that guides the personnel in early childhood education centres. As far as children’s learning is concerned, play plays a major role. Most of what children do revolves around play (Vygotsky, 1978). Consequently, Maria Montessori (cited in Woolfolk, 2010, p. 79) observed, “play is children’s work”. Recently, Ginsburg (2007) also has pointed out, “play is essential to development because it contributes to the cognitive, physical, social, and emotional well being of children...” (p. 182). It, therefore, seems to follow that in order for any early childhood education curriculum to be successful and relevant, it should be ‘play oriented’. This means the teaching/learning materials, teaching methods and infrastructure should all be supportive of play.

Another vital aspect in the provision of quality early childhood education is the child-teacher ratio. One of the most distinguishing characteristics of children at the early childhood level is that they need a lot of attention directed towards them; they are egocentric as Piaget, 1954, observed (cited in Woolfolk, 2010). Thus, if a class is too large, a teacher may find it difficult to provide this vital attention. Studies (e.g. Ruopp, Travers & Coelen, 1979; Howes, Smith &
Galinsky, 1995) have found that where the child-teacher ratio is low, children experience better social and cognitive development and they also experience improved intellectual and emotional development. Ruopp et al. (1979) and Howes et al. (1995) further indicate that where the child-teacher ratio is more favourable, children exhibit less aggression, anxiety and hyperactivity.

Provision of quality early childhood education would not be comprehensive without putting in place a team of adequately qualified teachers. Howes et al. (1995) observed that trained teachers tend to provide higher quality care and services to children. Thus, a good curriculum in and of itself, without trained teachers to execute it, is useless—a good tool in the hands of an inept user will accomplish nothing.

Research has also shown that the success of any early childhood programme is influenced by how families and communities are involved in the education of children. Marcon (1999), for instance, indicates that families’ participation in early childhood activities and frequent communication between families and teachers lead to better outcomes in children’s learning. The benefits from parental involvement in early childhood programmes are not confined to early developmental levels only; they persist. Mantizicopoulos (2003), for example, reports that frequent parental involvement in early childhood activities results in children having better promotion into grade one. Ou (2005) also argues that greater parental engagement in children’s elementary school years results in more positive educational outcomes at the high school level. Thus, as Ou further argues, early positive patterns in the home-school relationship bridges children’s experiences over time between home and educational institutions. These findings seem to be in conformity with Bronfrenbrenner’s (1974) observation that family influences permeate and influence children’s schooling from a very young age.

**Purpose of the study**

An Act recognising the importance of the education of children (see Chapter 313 of the Laws of Zambia) was passed far back in 1957, but
it was only in the latter part of the 1990’s that early childhood education programmes began to take root in Zambia. Thus, during this period much of the efforts in early childhood education programmes seemed to have been directed towards introducing early childhood education in as many districts as possible in the country. In the process of expanding early childhood programmes, however, it seems a critical aspect, evaluation, has received little attention. Therefore, the purpose of this study was to evaluate the performance of early childhood programmes in some selected districts of Zambia.

**Method**

This study used both the quantitative and qualitative research approaches in order to have a more comprehensive evaluation of the early childhood education programmes. The advantage of combining the two research approaches has been adequately written about by several researchers (e.g. Brewer & Hunter, 1989; Creswell, 1994; Greene, Caracelli, Graham, 1989).

**Research participants**

The sample used in this study comprised the following categories of participants: parents; caregivers; children; Ministry of Education officials; Ministry of Local government officials; Ministry of Health officials; Early Childhood Care service providers and funding institutions. The following was the distribution of the sample: three Ministry of Education officials; three Ministry of Health officials; three officials from the Ministry of Local Government and Housing; seven service providers; 120 parents, 60 teachers/caregivers; and 72 children. The reason for the assortment of participants in the sample is that early childhood education in Zambia is supported by a wide range of government departments in collaboration with funding institutions and communities. Because of this reality, the sample for this study was purposively selected. The following were the areas from which the sample was drawn: Chibombo; Kapiri Mposhi; Mazabuka; Mongu; Luangwa; Chongwe; Kafue and Kabwe.
Data collection

Qualitative data was collected through document analysis, semi-structured interviews, focus group discussions and observations. Quantitative data was collected using structured questionnaires. The use of different data collection procedures provided part of the basis for triangulation which would further enrich the findings (Cohen & Manion, 1980; Fielding & Fielding, 1986; Patton, 1999, 2002).

