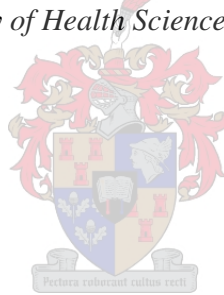


The Play Milieu at Crèches in Macassar

by
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Declaration

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Abstract

Play is widely acknowledged as a cornerstone of childhood development. Its significance stretches beyond developing cognitive abilities and school readiness to the development of social skills, emotional expression and well-being. The milieu, or environment, is recognized as highly influential with regards to occupational performance; the play environment is therefore also of great importance to child development. However, there is a lack of knowledge regarding the assessment of this play environment, especially in a developing country context. This study therefore focuses on the play environment at South African crèches, specifically with regards to assessing the environmental factors impacting children's play, namely play space, play objects, play time and play mates (including caregivers). The National Guidelines of ECD Services in South Africa had already set standards relating to play space, play time and caregiver ratio's at crèches. Criteria for play objects were established as part of this study through an extensive literature review. These criteria were then applied in a quantitative, cross-sectional descriptive survey at registered crèches in Macassar, a community in the Cape Flats outside Cape Town. The survey results indicated that crèches complied to play space and play time regulations, but that not all crèches complied with the regulations regarding caregiver-child ratio's and play object adequacy. The crèches especially lacked in gross motor play objects. These findings emphasize the importance of establishing practical criteria and guidelines for all aspects of the play environment and enforcing those standards at day care crèches. The study also provides a useful framework for measuring the adequacy of the play environment at South African crèches.

Opsomming

Spel is 'n belangrike hoeksteen in kinderontwikkeling en het 'n noemenswaardige impak op kognitiewe ontwikkeling, skoolgereedheid, die ontwikkeling van sosiale vaardighede, uitdrukking van emosies en algemene welstand. Die milieu, of omgewing, word wyd aangeslaan vir die invloed wat dit op arbeidsverrigting uitoefen en die spelomgewing is daarom belangrik. Daar is egter 'n tekort in kennis aangaande die spel omgewing, veral in die konteks van 'n ontwikkelende land soos Suid-Afrika. Hierdie studie bestudeer dus die spel omgewing in Suid-Afrikaanse dagsorgsentrums. Speel-spasie, speelyd, speelgoed en speel-maats vorm saam die omgewingsfaktore wat op die spel omgewing impakteer en die studie fokus dus op hierdie vier faktore. Die Nasionale Riglyne vir Voorskoolse Kinder Ontwikkeling in Suid Afrika het reeds standarde gestel ten opsigte van die vewagte fisiese spasie, speelyd en die getal kinders tot versorgers (versorger-kind verhouding) by Suid Afrikaanse dagsorg sentrums. Kriteria wat meet of daar voldoende speelgoed beskikbaar is vir kinders se optimale ontwikkeling is na aanleiding van 'n literatuurstudie ontwikkel. Hierdie kriteria, tesame met die kriteria wat deur die Nasionale Riglyne gestel is, is gebruik om die spelomgewing by dagsorg-sentrums in die Macassar gemeenskap op die Kaapse Vlakte net buite Kaapstad te meet d.m.v 'n beskrywende opname. Volgens die sensus resultate voldoen die dagsorgsentrums wel aan kriteria ten opsigte van fisiese spasie en beplande speelyd, maar ontbreek hulle ten opsigte van die versorger-kind verhouding. Die resultate dui ook aan dat al die dagsorg-sentrums nie voldoende speelgoed gehad het om die volle spektrum van kinderontwikkeling te dek nie. Hulle het veral ontbreek in speelgoed vir grof-motoriese spel. Die studie beklemtoon die belang van praktiese en spesifieke riglyne en standarde sowel as die implementering van hierdie standarde. Die studie verskaf ook 'n raamwerk wat gebruik kan word in die assesering van die spel omgewing in 'n ontwikkelende konteks, sowel as om toekomstige intervensies te lei.

Table of Contents

CHAPTER 1 – INTRODUCTION.....	1
1.1 RATIONALE OF STUDY	1
1.2 RESEARCH QUESTION AND OBJECTIVES	3
CHAPTER 2 – LITERATURE REVIEW	4
2.1 INTRODUCTION	4
2.2 DEFINING PLAY AND PLAYFULNESS.....	4
2.3 THE SIGNIFICANCE OF PLAY.....	5
2.3.1 Play as means of cognitive development and school-readiness.....	5
2.3.2 Psycho-social aspect of play	6
2.3.3 Play and Social-emotional development.....	6
2.3.4 Play as a means to deal with reality	6
2.3.5 Play and well-being	7
2.4 THE PLAY ENVIRONMENT	8
2.4.1 Identification of environmental factors for assessing the play environment	10
2.4.1.1 Environmental factor: Play Objects	10
2.4.1.2 Environmental factor: The role of the caregiver as play mate and facilitator of play	13
2.4.1.3 Environmental factor: The sensory environment	14
2.4.1.4 Environmental factor: Physical space	15
2.4.1.5 Environmental factor: Time structured for play.....	16
2.5 IDENTIFYING TYPES OF PLAY AND APPLYING THIS FRAMEWORK TO THE PLAY ENVIRONMENT	17
2.5.1 Establishing types of play	17
2.5.2 A play environment that caters for all categories of play	24
2.5.3 A framework for measuring the adequacy and appropriateness of play objects in crèches	25
2.5.3.1 Sensory-motor play	26
2.5.3.2 Construction play and play for developing perceptual-cognitive abilities.....	27
2.5.3.3 Gross motor play	28
2.5.3.4 Fine motor play	29
2.5.3.5 Pretend play.....	30
2.5.3.6 Games with rules.....	31
2.5.3.7 Social play.....	31
2.5.3.8 Language and concept development	32
2.6 CULTURE & SOCIO-ECONOMIC STATUS AS INFLUENTIAL FACTORS OF CHILD DEVELOPMENT & PLAY .	32
2.6.1 Culture affecting play behaviour and opportunity to play	32
2.6.2 Early childhood development and day-care centres in South Africa.....	33

2.7 CONCLUSION.....	34
CHAPTER 3 – METHODOLOGY.....	35
3.1 INTRODUCTION	35
3.2 THE RESEARCH DESIGN.....	35
3.3 THE RESEARCH PROCESS.....	35
3.4 PHASE I – IDENTIFYING MEASUREMENT CRITERIA	37
3.4.1 Identifying factors that influence the play environment	38
3.4.2 Identifying criteria that can be used to measure the play environment at crèches.....	38
3.4.2.1 Play space.....	38
3.4.2.2 Play time	39
3.4.2.3 Play mates	39
3.4.2.4 Play objects	40
3.4.3 Establishing criteria for the measurement of play object adequacy.....	40
3.4.3.1 Identification of types play and types of play objects.....	42
3.4.3.2 Towards establishing play object categories: Elimination of play types are not relevant to object play or are duplicated terms.....	43
3.4.3.3 Towards establishing play object categories: Clustering and organization of types of play objects to establish categories of play objects	46
3.4.3.4 Identifying criteria for each category and sub-category.....	52
3.4.4 Research tools.....	53
3.4.4.1 Play space.....	53
3.4.4.2 Play time	53
3.4.4.3 Caregiver-child ratio	54
3.4.4.4 Play Objects.	55
3.5 PHASE II – A SURVEY OF THE PLAY ENVIRONMENT AT CRÈCHES IN MACASSAR.....	57
3.5.1 Research sampling	57
3.5.2 Pilot study	58
3.5.3 Gathering data.....	59
3.6 ETHICAL CONSIDERATIONS.....	60
3.7 RESEARCH VALIDITY	61
3.7.1 The face validity and content validity of the table measuring play time	61
3.7.2 The face validity and content validity of the table measuring the caregiver-child ratio.....	61
3.7.3 The content validity of the play object checklist	62
3.8 BIAS	63
3.8.1 Selection bias	63
3.8.2 Measurement bias	63

3.8.3	Intervention bias	63
3.9	LIMITATIONS.....	64
3.9.1	Limited extrapolation.....	64
3.9.2	Caregiver-child ratio.....	64
3.9.3	A particular perspective on play	65
3.9.4	Limited attention to the cultural aspect of the play environment	65
3.9.5	Quantity and organization of play objects	65
3.10	SUMMARY	66
CHAPTER 4	– RESULTS AND DISCUSSION.....	67
4.1	INTRODUCTION	67
4.2	PRESENTATION OF DATA.....	67
4.3	DISCUSSION OF DATA.....	67
4.3.1	Play time	67
4.3.2	Child-caregiver ratio.....	68
4.3.3	Play Objects.....	71
4.3.3.1	Play objects that allow for gross motor play.....	73
4.3.3.2	Play objects that allow for fine motor play.....	74
4.3.3.3	Play objects that allow for sensory play.....	75
4.3.3.4	Play objects that allow for construction play	76
4.3.3.5	Play objects that allow for pretend play	76
4.3.3.6	Play objects promoting perceptual-cognitive development	76
4.3.3.7	Summary of play object adequacy	77
4.4	CONCLUSION.....	78
CHAPTER 5	– CONCLUSION AND RECOMMENDATIONS.....	79
5.1	INTRODUCTION	79
5.2	RESEARCH CONCLUSIONS	79
5.3	RECOMMENDATIONS FOR FURTHER RESEARCH.....	81
5.3.1	Providing support to informal crèches.....	81
5.3.2	A holistic approach to play	82
5.3.3	Application of the available resources.....	83
5.3.4	A “checklist for crèches”	83
5.3.5	Organization of play materials.....	84
5.3.6	The importance of gross motor play	85

List of Figures

Figure 3.1	43
Figure 3.2	44
Figure 3.4	48

List of Tables

Table 2.1	22
Table 3.1	44
Table 3.2	54
Table 3.3	55
Table 3.4	56
Table 4.1	68
Table 4.2	69
Table 4.3	70
Table 4.4	71
Table 4.5	72
Table 4.6	73
Table 4.7	75
Table 4.8	77

Addenda

Addendum A: Table of terms.....	98
Addendum B: Definitions for play time.....	100
Addendum C: Criteria for play object categories.....	101
Addendum D: Survey form for documenting play objects.....	106
Addendum E: Survey form.....	108
Addendum F1: Informed consent form	109
Addendum F2: Ingeligte toestemming.....	111
Addendum G1: Play time at crèche 7	113
Addendum G2: Play objects at crèche number 7	114
Addendum G3: Caregiver-child ratio at crèche 7	117

Chapter 1 – Introduction

1.1 Rationale of study

Play is widely acknowledged for its significance in child development and is seen to be inseparable from learning during early childhood years.^(1,2) Occupational therapists acknowledge that there is a link between meaningful activity (occupation) and health, or well-being.⁽³⁾ As the primary occupation of the young child⁽¹⁾ play serves not only to develop cognitive and social skills, but also improves occupational performance and promotes well-being.”^(1,2,4)

The importance of the environment (also referred to as the milieu) as treatment modality and influential factor of occupational performance is highlighted by leading occupational therapists.⁽⁵⁾ The World Health Organisation (WHO) also stresses the importance of environmental factors when considering health interventions, emphasising the need to focus on the environmental context when addressing health needs.⁽⁶⁾ One of the Health Promotion Action Means identified in the OTTAWA Charter,⁽⁷⁾ is to create supportive environments. It is therefore of utmost importance to study the environmental context of play before planning appropriate intervention strategies.

A literature review found no research relating to the environmental support of playfulness or play development in a South African context. Most studies on play have been done in a first-world setting. This leaves a gap in research relating to this topic.

The Performance Plan of the Western Cape Educational Department (WCED) developed in 2007 - 2008 includes a focus on the importance of pre-school development.⁽⁸⁾ This involves providing caregivers of children between birth and four years with training concerning child development. It implies that the development of caregivers’ and teachers’ knowledge of pre-school children and their developmental needs is a primary necessity in South Africa. As “play is the primary occupation of children,”^(1,2) play-development and -stimulation should be included in these capacity-building programmes. In spite of this, no South African research could be found regarding the play-environment of the child, including physical play-space and preferred and available toys.