Procedure

First, the two authors carried out some analyses of pertinent documents on early childhood education. This was done to gain further clarity on trends in early childhood education in Zambia and around the world. At each research site, quantitative data was first collected from the participants. In addition to the first author, two research assistants who are also lecturers at the University of Zambia collected the quantitative data. Qualitative data was collected by the second author. Firstly, individual interviews were conducted with parents, children and caregivers. Following this, focus group discussions were conducted for each of these three categories of participants in accordance with the requirements (Rabiee, 2004; Krueger & Casey, 2000). Both the interviews and focus group discussions were recorded on a voice recorder to allow for translation, transcription and analysis afterwards. The interviews and focus group discussions varied in length between thirty and fifty minutes. The second author did the translation, transcription and interpretation of the qualitative data to maintain consistency in analysis and interpretation.

Data analysis

Quantitative data was analysed using descriptive analysis. Qualitative data was analysed using thematic categorisation procedures (see Punch, 1998). Firstly, the second author spent time looking through the data to identify patterns of themes which were emerging from the data (Willig, 2001). Following the thematic
categorisation, the data from different participants was integrated by using triangulation procedures (see Patton, 1999, 2002; Greene, 2008).

**Ethical considerations**

As Babbie (2003) points out, researchers need to observe three critical ethical issues, namely; autonomy, non-maleficence and beneficence. In other words, researchers should never coerce participants to take part in a study. Secondly, researchers should ensure that no harm is done to the research participants. Thirdly, research should possess some benefits to the research participants. All these ethical requirements were fulfilled through designing a consent form, which allowed the participants to take part in the study or decline. For the children who were minors, parents were approached for permission to involve their children in the study. Having been cleared by the research ethical committee, no harm was expected to come to the participants from the study. Finally, the study was of benefit to the participants in that it would result in the betterment of early childhood education, a matter which was of concern to the whole country. In fulfilling the requirement for confidentiality, the research participants’ names were withheld. In addition, the names of the centres, the service providers and the funding institutions have not been disclosed.

**Results**

In order to make this paper easier to follow, the presentation and discussion of findings have been combined based on pertinent areas of focus. Both quantitative and qualitative data have been presented simultaneously. Responses from qualitative data have been used to consolidate the quantitative findings. The emphasis of this evaluation was on integrated holistic approach to early childhood programming that responds to the social, emotional, health, nutritional and intellectual needs of the child. Specifically, the paper highlights among others: different implementation approaches to Early Childhood Care and Development (ECCD) programming in Zambia, classroom dynamics, parental and community participation, health and nutrition, quality assurance and monitoring.
Approaches to ECCD Programming

The study evaluated the different approaches used by different service providers in the implementation of ECCD. Overall, this paper established that the home-based approach has received less attention in ECCD programming in Zambia. This seems to imply that ECCD in most centres visited was not being implemented in a comprehensive approach as the focus mainly is on centre-based, with emphasis on preschool, thus leaving out children below the age of two who cannot benefit from the centre-based programming. ECCD services should aim at promoting children’s optimum growth and development, and this seriously calls for a combination of home-based and centre-based interventions so as to capture children within the cohort of 0-6 years. This paper argues that ECCD interventions should be distinguished from the traditional preschool arrangements. ECCD services should be implemented in a holistic manner, taking into account children’s physical, mental, social and emotional needs.

However, the home-based strategy at a centre run by a faith-based non-governmental organization in Mazabuka district of Southern Province deserves to be highlighted, as it seemed to provide a good model of quality home-based interventions. The programme is active in 13 compounds within Mazabuka district and serves a total of 592 children aged 0-6 years. A positive characteristic of this home-based intervention approach was its emphasis on strategies aimed at sustaining stimulation, such as sufficient supply of age appropriate materials for households in the intervention and a home visit programme that draws on parental involvement. For instance, weekly activity guides in the form of leaflets adapted from the Irish ECCD Manual were prepared to guide parents in activities aimed at sustaining child stimulation and monitoring developmental levels. It was further noted that caregivers at this centre had periodical feedback sessions with parents where developmental progress of individual children was reviewed and topical areas pertinent to child development such as health, nutrition, hygiene and safety were discussed.
This paper thus recommends that in order for ECCD services to be holistic, there is a need for other service providers to incorporate the home-based approach in the programmes to capture children below the age of two. However, such an implementation should reflect the cultural practices in order for the programme to be meaningful to the local communities, so as to enhance community participation and ownership.