One of the strategic objectives stated in the Western Cape Strategic Framework for Integrated Provincial Early Childhood Development (ECD) Provision 2005 – 2014 is: “To promote and encourage high quality services through setting of minimum standards and developing monitoring tools and systems”.⁽⁹⁾ Setting specific standards and measurement criteria regarding the play environment is therefore a crucial aspect of effective child development.

Some norms regarding the play environment are provided in the National Guidelines for ECD Services published by the South-African Department of Social Development and United Nations International Education Fund (UNICEF) in 2006.⁽¹⁰⁾ While these guidelines focus on the health and safety of children, the amount of physical space and caregiver-child ratio, the criteria relating to play equipment lack specific detail that would be helpful in guiding especially untrained educators. According to these guidelines “There should be enough equipment and resources that are developmentally appropriate for the number of children in the centre” and “There must be enough age appropriate indoor as well as outdoor play equipment and toys, books and printed material...”⁽¹⁰⁾ However, no explicit guidelines are set as to what “developmentally appropriate toys” and “resources” entail and no measures are provided on how much equipment is considered “enough.”

The South African Department of Education launched a National ECD pilot project in 1997 to evaluate the provision of basic education to children between birth and seven years of age. It found that, although norms and criteria set for ECD practitioners are adequate, these should be less vague and ambiguous in order to lead to improved service provision.⁽¹¹⁾

Improved information regarding play-related trends in a South African context compared to prerequisites mentioned in the literature could potentially improve the effectiveness of environmental interventions and provide guidelines for more specific criteria and policies.

Macassar, a community on the Cape flats, situated on the outskirts of Somerset West in the Western Cape province of South Africa, is an area possibly in need of such environmental interventions. There are 11 crèches in Macassar that are registered with the Social Welfare-, Educational- and Occupational Health Departments of South Africa. A programme to capacitate crèche caregivers in the nearby Strand area was implemented by a community-service occupational therapist in 2007 and 2008. This led to a similar programme, which has not yet come to fruition, being considered for possible future implementation at Macassar. Research on the play environment in Macassar should thus not only add value to the environmental component of play, but could potentially assist in capacitating caregivers in the area.

1.2 Research Question and objectives

The research question to be addressed by this study is:

“Does the current play milieu, with regards to play space, play objects, the caregiver-child ratio and the structuring of play time at registered crèches in Macassar meet the proposed criteria for enhancing the development of the normal child?”

The following objectives are set:

- To identify environmental factors influencing children’s play. This was done through a literature review (Chapter 2).
- To identify measuring criteria against which to measure the environmental factors influencing children’s play through an extensive literature review (Chapter 2).
- Where no criteria are available in the literature, as in the case of play objects, to develop new criteria for measuring environmental factors by:
 - Identifying play object categories and sub-categories that cover the spectrum of play development in children.
 - Identifying indicators and definitions for evaluating each category and sub-category of play objects.
 - Using the indicators and definitions to establish measurement criteria against which to measure the play objects at crèches.
- To measure the identified environmental factors (i.e. play space, play time, caregiver-child ratio and play objects) at crèches in Macassar against the established measurement criteria and describe the adequacy of the play environment accordingly.

The research methodology for addressing these objectives is discussed in Chapter 3.

Addendum A includes a definition of terms. The terms “environment” and “milieu” are used synonymously and for the purpose of this study the term “environment” will be used, as this term occurred more commonly in the literature reviewed.

Chapter 2 – Literature Review

2.1 Introduction

Play is widely acknowledged as crucial to the well-being and development of children. The importance of play as a childhood occupation is echoed by the fact that the United Nations High Commission for Human Rights has added it to their Bill of Human Rights for children.⁽¹²⁾ Literature on children's play in various contexts clearly indicates that the environment plays a role in either promoting or preventing play.⁽¹³⁾ The importance of the environment relating to play and the identification of various factors and criteria impacting on the play environment are discussed in this chapter.

The chapter will discuss the importance of play (section 2.3) and the play environment (in section 2.4). This includes the various environmental factors impacting on children's play and playfulness. Section 2.5.1 will explore the types of play occurring during the play-school years, including the development of these types of play. Section 2.5.2 will explore the relationship between the types of play, play development and the play environment as discussed in section 2.4, aiming to identify what kind of environment will encourage and cater for the spectrum of play types identified.

2.2 Defining play and playfulness

Perspectives on play have developed substantially and have varied tremendously over the past century, with various scholars providing wide-ranging views on the topic.^(14,15,16) The complex concept of “play” is therefore not easily defined and definitions in literature vary considerably.^(2,14,17,6)

Despite the lack of a generally accepted definition, Ziviani and Roger⁽⁶⁾ summarise some characteristics commonly accepted as crucial to play, namely intrinsic motivation, a focus on the process rather than the end-result, involvement of toys and objects, involvement of the imagination, freedom from rules and active participation by the child. Stagnitti⁽²⁾ adds to this definition that play is not bound by reality, but does reflect it; it is free, safe and enjoyable. Where some researchers see play as contrasting to work⁽¹⁴⁾, others view play and work as a continuum.^(14,18)

Recent research suggests that the manner in which a child plays is more important in defining play than the actual play activity. Bundy in Hess and Bundy⁽¹⁹⁾ terms this “playfulness”. Playfulness

refers to the quality of a child's play in terms of flexibility and spontaneity, rather than the skill involved,⁽¹⁷⁾ or as Bundy states "the child's attitude to play."^(2,19) According to Bundy, this attitude is determined not so much by skill, as by the child's motivation to play.⁽²⁾ The Test of Playfulness (ToP), developed by Bundy (in Bundy, Lockette, Maughton, Tranter, et al), to evaluate a child's level of playfulness, indicates four characteristics of playfulness, namely "intrinsic motivation, internal control, freedom from the constraints of reality and the giving and reading of cues."⁽²⁰⁾ This is similar to Ferland's definition of play as "a subjective attitude in which pleasure, interest and spontaneity are combined, and which is expressed through freely chosen behaviour in which no specific performance is expected."⁽²¹⁾

Although the literature varies on the technicality of the play definition, there is general agreement that play is a fun-filled and spontaneous activity dependent on a child's motivation and attitude, encouraging creativity, motor and cognitive development as well as emotional and social intelligence. Play therefore forms part of a child's daily "occupational diet", making it a fundamental aspect of human occupation and general health and well-being.^(22,23)

2.3 The significance of play

Throughout the literature play is associated with child-development on a cognitive, social and emotional level.^(12,14,15,20,21) However, a recent review of literature done by Dennis and Robeiro,⁽²⁴⁾ indicates that merely regarding play as important because of its developmental significance is not enough. Through identifying themes in the literature focusing on paediatric occupational therapy and mental health, they found a recent shift towards the importance of "play and socialization" as well as play as a primary occupation.

2.3.1 Play as means of cognitive development and school-readiness

Although the significance of play has been shown to stretch beyond mere skill development it remains fundamental to children's learning.⁽¹²⁾ Various studies show direct links between play development and pre-academic abilities.^(1,25) Saunders, Sayer and Goodale⁽²⁵⁾ found a positive correlation between children's level of playfulness and their coping skills. Another study by Stagnitti, Unsworth and Rodger,⁽¹⁾ established that a significant correlation exists between children's pre-academic skills and their symbolic play development. Resulting from the study they developed a play assessment tool where symbolic play is assessed as an indicator of school readiness. A study done by Dunn and Herwig (in Newman, Brody and Beauchamp)⁽²⁶⁾ found that children who scored weakly in cognitive assessments also demonstrated poor social play behaviour.

While this study did not indicate a causal relationship between cognitive development and play development the pattern of the findings emphasize the importance of social play, especially when encouraging children to “engage with peers in challenging social interactions that create cognitive disequilibrium.”⁽²⁶⁾ Results of a study done by Pickett⁽²⁷⁾ over a three week period showed a positive correlation between grade one children’s exposure to a block play area (enriched with literacy-related tools like paper, crayons and stickers) and an improvement in their literacy development. Seifert agrees that cognitive development can not be separated from social and pretend play.⁽²⁸⁾

Play is broadly acknowledged in literature as crucial to the development of social and cognitive skills in young children.^(2,26,29,30) The abovementioned studies add to the conclusion that there is a definite correlation between different types of play and cognitive development as well as school-readiness. These findings range from the benefits of fantasy and social play to construction-play and clearly indicate that play cannot be separated from early academic learning.

2.3.2 Psycho-social aspect of play

Play has an important role to play in the emotional and social development of children and also serves as a therapeutic means of dealing with emotional trauma. Dennis and Rebeiro⁽²⁴⁾ did a review of literature in which they identified themes that occur most commonly in literature written by occupational therapists who specifically focus on paediatric mental health. Of the ten themes identified five included aspects of play, leading to the conclusion that play is a crucial contributor to the social and emotional well-being of children.

2.3.3 Play and Social-emotional development

According to Erikson, cited in Frost, Wortham and Reifel, “play is a key feature of early socialization.”⁽¹⁵⁾ Pretend play teaches children to control their impulses, develops problem-solving skills and improves self-esteem.⁽³¹⁾ Rigby and Rodger agree that play affects the social development as it teaches children skills like sharing, complying to rules, being trustworthy and sensitive to others’ needs.⁽²²⁾ As children grow in their awareness of others’ perspectives, they develop a moral code.⁽¹⁵⁾ The above mentioned aspects are key to succeeding in a social world, making play an important vehicle in the development of emotional and social competency and awareness.

2.3.4 Play as a means to deal with reality

Apart from social and emotional development, play also serves as a psychologically therapeutic activity,⁽²⁶⁾ providing a means of dealing with difficult emotional experiences and trauma. Fantasy

play especially provides a protected environment for children to deal with emotional events in life that are outside of their control.^(15,32) It offers children a safe method of self-expression because it is free from adult expectations.^(26,33)

In summary, play is a powerful means for children to extend their skills required to function in a social environment, as well as to express emotions when they lack in vocabulary. It is also one of the key themes when investigating the occupational therapist's role in improving the emotional health of children.

2.3.5 *Play and well-being*

One of the core assumptions of occupational therapy is that participation in occupations influences well-being.^(3,34) In other words, occupation is viewed as much more than just a means of developing skills. Bundy emphasises this when discussing the tendency of occupational therapists to view play simply as a “window on development.” She warns against therapists aiming at teaching children to play with objects in a more mature way in an effort to improve their development, while there is no proof to this effect.⁽³⁵⁾ This leads onto dangerous territory where one can easily view play simply as a combination of skills.⁽³⁵⁾ In the USA, the developmental aspects of play have been receiving so much attention that parents are allowing children less and less free-play time. Information provided to parents focuses on giving children an early learning-start in life to the extent that child-directed play-for-the-sake-of-play is neglected.⁽¹²⁾

Given these concerns, what then is the occupational meaning of play and what role does it play in a child's well-being other than its much emphasised developmental function?

Occupation, defined as purposeful activity (and therefore including play as an occupation), is a crucial part of the human experience.⁽³⁶⁾ The concept of “occupational flow,” first introduced by Csikszentmihalyi in Royeen, speaks about “a state in which a person experiences enjoyment that is intrinsic to participation in an activity.”⁽²³⁾ Royeen takes this further stating that the individual joy and fulfilment (or occupational flow) experienced while engaging in an activity contributes greatly to what is called “quality of life” and “health.”⁽²³⁾ Given that participation in satisfying and enjoyable occupation is crucial to leading a healthy and quality life and part of the definition of play is that it should be internally motivated and enjoyable,⁽²⁾ it can safely be argued that play is crucial to a child's well-being and health.⁽²³⁾

Being concerned with play as an occupation, occupational therapists should also be emphasising children's engagement in their roles as players and the meaning that this brings to their lives.⁽²²⁾ Successful engagement in the role of player is theorized to add meaning to life by bringing enjoyment, emphasising a person's potential, adding to the quality of life and motivating a person to engage in activity.^(37,22)

In conclusion: As play is viewed as a central activity of early childhood,^(2,22,23,24) it should also be addressed in occupational therapy as a primary occupation, rather than merely being used as a therapeutic means to develop and assess other components like motor-coordination, muscle-strength or balance.^(23,38) Although play has been proven integral to the holistic development of the child (including academic and social development), it is clear that it stretches beyond its developmental significance. Play serves as a vehicle for learning, but it also provides leisure, enjoyment and meaning to lives of children and adds to the quality of their life experience. Bettelheim summarizes the significance of play as discussed above as follows: "...play allows people to process the past, deal with the present and prepare for the future."⁽²³⁾

2.4 The play environment

References to the environment, or milieu, include "those factors that occur outside individuals and elicit responses from them, including personal, social, institutional and physical factors".⁽³⁹⁾ One of the Health Promotion Action Means identified in the OTTAWA Charter⁽⁷⁾ is to create supportive environments, emphasising the need to focus on the environmental context when addressing health needs.⁽⁷⁾ Occupational therapists also argue that the environmental context plays an important role in occupational performance and the well-being of a person and that it can either minimize or assist engagement in occupation.^(39,40) Rubin in Hamm⁽¹³⁾ states that: "when children feel safe and comfortable in their environment, they will be able to play." This recognition of the effect of the environment on play supports the recent emphasis in occupational therapy on the environment as an influential factor of behaviour and functioning.

Various models in occupational therapy have been developed to assist occupational therapists in understanding the relationship between the occupation, person and the environment. These models emphasise the need for a holistic approach when assessing occupational performance. The Person-Environment-Occupational Model (PEO model) is an example of a model emphasising the importance of the person-activity-environment fit.⁽²²⁾ When considering a child's play performance or engagement, the play activity, the child's abilities and skills as well as the play environment need

to be considered. In the PEO model, the three areas (person, environment and activity) are represented by three overlapping circles. The greater the overlap, or fit, the better the occupational performance of the person will be.⁽⁴⁰⁾ This leads to the realization that the play milieu has as an important role to play in a child's occupational participation as the child's individual skills and the play activity itself.

A South African example of the link between the environment and play performance is illustrated by a study done by Bross, Ramugondo, Taylor and Sinclair.⁽¹⁷⁾ Their study in an informal settlement in the Western-Cape where they investigated the triggers for playfulness in pre-school children with multiple disabilities found that being accepted by peers, exposure to challenges, observation of peers and adults, acceptance at home and experiencing success were all environmental triggers of playfulness and contributed positively to children's play participation. Rigby and Gaik in Ziviani and Rodger⁽⁶⁾ found children with cerebral palsy to be more playful in certain environments (e.g. at home) than in other environments, (e.g. at school), indicating the influence of the environmental factors on the children's occupational performance during play.

Although most applicable studies found focus on disabled populations, Bronson and Bundy⁽⁴¹⁾ investigated the relationship between developed children's level of playfulness and the environmental support of play and also found a significant positive correlation between these two variables.

A literature review done by Dennis and Rebeiro⁽²⁴⁾ investigated articles written by occupational therapists containing information on paediatrics and mental health and a vast number of these articles pertained to the environment or the play milieu. From their literature search they highlighted key themes, including: "Environmental influence, the importance of mastering one's environment, the need to assess environments and the need for treatment to incorporate creating or altering children's environment to create a playful milieu where both the physical and social aspects are considered."⁽²⁴⁾

An awareness of the play environment and its influence on a child's play performance and participation has thus been a key theme in literature since as early as 1974. While the above mentioned examples indicate that literature on the play environment is fairly extensive, some authors^(4,42) remain of the view that recent studies of play environments and children's play performance are limited and that the play environment is not discussed often enough. This view is supported by the lack of literature discussing specific criteria for measuring the suitability of the

play environment Even though various international studies indicate correlations between the environment and play performance a gap in South African literature discussing the play environment is apparent.

2.4.1 Identification of environmental factors for assessing the play environment

Assessment tools focussing on assessing the play environment of the child are even more limited. Although the importance of taking into account the play environment has been continuously highlighted, measurement criteria relating to the play environment are limited. Despite a broad literature search the Test of Environmental Supportiveness (TOES) is the only occupational therapy assessment tool found for assessing the play environment.⁽⁴³⁾

The TOES was developed by Bundy to assess those factors of an environment which have the potential to support play.⁽⁴³⁾ Bundy identified these factors to be: “caregivers as play models, playmates, objects to play with, play space and the sensory environment.”⁽⁴³⁾ Although no other tests (except for the TOES) could be found for measuring the effectiveness and appropriateness of the play environment, some authors have stipulated important environmental aspects when encouraging play as an occupation. Farver, Kim and Lee⁽⁴⁴⁾ mention similar factors included in the TOES (space to play, objects to play with, adult behaviour and attitude and play mates) as elements influencing children’s play, but add “time to play” and do not mention the sensory environment. Sturges⁽²¹⁾ confirms that physical resources and sufficient time to play are crucial for creating a supportive play environment and adds these aspects to her “sandcastle diagrammatic model of play”. Munier, Myers and Pierce⁽⁴⁵⁾ mention that characteristics of play objects as well as the physical environment have the greatest effect on development. However, they focus more on the skills the child acquire through exploration of space and do not provide guidelines for providing an optimal space. Environmental elements indicated by the TOES and confirmed by the above mentioned authors as influential to play (play objects, the role of the caregiver as play model and facilitator of play, the sensory environment, physical space and time structured for play) are discussed in the following sections.

2.4.1.1 Environmental factor: Play Objects

Du Bois defines toys as “the media for play.”⁽⁴⁶⁾ Toys include any objects that a child can use in play and do not only include commercially manufactured toys, but also every-day household objects and non-toy playthings.⁽⁴⁵⁾ For the purpose of this study, “play objects” refers to any objects in the environment that are safe for the child to handle and that are available for the child to play with, regardless of size or initial intended purpose.

There is agreement in the international literature that a variety of safe, age-appropriate toys and objects that the child can manipulate are beneficial to children's play development.^(47,48) However, limited specific criteria could be found in literature to measure adequacy and appropriateness of toys in the context of a developing country.

According to the minimum standards for day care centres in South Africa contained in the Guidelines for Early Childhood Development (ECD), published in 2006 by the South-African Department of Social Development and the United Nations International Children's Fund (UNICEF)⁽¹⁰⁾ "There should be enough equipment and resources that are developmentally appropriate for the number of children in the centre" and "There must be enough age appropriate indoor as well as outdoor play equipment and toys, books and printed material..." However, no further guidelines are set as to what "developmentally appropriate toys" and "resources" entails and no measures are provided on how much equipment is "enough".⁽¹⁰⁾ The guidelines also state that outdoor equipment must be provided at all day-care centres. No criterion is provided as to what is deemed "appropriate" or "enough."

The main aspects identified as crucial facets to consider when evaluating play objects in an environment are: diversity in objects, objects encouraging various aspects of development and providing age-appropriate challenges. These aspects could therefore be used when developing criteria and are discussed in more detail in the following paragraphs.

There is agreement in the literature that there should be a variety of toys available to pre-schoolers and that diversity in play objects is of key importance to encouraging and stimulating play.^(45, 47,49) A study done by Bradly in Myoungsoon⁽⁴⁸⁾ indicates that variety in materials does not only motivate children to play, but also that parents who provide their young children with a greater variety of toys are more likely to be involved in their children's play activities.

A study done by Bundy, Lockette, Maughton, Tranter, et al⁽²⁰⁾ illustrates how adding a few simple play objects to children's play environment can make a difference to their pattern of play. A number of loose pieces of play equipment was introduced to a playground and the study investigated the effect these new pieces of play equipment had on children's playfulness. Twenty children between the ages of five years and seven years, attending a mainstream school participated. Equipment included a bag filled with balls, skipping ropes and a climbing frame. They found a significant increase in the playfulness of the sample of these children over the eleven weeks. Teachers observing these children all agreed that the children's play had become more creative, that fantasy

play and social cooperation increased, that less aggressive behaviour was observed and that children were more active.

Ziviani and Rodger⁽⁶⁾ state that lack of equipment is not necessarily a barrier to play. According to them, children with limited access to special equipment tend to make do with what is available and play becomes spontaneous and carefree, fed by their imaginations. On the other hand, Pierce⁽⁵⁰⁾ found that play objects found in westernized, American homes mostly comprised of commercial toys. This caused the children to spend less time playing with everyday household objects, like windows, furniture, cookware and plastic-ware.

Lindell⁽⁵¹⁾ also found that providing children with novel play objects does not always contribute positively to their play behaviour. Lindell investigated the effects when children in 16 South African day care centres were provided with toy-enrichment packages consisting of educational toys. Changes in social interaction and play patterns were observed after the introduction of the toy packages but these changes were not always positive. Social play was especially affected and children engaged in more solitary play after being introduced to the toy packages. This study emphasises the dangers of not considering cultural elements when planning play-environment intervention.

Play objects should include objects which promote motor, language, creative and cognitive development and therefore should take various aspects of development into account.⁽⁴⁷⁾ It is known that children develop spatial skills by interacting with objects and learning to manage the relationship between themselves and the environment around them.⁽⁴⁵⁾ Toys should therefore also encourage discovery of the world and the self⁽⁵²⁾ and play space and materials should provide a variety of sensory experiences, objects to manipulate and “just-right-challenges.”⁽⁵³⁾ However, as mentioned above, objects do not need to be manufactured primarily for this purpose and the term “play objects” is not limited to expensive, store-bought toys but can also include everyday household objects and non-toy playthings.⁽⁶⁾

The study by Lindell⁽⁵¹⁾ was the only literature source found on the need and use of play objects in South Africa, where play objects might differ drastically from a European context.

In conclusion, there is agreement in the literature that a variety of safe, age-appropriate toys and objects encouraging various aspects of development are beneficial to children’s play.^(48,53) These play objects do not have to be typical manufactured toys, but can include various household-objects

and non-toy playthings. Although variety in objects is beneficial to children's play behaviour, cultural needs and influences should be considered when judging appropriateness of toys and equipment.⁽⁵¹⁾

2.4.1.2 *Environmental factor: The role of the caregiver as play mate and facilitator of play*

A study done on the teacher's role in play in the preschool setting found that teachers do have a role to play in giving play developmental and educational significance.⁽⁵⁴⁾ An optimal play setting will be one where children feel safe, know the boundaries and rules and experience acceptance.⁽²²⁾ During play, teachers can contribute to creating such an environment by organizing play objects and space and setting rules.

A number of studies have shown that facilitation of play by trained staff, or caregivers of children with disabilities, has a positive effect on their functioning.⁽⁵⁵⁾ A study by Okimoto in Bundy et al⁽²⁰⁾ found that enhanced parental communication had a positive effect on the playfulness of the children. A study focusing on the effects of caregiver facilitation of play on the play of twenty-six institutionalized orphan children between ten and thirty-eight months of age found that these children demonstrated more developmentally-appropriate play when caregivers were facilitating play than when this was not the case.⁽⁵⁶⁾

This emphasizes the importance of appropriate adult facilitation, especially in more vulnerable environments like orphanages and day-care centres. Gosso⁽⁵⁷⁾ states that play is not a priority for parents in rural or low-income societies. These parents do not encourage play and other children are usually the play partners of their children. On the other hand, the more demanding working hours of modern-day parents, cause these parents to have less time to play.⁽²¹⁾

The TOES, mentioned under "assessment of the play milieu", include the following criteria relating to the caregivers' attribution in the environmental supportiveness of play:

- Do caregivers promote player's activities and opportunities? (under this heading eight qualitative descriptions are given of what this could entail, e.g. whether the caregiver responds to the players; cues and whether she shows respect for the players).
- Do caregivers adhere to consistent boundaries or rules?
- Do caregivers adhere to reasonable boundaries or rules? This implies that there must be adequate boundaries to make the player feel safe, it must not involve a power-struggle, there must be flexibility where appropriate and the opportunity for the player to exercise choice with regard to objects, games and space must be provided.⁽⁴³⁾

In summary, caregivers have an important role to play in facilitating and stimulating play. When caregivers set boundaries that are consistent, yet flexible enough not to inhibit the players' choices and spontaneity, they can contribute positively to the play experience. However, not all parents and caregivers accept or fulfil this role. This has been found to be a result of cultural beliefs as well as lifestyles of busy parents.