**Classroom dynamics**

Under classroom dynamics, this paper highlights issues that are pertinent to quality ECCD programming. These include among others: availability of an age appropriate curriculum, quality of teaching which encompassed teaching and learning materials, class size and quality of infrastructure, and teacher qualification as well as remuneration of teachers/caregivers.

**Curriculum**

We evaluated whether the centres had in place an age appropriate curriculum to guide the teachers/caregivers on pedagogical approaches in teaching children. The study revealed that only a centre in Kapiri Mposhi district run by a non-governmental organization and a centre in Mazabuka district run by a faith-based organization indicated with absolute certainty that they had a curriculum which they followed, whereas the other centres indicated that they had no curriculum in place.

It seems clear from the findings that there is currently no standard curriculum for early childhood education in Zambia. This was further confirmed by the Ministry of Education officials at all levels who participated in this study. For instance, the Mazabuka centre was using a curriculum adapted from Ireland, whereas the Kapiri Mposhi centre and the centers in Kafue, Chongwe and Luangwa districts run by an international non-governmental organization were using the guidelines from the Zambia Preschool Association. The other centres did not seem to follow any curriculum at all, and their teaching was, to a large extent, based on personal experiences and the little
knowledge gained from in-house workshops provided by service providers. The need for a curriculum in ECCD programming cannot be underscored. It is well recognized that an ECCD curriculum, being the sum total of all children’s direct and indirect learning experiences, acts as a guide for quality interventions in early childhood settings (Woolfolk, 2010). Further, an ECCD curriculum helps to ensure that teaching covers important areas, adopts a common pedagogical approach and strives for a certain level of quality across age groups and regions of the country. This is especially true in the centre-based approach where children are prepared for a smooth transition into grade one.

Having no curriculum to follow arguably made the teaching provided in these centres less responsive to the needs of the children. For instance, the study revealed that the teaching done at most of the centres mainly focused on classroom activities. A comprehensive ECCD curriculum encompasses critical areas of development including children’s physical well being, social-emotional development, language development, cognition and general knowledge (Vygotsky, 1978). Therefore, failing to address these important aspects is a serious omission that was observed in most centres visited. It also appeared that there was a tendency in these ECCD centres to treat early childhood education as an extension of formal education, where the main focus is on successful progression to another grade. This was a misconception in the sense that early childhood education is a complete sector of education in its own right. In the light of this, it is argued that the curriculum in ECCD programmes needs to be improved, made more child-centred, drawing on local culture and environment to a greater extent and reducing the emphasis on preparation for formal schooling.

Using materials and strategies from local cultures in early childhood programmes is in line with Vygotsky’s social constructivism (see Woolfolk, 2010). According to the social constructivist view of learning, learners actively participate in the generation of knowledge through interaction with other people in their families and the rest of the community. Thus, for any educational venture to be successful, it
should operate within the borders of the culture in which it is offered. Culture, as Serpell (1993) argues, provides the tools and means to enable learners to acquire knowledge and skills in a more meaningful and effortless manner. In this respect, issues of language, beliefs, methods of knowledge and skill acquisition are all critical aspects of culture which early childhood educators should take into account (Greenfield, Suzuki & Rothstein-Fisch, 2006).

In line with the above stated social constructivist view of learning, this paper recommends that providers of early childhood education in rural communities in Zambia should take into account cultural aspects of the local communities. To effectively do this, the use of local languages in early childhood programmes should be emphasized. Secondly, local games and stories which children are familiar with should be used as modes of transmitting knowledge and skills. Thirdly, being the custodians of cultural values, communities need to be involved as collaborative educators of children. An education provided in this manner would be more meaningful to children and the community.

**Teaching and learning materials**

The quality of teaching in ECCD is mainly measured by the availability of developmentally age appropriate teaching and learning materials. Although early childhood activities can be done with items from the natural environment, some age appropriate teaching and learning materials must be specifically made. In this study, the authors asked caregivers and teachers to rate the availability of teaching materials on a scale of 1 to 5 as follows: 1-very adequate; 2-adequate; 3-average; 4-inadequate; 5-very inadequate. For each of the centres, an average rating of the availability of materials was computed. For the interpretation of these mean ratings, the smaller the value of the mean rating, the better the availability of the materials. Similarly, the bigger the value, the poorer the availability of the materials. Respondents rated the availability of the teaching and learning materials as either average or below average for all centres. This study found that in most of these centres, teaching and learning materials were far from being adequate. This general lack of
adequate teaching and learning materials was also mentioned by parents during the focus group discussions. For example, one parent at a centre run by a non-governmental organization in Chibombo district observed:

“Children need books to write in, they need pictures so that they can see concrete things that the teacher is talking about. All these things are not available here......”