2.4.1.3 *Environmental factor: The sensory environment*

According to Ayers,⁽⁵⁸⁾ children need ample opportunities for sensory exploration to develop adequately. Sensory input facilitates nervous system development and adequate sensory input is needed for the normal and optimal development of the Central Nervous System.⁽⁵⁹⁾ During the early childhood years (around two years old), children often crave extreme sensory experiences and seek out proprioceptive and touch input and repetitive vestibular and tactile inputs that have an organizing effect on a child's sensory system.⁽⁴⁾ The play environment should include opportunities for adequate play to provide proprioceptive-, tactile-, olfactory-, auditory-, visual- and vestibular-input.^(58,60) Davin, Orr, Marais and Meier⁽⁶⁰⁾ indicate that a play area should include space for movement as well as cosy places for children to spend time alone.

Because of safety concerns, modern day children spend less time outside in a variety of play spaces than before.^(20,21) This has caused a decrease in sensory experiences.⁽²¹⁾ Children need to be able to carry a skill they have learned in a controlled environment (for example jumping between two blocks as part of a game or exercise at school) into the real world (for example jumping over a rain-puddle). However, denser populated, urban environments have reduced these opportunities.⁽²¹⁾ The TOES, mentioned earlier, includes only one item relating to the sensory environment, simply stating that: “(the) sensory environment (should) offer adequate invitation to play.”⁽⁴³⁾

Children's sensory needs vary and a child's sensory needs will also fluctuate throughout the day depending on the time of day, weather conditions and the child's mood, with fatigue and hunger also having an influence.⁽⁶¹⁾ It is therefore difficult to establish criteria for measuring the appropriateness of the sensory environment when not referring to a specific child. An assumption can, however, be made that sensory experiences should be freely available in the play environment and should include movement-, proprioceptive- tactile-, visual- and auditory input.

2.4.1.4 *Environmental factor: Physical space*

A variety of studies have shown that restricted floor space influences a child's development negatively.⁽⁴⁵⁾ According to Sturgess,⁽²¹⁾ safety concerns of parents in our modern world have caused a decrease in children's play space and children are permitted less time to play outside. Children's opportunity for play in non-conventional play-spaces like forests have been notably reduced.⁽²⁰⁾ A study done by Smith and Conolly, in Smith⁽⁶²⁾ found that toys provided had a bigger effect on play than the space available, except in the area of physical activity where a decrease in physical space resulted in a reduction of physically vigorous activity.

Guidelines for the amount of space required in Early Childhood Centres (including daycares and crèches) are available in the Guidelines for ECD Services published by the South African Department of Social Development and UNICEF⁽¹⁰⁾ and according to these, there should be at least one point five square meters of indoor play-space per child and two square meters of outdoor play-space per child. They do not differentiate between different age-groups. The TOES includes only one item in the test relating to the amount of physical space necessary and does not provide more detail on what would qualify as appropriate or sufficient space. The item reads: "amount and configuration of space support activity of player."⁽⁴³⁾

It is not only the amount of space, but also the organization of the space that influences children's play. Proper organization of play space can be beneficial to play^(47,63) as it can assist children in focussing their attention for longer, including friends in their play and in engaging in play for longer.⁽⁴⁷⁾ According to Doctoroff this entails dividing play spaces into separate areas by using physical boundaries as well as a well-planned arrangement of play space and materials.⁽⁴⁷⁾ Doctoroff does not elaborate on what could constitute a well-planned space. Trawick-Smith advises a logical arrangement of space, an open plan design and "stimulus shelters."⁽⁶³⁾ He gives more detailed and practical information on what this entails, stating that centres with similar noise-levels should be grouped together, less active areas (like reading corners) should be placed away from busier areas and there should be defined spaces for particular play activities like fantasy play and block play.⁽⁶³⁾ Low shelves can be used to divide areas and there should be sheltered areas where children can escape to when the classroom feels too active or noisy (stimulus shelters).⁽⁶³⁾ Dempsey and Frost in Doctoroff⁽⁴⁷⁾ agrees that dividing play spaces into separate areas, by using physical boundaries, helps children to focus on materials and to organize play.

Although little specific measurements for physical space were available in international literature, the South African Guidelines for ECD Services published by the South African Department of Social Development and UNICEF⁽¹⁰⁾ provide valuable specific measurement criteria. There is also agreement in the literature that the organization and division of space, i.e. providing a variety of play spaces catering for various sensory preferences and types of play, is important. There is also agreement that outdoor play is important and that it does not only provide for adequate physical play, but also provides more opportunities for sensory exploration and messy play.⁽⁶³⁾

2.4.1.5 Environmental factor: Time structured for play

According to the National Guidelines for ECD Services published by the South-African Department of Social Development and UNICEF in 2006,⁽¹⁰⁾ children should be “provided with appropriate developmental opportunities and effective programmes to help them to develop their full potential.” The guidelines also state that a day should be structured and planned to include a variety of activities. Plans should include some routines, for example being welcomed on arrival, toilet time and resting time.

The guidelines state that each day should include:

- Physical activities (including gross-motor and fine-motor activities);
- Creative activities;
- Talking and listening activities (e.g. story-reading);
- Activities to develop intellectual abilities;
- Opportunities for imaginative play;
- Opportunities for rest and quiet play.

According to Gosso,⁽⁵⁷⁾ time structured for play is one of the most important factors contributing to cultural differences in play. Children from low-income families often have less time available for play as they have many other responsibilities, like domestic chores, that fill their day.

It is clear that scheduled play time should be structured within a child’s day and that a child’s day should provide time for different kinds of play, including motor play and more sedentary and intellectual play. However, the amount of time children play will depend on their cultural environment and the way their caregivers view play.

It is furthermore clear that the social and physical environment cannot be ignored when dealing with child development and child-wellness.⁽⁴²⁾ This raises the possibility of using the environment

as a treatment modality, when focussing on children's play performance. Hamm⁽¹³⁾ emphasises this by stating: "...the goal of enabling playful interactions requires occupational therapists to look beyond skill development and examine the role of the environment as it supports or inhibits playful interactions."

2.5 Identifying types of play and applying this framework to the play environment

The research aims to investigate the appropriateness of the play environment in crèches, specifically related to child development. As this literature study in part aims to identify criteria for measuring the play environment based on the type of activities that should be encouraged and catered for, it is necessary to gain an understanding of how children's play develops.

2.5.1 Establishing Types of play

Various authors have established stages or types of play. While most authors hypothesize their play types as taxonomies of play with types of play occurring during certain developmental stages,^(16,18,64) some authors simply distinguish between areas of play without limiting it to certain ages.⁽⁶⁵⁾ Some sources directly link types of play to the types of objects or toys that should be available.^(46,47,49) As many authors draw such close associations between play and developmental stages,⁽¹⁵⁾ the lines between play development and child development become blurry and these play categories can be viewed as vehicles for the development of certain childhood skills. However, the reasoning remains that a typical developing child will progress through, or participate in all of these stages or categories through his/her developmental "journey." The following paragraphs provide a more detailed account of the scope of play activities that children engage in throughout their pre-school years with the aim of providing a framework for play-categorization that will be referred to in the methodology.

Piaget's taxonomy of play (cited in Parham) describes play in three stages: *practise games*, *symbolic play* and *games with rules*.⁽¹⁸⁾ Practise games refer to "reproductions of actions for the sake of exercising power over the environment." In practise play a child creates motor sequences that he "repeats for the sake of play".⁽⁴⁵⁾ Symbolic play involves the use of "objects as symbols" (e.g. using a block as a phone) and evolves around two years of age.⁽³⁷⁾ It involves drama and fantasy.⁽³⁷⁾ During the "games with rules" stage, rules, mastery and social interaction become important.

Reilly was one of the first occupational therapists to write about play.⁽⁵⁶⁾ Reilly^(18,66) also expressed hierarchical stages of play, namely “*exploratory behaviour, competency behaviour and achievement behaviour.*” Exploratory behaviour refers to play in new situations.⁽⁶⁶⁾ It stems from a curiosity about the environment and there is an emphasis on sensory experience. A safe environment builds trust in a child and encourages exploration.^(18,66) Exploratory play refers to experiences during which the child forms the basis for the development of body scheme and sensory integration as well as discovering the characteristics of human and non-human actions.⁽¹⁶⁾ Competency behaviour is characterized by “effectance motivation” referring to “an inborn urge towards competence.” This type of play is driven by interaction with the environment.⁽¹⁸⁾ Achievement behaviour is linked to “expectations of success or failure” and involves competition,^(18,66) therefore making it similar to “games with rules.”

Takata⁽⁶⁴⁾ categorizes play stages as follows:

1. **Sensory-motor play** (zero to two years), revolves around the individual and starts with sensations and motor actions directed towards the child himself.⁽⁶⁴⁾ It includes practising simple motor skills, basic problem solving, copying behaviour and hide-and-take games.⁽¹⁸⁾
2. **Symbolic and simple constructive play** (two years to four years), refers to the Piagetian definition of symbolic play⁽⁶⁴⁾ (see page 25) and now involves some parallel play with peers. Children will build simple constructions e.g. with blocks.⁽¹⁸⁾
3. **Dramatic, complex constructive and pre-game play** (four to seven years). When play becomes increasingly imaginative and toys are now shared between peers. Sorting small objects and putting things together are typical of this stage and language also plays a more important role as the child enjoys speaking about his experiences and enjoys rhymes and songs.⁽⁶⁴⁾
4. **Game play** (seven to twelve years). Rules are now introduced and mastery becomes important.⁽⁶⁴⁾ Social cooperation during play is now important (cooperates with peers in organized activity).⁽¹⁸⁾
5. **Recreational play** (twelve to sixteen years). Play now becomes a means to strengthen and develop skills and team sport are common.⁽⁶⁴⁾ (For the purpose of this study recreational play will not be discussed further as the study involves children up to six years of age).

According to Garner and Bergen,⁽⁶⁵⁾ play is often categorized as:

- object play,
- motor play,
- social play and
- symbolic play.

Case-Smith⁽⁴⁾ identifies play from birth to six years as follows:

- exploratory play,
- social play,
- functional play (the use of toys according to functional purpose),
- relational play (early fantasy play),
- gross motor play,
- symbolic play,
- rough and tumble play,
- pretend play,
- games with rules,
- constructive play,
- dramatic play (elaborated pretend-play).

Pratt in Morrison and Metzger⁽¹⁶⁾ describes stages of play as:

- exploratory play (zero to two years),
- symbolic play (two to four years),
- creative play (four to seven years) and
- games (seven to 12 years).

Creative play, as mentioned above, refers to “experiences through which a child...explores combinations of actions on multiple objects; and develops interests and competencies that promote performance of school-related work-related activities”.⁽¹⁶⁾

When considering “types of play” mentioned in literature, researchers often use play stages to divide toys into types as presented in the following paragraphs.

According to Doctoroff⁽⁴⁷⁾ play objects should include objects that promote the following areas of development:

- motor,
- language,
- creative and
- cognitive.

Du Bois⁽⁴⁶⁾ mentions the following areas of development that should be promoted by toys:

- sensory-motor,
- manipulation,
- movement in space and
- self-care skills as aspects promoted by toys in the early childhood years.

According to Gartland,⁽⁴⁹⁾ pre-schools should provide toys that encourage:

- gross-motor play,
- fine-motor play,
- visual-motor play,
- language and concept development,
- imaginary and symbolic play and
- sensory exploration.

Bronson⁽⁷⁷⁾ gives a summary of play objects necessary for child development at different ages.