Another parent at a centre in Magoye area of Mazabuka district run by a non-governmental organization observed:

“In accordance with the way children learn, most of the time they learn through touching things and at these centres we do not have these facilities where these children can play. As a result, most of the time children are confined to their classrooms. This becomes a big torture to the children.”

Related to age appropriate teaching and learning materials are recreational facilities. Play facilities are of great importance to any ECCD provider in that most of the activities of children at that level centre around play. A number of scholars have underscored this point; play is an important vehicle for children's social, emotional and cognitive development, as well as a reflection of their development. Understanding that children are active constructors of knowledge and that development and learning are the result of interactive processes, early childhood programmes should recognize that play is a highly supportive context for these developing processes (Vygotsky, 1978). Vygotsky further contends that young children learn most effectively through experiential play. This, according to Vygotsky, would enhance development of oral language through symbolic play. It follows, therefore, that for any institution to be effective in providing early childhood education, there is a need to invest in recreational facilities which support adequate play for children. In this study, therefore, play facilities were categorized as out-door or in-door recreational facilities. Results indicated that only the early childhood centre in Kapiri Mposhi had adequate out-door recreational facilities; a majority of the respondents from the other centres indicated that they did not have adequate out-door recreational facilities. Parents
also made a number of observations regarding the non-availability of recreational facilities. A parent from a centre run by a non-governmental organization in Kabwe district observed:

"We need some recreational facilities for the children to have more interest in school. They need balls, toys."

Another parent at a centre in Chongwe district observed:

"...... Children need to play a lot at their age so they need a lot of recreational facilities."

Among the things that children said they would like to have at the centres, recreational facilities featured very prominently. In all the focus group discussions, children indicated that they would be happier if their centres had recreational facilities. At one centre in Chibombo, for instance, children indicated,

"We would like to have some desks, toys, swings to play with."

Children from another centre run by an international non-governmental organization in Chibombo indicated,

"We would like play materials like cars, dolls."

Clearly, the importance of age appropriate teaching and learning materials in any early childhood centre cannot be overemphasized. Thus, the non-availability of teaching and learning materials in most centres visited is worrisome. It was also surprising to note that no effort was made by teachers/caregivers to utilize local materials or even to employ traditional games in ECCD activities.

There are a number of traditional games in Zambian communities which can be incorporated in the early childhood education curriculum. These games are varied, however, broadly speaking they can be categorized in the following developmental domains: psychomotor; cognitive; language; socio-emotional; and self help skills. Kakuwa (2005) has documented a number of these traditional games played in all nine provinces of Zambia.

In the psychomotor domain, there are a number of traditional games that are played by children across all cultures in the nine provinces of
Zambia. For instance, in a game called *ciyato*, children, mainly girls, are supposed to make eye-hand coordination as they throw and catch stones drawn from a shallow hole at varying intervals. Clearly, this game would enhance children’s psychomotor development. Another game called *ichibale*, which is mainly played in Northern Zambia, has similar developmental significance. This game is played using beads and a small bowl.

In the cognitive domain, a number of games are played. In one popular game called *Nsolo*, which is played in all nine provinces of Zambia, two players are involved at a time. Each player will have two to three round objects called *nsolo*, placed in two rows of shallow holes numbering twelve made either on a wooden board or on the ground. The players would take turns in out-witting each other on the acquisition of the *nsolo* from each other. This game has a multifaceted benefit. Firstly, it enhances computational abilities. Secondly, it improves attention and executive functions (organization, planning, reasoning and manipulation abilities). The game also enhances fine motor skills.

In the language domain, there are also a number of games. Most of these games involve the use of repetitive rhyming words done in a rhythmic song. Children would clap their hands either individually or in pairs while singing the rhyme. An example in this category of games is a game called *amina kadala*, which is played by both boys and girls. Another is called *elyoni elyoni*. These games are significant in enhancing not only language skills but interpersonal skills as well.

There are also some traditional activities in the social-emotional domain. These mainly comprise of fables and riddles with a moral message. Mostly, these activities involve younger children with older children or sometimes parents. Through the fables and riddles, younger children would learn wisdom for personal and/or interpersonal conduct.