However, her list is quite specific and caters mostly for higher income groups, or Western societies where commercial toys are freely available. In her recommendations for “the right stuff” for toddlers and pre-schoolers to play with, she categorizes appropriate play objects as follows:

- Exploration and mastery play objects
 - Including grasping toys, construction materials, manipulation materials, puzzles, stringing or lacing materials, pattern-making materials (like peg boards), skill developing materials (fit-in toys, pop-up toys) and books. It can therefore be stated that her categorization includes skills necessary for fine motor development in the “exploration and mastery” category,
- Music, art and movement materials
 - Including art and craft materials, musical instruments and audio-visual material (dancing to music),

- Gross-motor materials
 - Including push and pull toys, balls and sport equipment, ride-on equipment, outdoor and gym equipment,
- Social and fantasy play objects
 - Including role play objects, puppets, stuffed toys/play animals, play scenes, mirrors, dolls and transportation toys (e.g. play cars).

Although not directly included in her categories of play objects, Bronson⁽⁷⁷⁾ also mentions the following abilities and interests emerging through play in the early years:

- Motor development
 - Including gross motor and fine motor development,
- Perceptual cognitive development
 - Including the development of sensory discrimination, interest in numbers and quantities, literacy activities and matching activities,
- Social-linguistic development
 - Including an interest in dramatic play and group pretend play as well as books and listening to stories.

Bronson's classification combines developmental stages, types of play, types of play objects and specific examples of play objects. For the purposes of this study, the specific examples of play objects (puzzles, stringing or lacing materials, books, puppets, soft toys, mirrors, transportation toys and play scenes) will not be included in the further identification of play object categories.

From the above listing it is clear that there is a variety of types of play and types of play-object's hypothesized in literature and that, although the terms differ according to every author, the definitions often differ or overlap.

The researcher combined the types of play into summarized groups, by clustering similar definitions (see Table 2.1). The purpose of this was to structure the literature search and discuss similar play-types under the same heading. In the methodology phase of the study the types of play are further grouped into categories for the purpose of developing criteria to measure the adequacy of the play objects at a crèche.

Table 2.1: Definitions of Types of Play as discussed in section 2.5.3

SENSORY MOTOR PLAY	Exploratory play Or sensory-motor play	Also termed sensory-motor play . ⁽⁴⁹⁾ It stems from a curiosity about the environment with an emphasis on sensory experience. ⁽⁶⁶⁾ During sensory-motor play the child forms the basis of body scheme, sensory integration and discovers the characteristics of human and non-human actions. ⁽¹⁶⁾ It revolves around the individual and starts with sensations and motor actions directed towards the child himself. ⁽⁶⁴⁾ It includes practising simple motor skills, basic problem solving, copying behaviour and hide-and-take games. ⁽¹⁸⁾
	Practise Behaviour	“Reproductions of actions for the sake of exercising power over the environment.” In practise play a child creates motor sequences that he “repeats for the sake of play.” ⁽⁴⁵⁾
	Sensory play	Lack of definition in literature, but for the purpose of this study will refer to any play that involves sensory exploration or sensory input. “Play that includes music, art and movement materials” ⁽⁷⁷⁾ will be included in this category.
GROSS MOTOR PLAY	Gross motor play	“Involving large muscle activity”. ⁽¹⁶⁾
	Rough-and-tumble play	“It involves wrestling, grappling, kicking, tumbling and rolling on the ground, and chasing”. ⁽¹⁶⁾
	Movement in space	There is no specific definition in literature for “movement in space” play. For the purpose of this study it is defined as: Play involving any movement in space (active or passive movement).
FINE MOTOR PLAY	Fine motor play	Used interchangeably with the terms fine motor coordination and dexterity and refers to the use of the hands to participate in activities. It involves an interaction of hand skills, postural mechanisms, cognitive abilities and perceptual skills. ⁽⁶⁷⁾
	Manipulative play	Involves exploration of toys through the senses and is important for the development of eye-hand coordination, fine movements and sensory development. ⁽⁶⁷⁾ This type of play also fits under sensory-motor play, as it involves exploration through the senses.

VISUAL MOTOR PLAY	Visual Motor play	No definition for visual-motor play could be found in the literature. “Visual-motor integration” is defined as “the degree to which visual perception and finger-hand movements are well coordinated.” ⁽⁶⁸⁾ The term “visual-motor development” is used for any movement or task where the child applies both visual skills and movement, either on a gross motor or fine motor level (e.g. kicking a ball, or building a tower with blocks. ⁽⁶⁸⁾ For the purpose of this study visual motor play is defined as play where a child uses a combination of visual perceptual skills and movements to accomplish a purpose. Movement refers to both gross motor movement and fine motor movement and visual motor play can therefore be grouped under either of these 2 categories.
CONSTRUCTION PLAY	Constructive play	“Manipulation of objects to construct or create something.” ⁽¹⁶⁾ Construction play objects involve any play objects that a child can use to “build or construct something.” They include “elements that can be put together or shaped into structures.” ⁽⁶⁹⁾
	Creative play	This refers to “experiences through which a child... explores combinations of actions on multiple objects; and develops interests and competencies that promote performance of school-related work-related activities.” ⁽¹⁶⁾
PRETEND PLAY	Functional play	The beginning of pretend play when children use objects for their intended purpose, e.g. pretending to drink from a cup. ⁽⁴⁾
	Pretend play	“Actions, objects, persons, places, or other dimensions of the here-and-now are transformed or treated non-literally.” ⁽¹⁶⁾
	Dramatic play or fantasy play	“ Acting out roles in a pretend games.” ⁽¹⁶⁾
	Symbolic	Involves the use of “objects as symbols” (e.g. using a block as a phone) and evolves around two years of age. ⁽³⁷⁾ It involves drama and fantasy. ⁽³⁷⁾
	Imaginary play	No specific definition was found in play-literature and it is grouped with pretend play.
OBJECT PLAY	Object play	Object play does not only involve interacting with objects, but also using objects to explore the environment, incorporating objects into mobile play as well as the “negotiation of space” therefore including all play involving objects or the environment. ⁽⁴⁵⁾

LANGUAGE PLAY	Language and concept development	No more descriptive definition for this type of play could be found in the literature.
	Social play	It involves interaction with others and can occur in groups of two or more. It typically involves two or more children engaging in some type of play with some kind of active conversation and interaction present between the children where they are settling roles and rules. ⁽⁷⁰⁾
PERCEPTUAL COGNITIVE PLAY	Specific skill-development toys	This category remains very vague. Although Bronson defines it as play objects that encourage a variety of skills, she does not clearly define the nature of these skills, except to mention a variety of examples. These examples are included in the classification of perceptual-cognitive play objects, fine motor play objects and cause and effect play objects. ⁽⁷⁷⁾
	Perceptual-cognitive	While this is not specifically defined in the literature Bronson states that it includes objects that encourage the development of sensory discrimination, interest in numbers and quantities, literacy activities and matching activities, in other words, school-readiness skills aimed at perceptual and concept development. ⁽⁷⁷⁾
	Cognitive	Due to the lack of a clear definition for cognitive play (in the context used by Doctoroff) it is taken to refer to any play that encourages cognitive development for purposes of this study.
GAMES WITH RULES	Achievement behaviour	“Those (games) guided by explicit rules”. ⁽¹⁶⁾ Linked to “expectations of success of failure” and involving competition. ⁽¹⁸⁾
	Games with rules/ Game play	Rules are introduced in play and mastery becomes important. ⁽⁶⁴⁾

2.5.2 A play environment that caters for all types of play

Now that a framework for play development has been established, it can safely be concluded that the various environmental factors of the play environment (i.e. play objects, the role of the caregiver as play model and facilitator of play, the sensory environment, physical space and time structured for play) should encourage and provide for all the areas of development identified in Table 2.1.

As mentioned in sections 2.4.1.4 and 2.4.1.5 criteria for play time and play space in crèches have been established in the National Guidelines for ECD Services published by the South-African Department of Social Development and UNICEF in 2006.⁽¹⁰⁾ As the guidelines state outdoor play space as a pre-requisite,⁽¹⁰⁾ the need for space allowing for gross motor play is clearly called for. It also states that there should be separate spaces for e.g. fantasy play and story-reading,⁽¹⁰⁾ thus making provision for a variety of types of play within one classroom. In terms of time to play the guidelines make provision for physical activities, creative activities, talking and listening activities, activities to develop intellectual abilities, opportunity for imaginary play and opportunities for rest and quiet play.⁽¹⁰⁾ In summary the guidelines provide for all the types of play identified in Table 2.1, applicable to the age groups (as these types of play can all fit into one or more of the developmental areas mentioned). The scope of this study does not include setting criteria for the sensory environment as a separate environmental factor at crèches, although the sensory aspects of the environment will be included to some extent when looking at play objects.

However, no criteria have yet been identified for measuring the adequacy of play objects in crèches. While it is clear that diversity of toys and developmental appropriateness of toys are crucial factors to consider, no practical guidelines have been established to measure whether toys are developmentally appropriate and diverse enough. The types of play identified in Table 2.1 can provide a valuable framework to develop practical guidelines or measuring criteria related to play objects in the play environment at crèches.

2.5.3 A framework for measuring the adequacy and appropriateness of play objects in crèches

In the following section the types of play are explored further according to the following headings (as identified in Table 2.1): sensory-motor play/explorative play, construction play and play developing cognitive abilities, gross motor play, fine motor play, pretend play, games with rules, social play, language and concept development.

According to Munier, Meyers and Pierce,⁽⁴⁵⁾ object play does not only involve interacting with objects, but also using objects to explore the environment, incorporating objects into mobile play as well as the “negotiation of space.” According to them, the foundations of adult interaction are laid during the early interaction with objects and space. It can thus be concluded that object play cannot be separated from other types of play and play categories and that incorporating object play into the above-mentioned categories is appropriate.

2.5.3.1 *Sensory-motor play*

Sensory stimulation is one of the key factors in the development of the neural system. Without adequate sensory input during the childhood years, the nervous system will not develop to its full potential.⁽⁵⁹⁾

Babies rely fully on their senses to tell them about the world around them.⁽⁷¹⁾ The tactile sense is an important manner of exploration in the early years and infants begin to grasp and explore objects with their hands at about three months.⁽⁷⁷⁾ Babies enjoy teethers, cloths, or plastic discs that they can squeeze and mouth and babies will place toys in their hands and mouth them to explore their sensory characteristics up to the age of six months.⁽⁴⁾ Objects should therefore be easy to grasp from various angles and should be bright to attract infants attention.⁽⁷⁷⁾ McCall, in Eugenio, studied the exploratory play of babies with ages ranging from eight and a half months to eleven months and found that they sought out toys that changed shape or made a noise when manipulated, in other words, cause-and-effect toys.⁽⁷²⁾ Toys that have a specific characteristic (e.g. that can roll, bounce or fit together) are also attractive during the infant years.⁽⁷²⁾ During “sensory-motor play”, objects that provide sensory experiences like rattles, nestling blocks, chimes and large blocks are therefore suitable,⁽⁷³⁾ as well as toys that provide a reaction to manipulation as well as opportunities for exploring interesting characteristics.

Auditory stimulation is also important and infants as young as between seven and twelve months already enjoy experimenting with making sounds by banging or shaking objects.⁽⁷⁷⁾ From fifteen months onwards children can enjoy musical instruments like bells and rattles. Recorded music is also appropriate from this age.

Forbes⁽⁷¹⁾ describes the importance of the maturation of the vestibular system in the development of balance and coordination as well as maintaining a calm-alert state of arousal necessary for attention and concentration. She suggests using hammocks, swings and roundabouts to stimulate the vestibular system. Swinging and sliding are popular playground equipment and offer motion-play experiences for children that provide vestibular stimulation.⁽⁶³⁾ Propelling one-self in a swing and adjusting the body to maintain balance while moving, develops integration of the visual, vestibular and proprioceptive systems.⁽⁶³⁾ However, the vestibular system is not the only system needing stimulation. DuBois⁽⁴⁶⁾ also emphasises the importance of toys stimulating the proprioceptive, tactile and auditory senses.

2.5.3.2 *Construction play and play for developing perceptual-cognitive abilities*

Construction play refers to the “manipulation of objects to construct or create something.”⁽¹⁶⁾ Construction play objects involve any play objects that a child can use to “build or construct something.” They include “elements that can be put together or shaped into structures.”⁽⁶⁹⁾ According to the Piagetian perspective, “cognitive development beyond age seven draws from constructive play before age seven.”⁽⁶⁹⁾ This type of play supports bringing objects together into patterns, sequences and systems. DuBois⁽⁴⁶⁾ agrees that construction play does not only increase cognitive skills but also motor skills and contribute to the development of motor planning. Adults can encourage this development by valuing time for constructive play and encouraging children to plan before building.⁽⁶⁹⁾ According to Bryze,⁽⁷³⁾ toys that promote manipulation and simple taking-apart and combining again are appropriate to promote simple constructive play. According to Bronson,⁽⁷⁷⁾ children as early as six months, can start engaging in simple construction play by stacking two wooden blocks on top of each other. During the early toddler years, pieces that can be randomly pressed together and that do not depend on accuracy, are most appropriate.⁽⁷⁷⁾ Between two and three years, children start participating more readily in construction play and various construction materials are appropriate.⁽⁷⁷⁾ As children enter the third year of life creative manipulative materials like clay and finger-paint⁽⁶⁵⁾ and raw materials like water, sand and clay⁽⁷³⁾ become important construction play objects. At four years of age, interlocking blocks as well as any other objects that can be linked or connected, become appropriate.

Newson and Newson⁽⁷⁴⁾ state that “thinking and experimenting toys” are most successful during the early toddler years when presenting the child with a problem to solve. “Fitting toys” are good examples of this and present a challenge on a cognitive and physical level. Between eighteen and twenty one months children become interested in fitting things into other things and taking toys apart. Between eighteen months and two years toys like simple fit-in puzzles and nesting materials become appropriate.⁽⁷⁷⁾ Simple matching can also be introduced at that age.⁽⁷⁷⁾

During the older toddlers years (between two years and three years), children start experimenting with pattern-making. Toys like peg-boards, colour forms and shapes encourage this.⁽⁷⁷⁾ At four years of age more complex pattern-making happens during play and smaller pegs and shapes can be used.⁽⁷⁷⁾

At the age of four to five years children become interested in sensory discrimination activities, simple number and size activities and matching. Pre-school children enjoy educational toys and

games that involve copying, matching and sorting. This includes toys that teach colour, shape and number concepts.⁽⁷⁵⁾ Johnson⁽⁷⁶⁾ includes the following materials as appropriate and necessary during the pre-school years, with specific reference to perceptual and cognitive development:

- Matching, sorting or ordering materials,
- Objects that require problem-solving to open,
- Counting and numbering materials,
- Measuring materials,
- Clocks,
- Simple science experiments (e.g. sink or float objects, mixing paints)
- Objects from nature
- Print materials

2.5.3.3 *Gross motor play*

The following paragraphs will discuss the gross motor development of children, related to object play.

Infancy:

Gross motor equipment is not appropriate for play during the infant years⁽⁷⁷⁾ as gross motor play during infancy starts with “rhythmic stereotypes” (gross motor actions without a specific function, e.g. rocking) and does not require any specific gross motor equipment⁽⁶²⁾ However, push-and-pull toys are appropriate from as early as seven months for encouraging mobility.⁽⁷⁷⁾

Young toddlers:

According to Munier, Myers and Pierce,⁽⁴⁵⁾ transportable objects encourage mobility during the time that the child learns to crawl and walk and include things that children can carry, ride on or pull across a surface. Objects that a child can push or pull are already suitable at the age of twelve months; they should be large and easily movable across the floor, e.g. mounted on wheels.⁽⁷⁷⁾ Children between two and four years old enjoy play that provides intense sensory input and engages them in rough-and-tumble play. Such play involves wrestling, kicking and rolling.⁽⁶²⁾ Examples are games where the caregiver chases, rolls or tickles the child.⁽⁶²⁾ “Special spaces” provide opportunities for spatial exploration and include any large, stationary objects that offer the opportunity for negotiating the space and moving underneath, over, climbing on top or going around the object.⁽⁴⁵⁾

Balls can be given to young toddlers, but they should be soft and light-weight. Balls that provide other sensory input, e.g. with chimes inside are also appropriate for this age group.⁽⁷⁷⁾

Older Toddlers and pre-school children:

Children start throwing or tossing balls as early as eighteen months old. Larger and light-weight balls are appropriate.⁽⁷⁷⁾ From three years, children become interested in various catch and throw games. Balls of various sizes encourage children to explore the various properties and maintain their interest.⁽⁷⁷⁾

During the pre-school age, play progresses to “exercise play,” referring to gross movements like jumping and running⁽⁶²⁾ and children between four and five years old engage in climbing, hopping, running, skipping and chasing.⁽⁷⁵⁾

Gross motor play equipment and large adventure toys are important during the pre-school years for developing large muscle coordination⁽⁷³⁾ and these should include climbing equipment and “riding” equipment.⁽⁶⁵⁾ Climbing plays an important role in children’s development and children often learn to climb before they can walk and continue to enjoy climbing throughout their pre-school years.⁽⁶³⁾ Climbing develops perceptual motor skills, hand-eye coordination, balance, upper body strength and is also associated with emotions like fear, motivation and feelings of accomplishment. More complex climbing can even develop cognitive skills.⁽⁶³⁾ Soft surfaces encourage more physical activity than hard surfaces.⁽⁶²⁾

Toys involving movement in space assist in the transition from stability to mobility and promote large muscle development.⁽⁶²⁾ They also assist with sensory integration, as discussed in the sensory-motor paragraph.

When considering the above mentioned information, as well as the importance of outdoor play spaces, it is evident that outdoor objects including climbing and swinging equipment are crucial for a child’s gross motor and physical development. However, there are also numerous indoor objects that can encourage the development of gross motor skills, especially in young toddlers and pre-school years.

2.5.3.4 Fine motor play

According to Exner,⁽⁶⁷⁾ play in the early years depends greatly on fine motor skills. A baby starts with finger play during the first ten to twelve weeks.⁽⁶⁷⁾ At fourteen weeks a baby is able to hold a

toy while maintaining visual focus and at eighteen weeks a baby is typically able to reach for and grab a toy and take it to his or her mouth. By six months a baby will often bring objects to the mouth.⁽⁶⁷⁾ During this phase, “hand-to-mouth” toys that provide a comfortable grasp and are safe to put in the mouth are appropriate (e.g. rattles).⁽⁷⁴⁾ By nine months an infant enjoys poking its finger at small objects and at fourteen months a baby will enjoy taking objects from a container and putting them back.⁽⁶⁷⁾ Between twelve and eighteen months of age a good pincer grip develops.⁽⁶⁷⁾

During the toddler years, toys that can be manipulated develop fine-motor skills and the ability to use the hands and fingers functionally. They support the gradual development of pre-writing skills.⁽⁴⁶⁾ During the second year toddlers become more interested in taking things apart and putting them back together. Children lose interest in basic grasping toys and seek out more interesting and complex objects to grasp (e.g. knobs or switches).⁽⁷⁷⁾ Bronson calls this “specific skill development materials.” Examples of these materials include stacking rings, nested cups and busy boxes.⁽⁷⁷⁾ Children start engaging in dressing, lacing and stringing at the age of two, as the pincer grasp is now well developed and they can start using bilateral fine motor coordination.⁽⁷⁷⁾ This includes experimenting with dressing, including dressing dolls⁽⁷⁷⁾ between the ages of four and five years.

As children enter the third year, creative manipulative materials like clay and finger-paint and raw materials like water, sand and clay become important play objects.^(65,73) Fine motor skills of children aged between four and five years become more refined and stringing beads, drawing and colouring are preferred activities.⁽⁷⁵⁾

Hand skills that develop during the early childhood years include reach, grasp, carry, voluntary release, in-hand-manipulation and bilateral hand use.⁽⁶⁷⁾ Other factors that contribute to the development of fine motor skills include visual skills, somato-sensory functions, sensory integration, social factors (exposure to the use of scissors and other creative materials), culture (some cultures value the use of manipulative and constructive materials more than other cultures) and the physical development of the hand.⁽⁶⁷⁾

2.5.3.5 *Pretend play*

Children start engaging in fantasy play at the age of two years.^(31,45) During the early ages pretend play involves only the self, but later other objects, e.g. dolls, are included.⁽⁴⁵⁾ A study done by Fein, in Smith,⁽⁶²⁾ investigated the difference in pretend play of two-year olds when they were given miniature figures (for example play horse) compared to a figure vaguely representing an object (e.g. horse-like shape). Fein found that ninety three percent of the children imitated pretend play (e.g.

letting the horse drink water) when playing with the miniature figures, while only thirty-three percent initiated pretend play when playing with the less realistic figures. Sutterby agrees that realistic toy props encourage increased dramatic play for two to three-year olds.⁽⁶³⁾ Pretend play is clearly not at a symbolic level at this age and depends on the availability of objects.

At ages three to four years however, pretend play becomes more abstract and children often use an object to represent something else, e.g. 'n block becomes a car (symbolic play). Four-year olds prefer a combination of realistic and non-realistic objects to guide their play.⁽⁶³⁾ By the age of three years a child will include a friend during fantasy play and at the age of five role-enactment becomes important.⁽³¹⁾

According to Michelman, suitable toys during the make-believe and pretending stages should include dolls, housekeeping equipment, toy tea sets, family figures, transportation toys, a steering wheel, blankets and large cartons.⁽⁷⁸⁾ Toys promoting self-care skills provide opportunities for practicing life-skills like lacing, dressing and pouring.⁽⁴⁶⁾

The value of non-toy playthings should not be ignored. Non-toy playthings include all materials one would not traditionally list under "toys", but which evolve into toys as the imagination and problem-solving skills of the child improve (e.g. paper bags).⁽⁴⁶⁾ Equipment that is not prescriptive in terms of purpose (for example a cardboard box), stimulates children's imagination and creativity.⁽²⁰⁾ According to Ziviani and Rodger⁽⁶⁾ children with limited access to special equipment tend to make do with what they have and play becomes spontaneous and carefree, fed by their imaginations.

2.5.3.6 *Games with rules*

During the "games" phase games played with rules like dominoes and ping-pong and raw tools for making more complex products (e.g. weaving and woodwork) should be available.⁽⁷³⁾

2.5.3.7 *Social play*

In the first year of life, social play involves attachment to the primary caregiver. At one year, babies play games with their parents or caregivers and at two years children enjoy copying the behaviour of adults and other children.⁽⁴⁾ Around five years of age, children's play becomes increasingly social oriented.⁽⁴⁾

Children's social interaction can be affected by the types of play objects provided. While materials like puzzles, beads and crafts, sand and water encourage solitary play, fantasy props like dolls, dress-up clothes, cars as well as construction toys like blocks can encourage group and fantasy play.⁽⁶³⁾

2.5.3.8 *Language and concept development*

Although this has not been classified as a *type* of play, language develops through the process of play and according to Gartland, pre-school toys should include toys stimulating language and concepts.⁽⁴⁹⁾ According to Sutterby,⁽⁶³⁾ play objects facilitate story telling, in turn developing language. A strong relationship between play and language can be observed in children's pretend play as well as the way children play with language, e.g. when children play with the ambiguity of meaning, explore different sounds and invent new words.⁽⁷⁹⁾ Although language development through play can be associated with any kind of play that involves language interaction, books are especially useful in the development of language.⁽⁷⁹⁾

2.6 Culture & socio-economic status as influential factors of child development & play

Play is both influenced by and influential to culture.^(18,57) In his evaluation of play in various cultures, Gosso⁽⁵⁷⁾ concludes that children who are exposed to adult company and community events often copy adult behaviour during their pretend play. Play themes are strongly linked to adult occupations, making the cultural context an important consideration when investigating a child's play preferences. It is evident that the play environment cannot be evaluated without also considering the cultural and socio-economical context.