Finally, in the self-help domain, children are taught a number of games which teach them skills that they need to take care of themselves and their environment. Here, issues of hygiene, being hardworking and how to take care of the environment are
emphasized. These are used as the main vehicle for transmitting cultural values, morals and skills. Teaching here is mainly done by the elderly members of the society, thus, early childhood centers can draw on the expertise of these senior members of the community.

As was alluded to earlier, the integration of traditional cultural elements into early childhood curricula would make the programme more meaningful to the children and the rest of the community. The paper recognizes the scarcity of local teaching and learning materials for early childhood programmes, thus, it recommends that even where foreign materials are used as was the case for the faith-based organization ECCD centre in Mazabuka, as far as possible, such materials should be adapted so that they can suit the local cultures. Such an approach would enhance collaboration between early childhood educators and the local communities, hence, promoting a sense of ownership of the programme by the community.

**Appropriateness of the classroom**

The study further evaluated the suitability of classroom size and infrastructure. Suitability of class size was determined by asking respondents to make a rating on a scale of 1 to 5 as follows: 1-very suitable; 2-suitable; 3-average; 4-unsuitable; 5-very unsuitable, and the means were computed. For the interpretation of the mean ratings, the smaller the value of the mean rating, the better the suitability of the classes for individualized interaction. Similarly, the bigger the value, the poorer the suitability of the classes. It was revealed that none of the centres was rated as having classes which were very suitable or suitable to foster individualized attention. Generally, most of the centres visited had inadequate classroom space with children crowded in small classrooms which barely had enough space to move around. Inadequacy of classroom size was exacerbated by insufficient desks for children in most centers.

**Teacher qualifications**

The study further sought to evaluate teacher qualification as one of the indicators of quality in ECCD programming. The overall picture
of the training levels of the caregivers at all centres was that 67 percent had no formal training at all in teaching children while only 33 percent indicated that they had a certificate in teaching children. These results seem to show that a massive number of teachers/caregivers in the centres visited did not possess the necessary skills and knowledge required for teaching at this level of education. As Howes et al. (1995) have noted, training of the teaching staff is an important aspect of the curriculum because without proper training of teachers/caregivers even the most comprehensive curriculum can be rendered useless.

**Remuneration**

Related to the quality of teachers is the aspect of remuneration. Remuneration is an important aspect of ECCD provision because without it the motivational levels of teachers/caregivers who handle the children get low. It was found out that all centres except for those run by small scale non-governmental organizations paid their caregivers. Needless to state, there was variation in the payment rates. For instance, caregivers who work at the Catholic’s Lifestart Centre and CCF, got $100 as a monthly salary. Whereas those working for one of the international non-governmental organizations are paid based on the contributions made by parents and their salaries ranged from $8 to $12. However, as was found out in the field that most of the time, these caregivers go for months without getting a salary. Thus, while remuneration is an important aspect of ECCD provision, there was a general outcry by the caregivers that they were often discouraged as they spent a lot of time at the centres teaching and yet they got very little or sometimes nothing at the end of the month.

**Family and community involvement**

Family and community involvement is a complex process implying a wide range of activities and commitments. This is important in ensuring sustainability of ECCD programmes, especially those targeting the most vulnerable children. The study aimed at establishing the level of community participation in ECCD activities and the nature of participation in order to determine the effectiveness
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of the programmes. Community participation in the programme was determined by asking respondents to make a rating of the level of community participation on a scale of 1 to 5 as follows: 1-very active; 2-active; 3-average; 4-inactive; 5-very inactive. For each of the centres, an average rating of the level of community participation was computed. For the interpretation of these mean ratings, the smaller the value of the mean rating, the more actively involved the community was. Similarly, the bigger the value, the poorer community participation was.

Generally, all centres were rated as above the average in community involvement, for the communities were found to be actively involved in the ECCD activities within their respective communities. The most involved were Kapiri Mposhi centre and a faith-based early childhood centre in Mazabuka, where parents stated that they were actively involved in all centre activities. The reason for this probably was that the ECCD centre in Kapiri Mposhi was using a market approach of providing early childhood services within the place, thus making it easy for parents to be actively involved. The faith-based ECCD centre in Mazabuka on the other hand, had a slightly unique ECCD implementation approach whereby caregivers conducted home visits to interact with parents whose children had been enrolled at the centre. By so doing, many parents actively took part in the programme especially during the feedback sessions, which were conducted on a weekly basis.