However, most studies on play have been done in Westernized settings,^(22,80) leaving a gap in play related research that is relevant to third-world countries. The following section discusses literature available on the influence of culture on play as well as play in the context of developing countries.

2.6.1 *Culture affecting play behaviour and opportunity to play*

The results of a study done by Farver, Kim and Lee⁽⁴⁴⁾ indicate that children's play is influenced by the cultural beliefs of their caregivers. They found that Anglo-American mothers view play as an important tool in learning and development, while Korean mothers living in America are more likely to view play as amusement, or a way to overcome boredom. These Anglo-American mothers

are more likely to engage in pretend-play with their children than the Korean mothers. A study done by Farver and Wimbari's, in Farver, Kim and Lee,⁽⁴⁴⁾ found that American fathers who perceived play as educational were more likely to engage their children in play that involved books and puzzles, while the fathers who only perceived play as being entertaining and fun were more likely to play rough and tumble games with their toddlers.

In a qualitative study, Bazyk, Stalnaker, Llerena, Ekeman and Bazyk⁽⁸⁰⁾ concluded that viewing play as a child's primary occupation is not necessarily a universally held belief. They found that parents of Mayan children did not necessarily encourage play, but would permit it, as long as it did not interfere with work. The Yucatan Maya people of Mexico viewed play simply as a distraction and children were expected to run errands from the age of three to four years.⁽⁵⁷⁾ However, children coming from environments where they are expected to work from a young age often amuse themselves inside the work activity, creating ways to play despite a lack of play-time.⁽⁵⁷⁾

The above-mentioned studies conducted in a variety of settings emphasise that caregiver attitudes regarding play vary across different cultures, influence the way children play and confirm that culture influences the play environment and children's play development. However, literature regarding the actual environmental conditions influencing play development in the developing world is very limited and out-dated. The only study found regarding toys and play space in the context of a developing country, was done by Lindell,⁽⁵¹⁾ as discussed in 2.4.1.1.

2.6.2 Early childhood development and day-care centres in South Africa

As part of the WCED performance plan for 2007- 2008,^(81,82) the WCED focussed on the importance of pre-school development, especially the attendance of grade R classes before starting grade one. The Department aimed to provide universal access to grade R for all children by 2010, as well as providing caregivers of children from birth to four-year with training concerning child development.⁽⁸¹⁾

It is clear that the development of caregivers' and teachers knowledge of pre-school children and their development needs is a critical need in South Africa. However, no research results could be found indicating the level of skill and knowledge of teachers at crèches and kindergartens in South Africa, or referring to the condition at crèches in a South African context. The standards provided in the National Guidelines for ECD Services published by the South-African Department of Social Development and UNICEF in 2006⁽¹⁰⁾ are generally vague and little practical advice is provided regarding relevant, realistic measures that can be implemented to improve the quality of services in

South African day care centres. Although an extensive search was done and various organizations specializing in ECD services and training were contacted, no booklet, brochure, or textbook could be found that provides teachers and caregivers with information on how to run an ECD program in a South African context.

2.7 Conclusion

The core assumption made by occupational therapists is that there is a link between meaningful activity and health, or well-being.⁽³⁾ It is clear throughout the literature that play is the primary occupation of the young child. This directs the study focus towards the importance of play, not only for developing cognitive and social skills, but also for promoting well-being and occupational meaning in the lives of children.

Occupational therapy has recently focused on the importance of the environment as treatment modality and influential factor of occupational performance.⁽³⁹⁾ The WHO has also highlighted the importance of environmental measurements when considering health interventions.⁽⁷⁾ This emphasises the importance of studying the environmental context of play before planning intervention strategies that focus on the improvement of child-development.

In reviewing the literature on this topic it becomes clear that limited recent literature has been published regarding the play-environment of the South-African child, specifically relating to physical space, preferred and available toys and attitudes and knowledge of caregivers and teachers regarding play. Although the literature widely acknowledges the importance of considering the environment when encouraging children's play, few specific criteria and practical guidelines are available on how to provide a favourable play environment or how to measure the adequacy of the play environment.

The following environmental factors were identified in the literature as influencing the play development of children: play space, play time, play mates (including caregivers as play models), play objects and in one source, the sensory environment. These factors will be used as a starting point for establishing measurement criteria for the play environment and subsequently evaluating the play environment at Macassar crèches. This process is elaborated upon in Chapter 3.

Chapter 3 – Methodology

3.1 Introduction

As indicated in Chapter 1 the purpose of this study is to identify criteria through a literature search that will serve as a guideline to measure the adequacy of play objects at crèches in South Africa and to use the identified criteria, together with the National Guidelines for Early Intervention, for describing and measuring the play milieu (relating to the care-giver child ratio and play time) at registered crèches in the Macassar area of the Cape flats. The methodology for addressing the study objectives stated in Chapter 1, is described below.

3.2 The Research Design

The research design is a quantitative, cross-sectional descriptive survey as it describes the current play environment at crèches in the Macassar area in measurable terms at a certain point in time.⁽⁸³⁾

Although there are some elements of an analytical study due to the fact that a categorization tool is used, the study remains descriptive in design as the units (in this case the environmental factors) selected were measured at a specific time without any manipulations.⁽⁸³⁾ The categorization therefore does not explore causation or correlations, but rather allows for a measurement of the adequacy of the play environment in quantitative terms at a specific point of time.

3.3 The Research Process

The research process was divided into two distinct phases. The first phase entailed identifying measurement criteria in the literature against which to measure the four environmental factors of play (play space, play objects, time allocated for play, caregiver-child ratio). The second phase entailed a quantitative survey of these environmental factors at crèches in the Macassar area for measuring the gathered data against the criteria established in the first phase. Figure 3.1 illustrates the execution of these two phases.

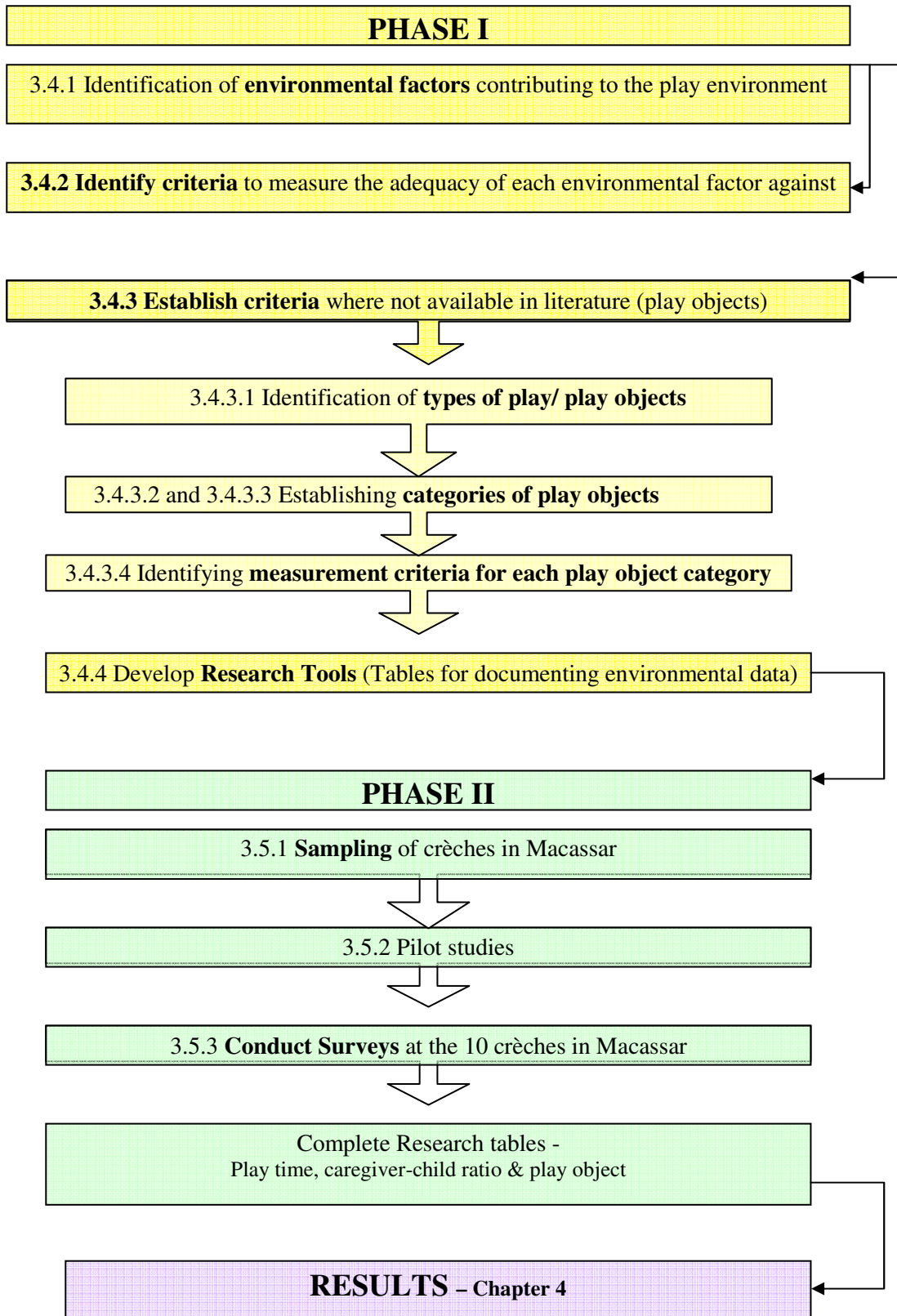


Figure 3.1: Presentation of Research Process

3.4 Phase I – Identifying measurement criteria

The process of identifying and establishing measurement criteria for the evaluation of the play environment at crèches, happened in four stages as presented in Figure 3.2.

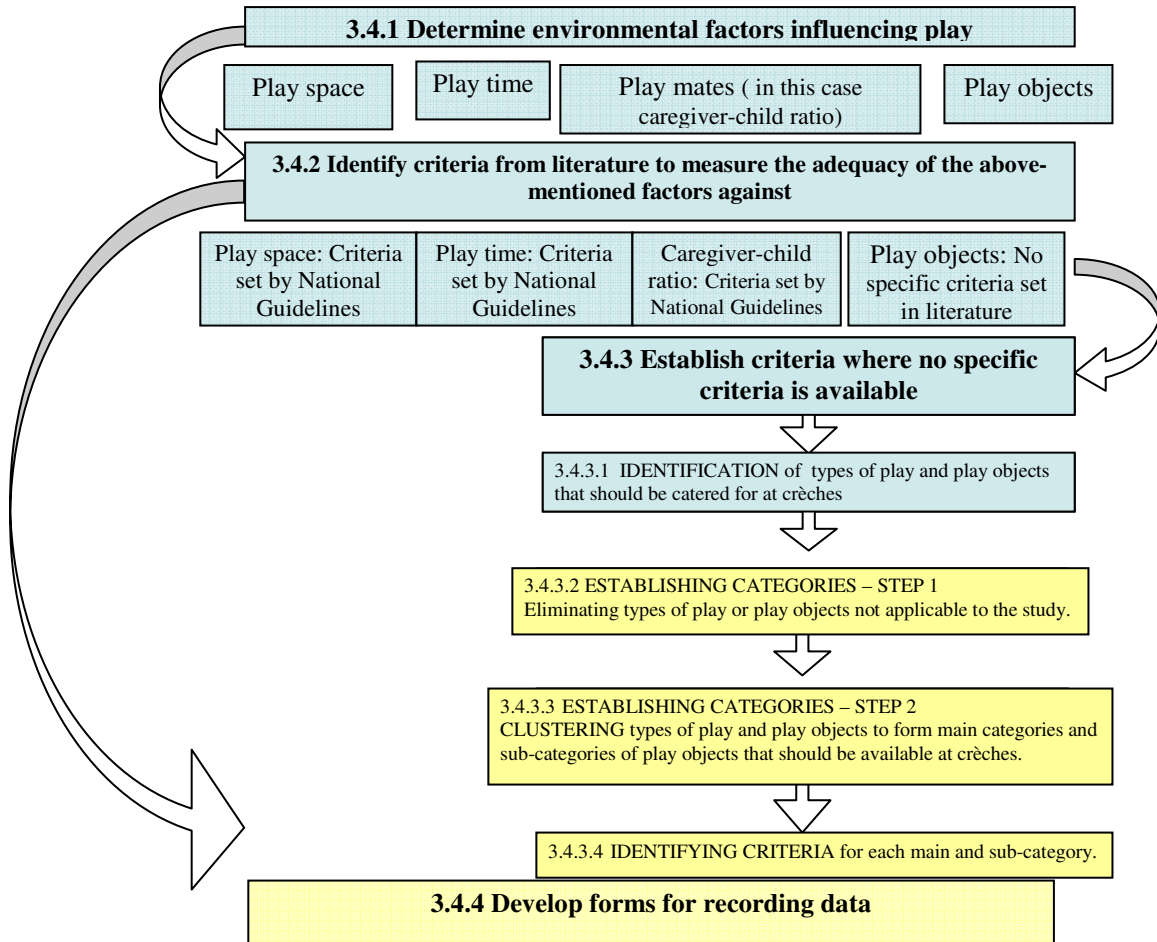


Figure 3.2: Visual representation of Phase 1

The first stage (identifying which environmental factors impact children’s play) took place during the literature review. These are summarize in section 3.4.1 below. The second stage (3.4.2) involves identifying criteria in the literature for measuring the adequacy of the environmental factors identified in 3.4.1.