Notwithstanding this however, other ECCD providers embraced community participation by building local capacity and empowering communities as a way of increasing programme effectiveness and long term sustainability. This comprehensive community participation was observed at the two centers run by an international non-governmental organization in Chibombo and Mazabuka respectively; and a centre in Magoye area of Mazabuka district. At these centres, communities were empowered by providing them with farming inputs such as maize and groundnuts and through the promotion of income generating activities such as chicken and goat rearing. The outputs realized from these activities were ploughed
back in the ECCD programme to enhance the school feeding programme as well as promoting nutritional education within the communities. In some cases, part of the produce was sold and the income realized was used to pay the teachers/caregivers. In this respect, the programme cost was substantially reduced and the culture of programme ownership by the community was encouraged and sustainability guaranteed. The challenge for all ECCD providers, as observed by Rugh and Bossert (1998) is to nurture comprehensive approach over time and to acknowledge communities as equal, full-fledged partners, rather than mere sources.

Quality control and monitoring

Quality assurance is an important element in early childhood programming in order to ensure that ECCD services are both cost effective and responsive to the needs of the children. This entails establishing common standards of practice, providing intensive training and supervision, and strengthening of supervisory and regulatory mechanisms. Given its relevance, it was imperative to establish the level of quality control and monitoring mechanisms that had been put in place. Service providers, teachers and caregivers were asked if they were supervised and monitored in their work. The study further sought to establish whether Ministries (Ministry of Education and Ministry of Local Government and Housing) responsible for ECCD had put in place standards of practice to ensure quality in ECCD provision in the country. It is worth noting that prior to 2004 ECCD in Zambia was solely under the auspices of the Ministry of Local Government and Housing, although the Minister of Education had regulatory authority. However, the Government Gazette No. 547 of 2004 (September 21) on Statutory Functions, Portfolios and Composition of Government transferred the responsibility of ECCD to the Ministry of Education, thus giving them the mandate to train preschool teachers, monitor standards and prepare curricula guidelines. The Ministry of Local Government and Housing on the other hand, was given the legislative responsibility of monitoring the quality of infrastructure and sanitation facilities in ECCD centres as provided for by the 1966 Education Act.
The study established that there were no standard norms of practice in ECCD and that quality control and monitoring was non-existent. This was confirmed by teachers/caregivers who indicated that other than routine supervision provided by the respective service providers, there was no monitoring of standards by educational experts. In fact, officials at provincial and district levels from the aforementioned government Ministries who participated in the study expressed ignorance regarding their role in ECCD programming. They seemed unaware of their respective roles in ECCD. It must be emphasized that quality control and monitoring is the hallmark of ECCD programming. As the NAEYC and NAECS/SDE (2003) indicate, it is important to regularly evaluate ECCD programmes in the light of programme goals using varied, appropriate, and conceptually and technically sound evidence. This would help determine the extent to which programmes met the expected standards of quality and to examine intended as well as unintended results. Thus, the issue of quality control and monitoring should be taken seriously by the responsible Ministries if quality ECCD is to become a reality in Zambia. The absence of quality control and monitoring in Zambia could, to a large extent, explain the poor state of infrastructure that was predominantly observed at most ECCD centres visited.

**Funding**

One of the major objectives of the study was to establish the level of funding as a way of determining the effectiveness and sustainability of ECCD programmes. It was generally found that the current funding for ECCD programmes was inadequate to meet the ever increasing demand. While most centres appeared not to be doing well in the provision of quality early childhood education, the real reason could be this general inadequacy of funding. The level of participation of the government in the running of ECCD was found to be rather low. Currently, ECCD activities are solely in the hands of the private sector, mainly the donor agencies, and relies on the contributions by parents. The implication of this crippling funding in this important education sector is that a majority of the children,
particularly those in disadvantaged communities, are being denied access to the much needed ECCD services. Given the positive results of ECCD in later learning (Heckman and Masterov, 2004), the authors strongly argue that investments in high-quality early childhood education makes financial sense, especially for a developing country like Zambia. There is cumulative evidence indicating both short and long term economic benefits to the community if early childhood education that meets high standards is available to all children, particularly those who are most disadvantaged.

**Conclusion**

This study concluded that early childhood education programmes in the centers studied are not meeting universal standards of quality for young children. Much work still requires to be done in the following areas: infrastructure; teaching staff; remuneration of teachers/caregivers; curriculum development; quality teaching and learning materials; community involvement; quality control and monitoring; and funding. The authors, therefore, recommend that there is a need for constant monitoring and evaluation of early childhood education programmes to ensure that the identified areas of weakness are remedied.

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