However, no specific criteria for measuring the adequacy of play *objects* could be found in the literature and the third stage of Phase I therefore involves establishing criteria to measure the play objects at crèches. Section 3.4.3 discusses in detail how the researcher went about establishing criteria through a process of reviewing and organizing literature on play and play objects.

The end-product of the first phase includes tables for documenting and measuring the play environment at crèches. These tables are illustrated and discussed in section 3.4.4.

3.4.1 Identifying factors that influence the play environment

Time allocated for play, play objects, play-mates (including caregivers as play models) and play space are indicated in literature as the four key factors influencing the play environment. In order to measure the adequacy of the play environment, these factors need to be considered. The scope of this study only allowed for the caregiver-child ratio to be investigated in the study and the role of peers as play mates is not included. Section 2.4 of the literature review provides a detailed description of these environmental factors.

3.4.2 Identifying criteria that can be used to measure the play environment at crèches

Above mentioned environmental factors (play time, play space, play mates and play objects) provide a starting point for measuring the play environment. The question then has to be asked: how does one measure the adequacy of these factors to meet the developmental play needs of children at a crèche? When are the play time, space, objects and mates (in this case referring to the caregivers) adequate and when not? An extensive literature search was conducted to identify measurement criteria relating to the environmental factors mentioned. It was important that criteria were applicable to South African crèches specifically and that identified criteria were relevant in the context of a developing country. The following conclusions were reached.

3.4.2.1 Play space

Minimum criteria for physical space are set out in the Guidelines for Early Childhood Development Services, published by the South African Department of Social Development and UNICEF.⁽¹⁰⁾ According to the guidelines there should be at least one point five square meters of indoor play-space per child and two square meters of outdoor play-space per child. The criteria set in the guidelines are specific and relevant to South African crèches and are used by the Department of Social Welfare to determine the adequacy of play space at registered crèches. Registration of crèches

with the Social Department and Department of Health and Safety and earning a government subsidy depends on compliance with these guidelines. At the time of the study an environmental health practitioner from the Environmental Health Department (Helderberg office) was in the process of measuring the play space at the crèches and confirmed with the researcher that the registered crèches in Macassar complied with the applicable guidelines. It was therefore decided not to include measuring the adequacy of play space in this research study, as this would amount to duplication of measurement already done by the Department of Health and Safety (as this study only included crèches already registered with the Department of Health and Safety).

3.4.2.2 Play time

Some criteria for play time are set out in The Guidelines for Early Childhood Development Services.⁽¹⁰⁾ According to these guidelines, time must be allowed for gross-motor activities, fine-motor activities, creative activities, talking and listening activities, activities to develop intellectual abilities, opportunities for imaginative play and opportunities for rest and quiet play. However, the document does not state how much time should be allocated to each activity and the activities are also not defined in more detail. More detailed definitions were therefore established for each of the above-mentioned types of play by the researcher, as presented in Addendum B.

3.4.2.3 Play mates

As mentioned, this study does not investigate peers as play mates, but will include the caregiver-child ratio with the purpose of giving some reflection of the availability of caregivers as role models. As indicated in the literature review caregivers as play models fulfil an important role in the play development of children. While the scope of this study does not allow the researcher to delve deeper into the caregiver's knowledge about play and their interaction with the children attending their crèches, specific criteria relating to child-caregiver ratios are set out in The National Guidelines for ECD Services published by the South-African Department of Social Development and UNICEF⁽¹⁰⁾ and these ratios are used as criteria for measuring the child-caregiver ratio at the crèches.

According to these guidelines there must be:

- One caregiver for every six or fewer children aged from birth to eighteen months.
- One caregiver for every twelve or fewer children aged eighteen months to three years.
- One caregiver per twenty or fewer children aged three to four years.
- One caregiver for every thirty or fewer children aged between four and five years.

The criteria set in the guidelines are precise and specifically set for South African crèches and day-care centres and were used to measure whether the number of caregivers employed at the crèches is adequate. Although this is also monitored by the Health and Safety Department, the Department could not provide statistics regarding the number of children and staff members at the crèches and it was therefore decided to include these measurements in the survey.

3.4.2.4 Play objects

As no minimum requirements for play objects relevant to developing countries are available in literature, one of the objectives of the study is to set relevant guidelines. This is further elaborated on in the following paragraphs (Section 3.4.3).

3.4.3 Establishing criteria for the measurement of play object adequacy

As there is no “checklist” or specific guidelines available that indicate what is meant by “adequate play objects” there is a need to develop measurement criteria regarding the adequacy of play objects at crèches in a developing country. The literature review concluded that there should be play objects available at crèches to cater for the whole spectrum of play development.^(47,48,49) This provides a starting point for establishing criteria, raising the question “When do play objects adequately cater for the whole spectrum of development?” Figure 3.3 provides a schematic representation of the process followed to answer this question.

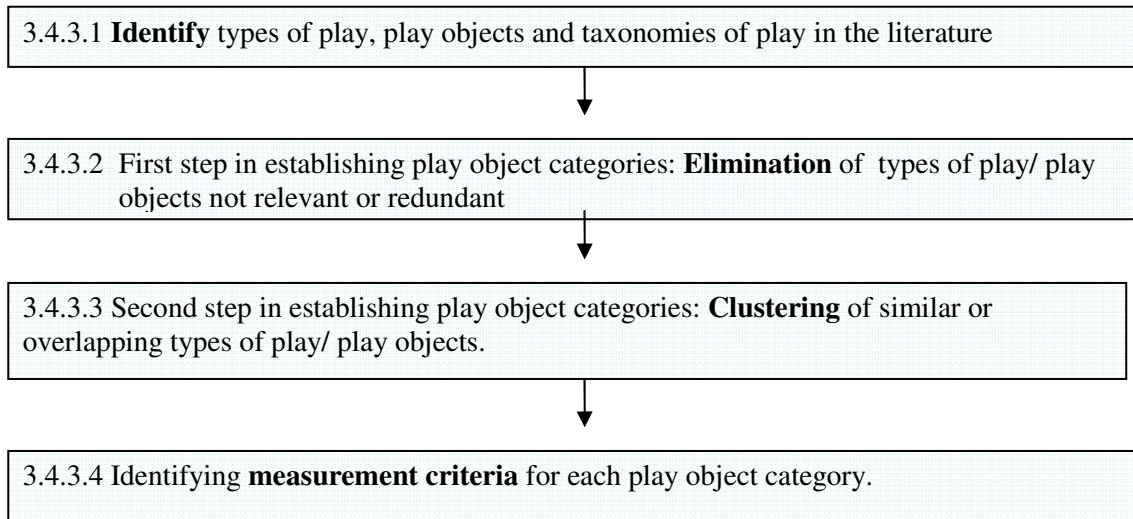


Figure 3.3: The process of establishing measurement criteria for measuring the adequacy of play objects at crèches.

The first step of the process is to identify all the types of play and subsequently also all types of play objects that form part of children's play. This was done during the literature review (discussed in more detail under section 3.4.3.1). As some authors group types of play objects together with types of play and these types overlap greatly, types of play as well as types of play objects were included in the search.

To determine which types of play objects are needed to cater for the spectrum of play, types of play that are not dependent on play objects were eliminated and then grouped with those types of play with very similar definitions, or that involve similar play objects. The elimination and grouping process was done by identifying definitions and descriptions for the various terms in the literature and the end-product was a list of play object categories and sub-categories that should ideally be catered for at crèches. The process is explained in more detail in section 3.4.3.2 and 3.4.3.3.

Once the categories and sub-categories of play objects that should be included in the range of play objects available at crèches had been established, a set of criteria (for each category and sub-category) that could be used to indicate whether a category was catered for or not, was established. This is discussed in section 3.4.3.4.

3.4.3.1 Identification of types play and types of play objects

It has already been established that clear guidelines regarding the types of play objects that should be available at crèches are not available in the literature. It has also been emphasised that criteria relating to play objects at crèches in South Africa need to be realistic and relevant across a diverse spectrum of cultural and economical contexts. Literature recognizes the importance of a diversity of play objects for children to play with.⁽⁴⁷⁾ When considering the above mentioned factors the need for a set of play object categories covering the spectrum of children's play development while at the same time being flexible enough to accommodate economical and cultural diversity becomes clear. These categories could then serve as measurement criteria provided that all crèches contained play objects in each one of the play object categories.

To establish such a list of play object categories, the researcher first had to establish what types of play form part of a typical child's development. This was done in order to establish what types of play objects should be available to allow for these types of play. The aim of this was therefore to establish all the types of play that occur during a child's play development.

Types of play identified in the literature are diverse and no two authors' lists of types of play are identical. However, authors' classifications and taxonomies often overlapped. Types of play and types of play objects identified in the literature also often overlapped and authors tend to include both types of play and play objects in their lists. For this reason, all types of play and play objects identified were included in the initial listing. As types of play identified in literature are mostly organized according to specific developmental areas (e.g. motor play, symbolic play and construction play), it fits well into the developmental perspective of the study, i.e. the extent to which the play environment at the crèches meet the proposed criteria regarding the development of the child. Establishing criteria to meet all the aspects of the child's development is therefore deemed appropriate.

The list of play and play object types identified in the literature review is summarized in Table 3.1 below to create a visual representation of the literature findings and to illustrate how often each play-type appears in the literature. The author names and

references are placed as column headings and the types of play as row headings. This will make it easier to group the types of play and materials into categories during the next stage.

3.4.3.2 Towards establishing play object categories: Elimination of play types not relevant to object play or are duplicated terms.

Table 3.1 presents a diverse and wide listing of types of play and play objects which covers the entire spectrum of play development (according to literature). However, not all types of play or play objects are relevant to object play. As this process aims to develop criteria specifically relating to object play, all types of play that do not relate to object play were first removed from the list. From this point onwards all the types of play were specifically related to and included object play (e.g. “play objects that can be used in gross motor play”).

Types of play specific to age-groups that are not covered in this study as well as overlapping or duplicate terminologies, were also removed from the classification list. The play types that were removed from the list are colour-coded in grey in table 3.1 and the reasons for their elimination are discussed on page 53.

Table 3.1: Summary of types of play and play objects identified during literature review

Play object categories		Doctoroff ⁽⁴⁷⁾	Du Bois ⁽⁴⁶⁾	Ayers ⁽⁵⁸⁾	Case Smith ⁽⁴⁾	Garner & Bergen ⁽⁶⁵⁾	Gartland ⁽⁴⁹⁾	Piaget in Parham ⁽¹⁸⁾	Takata ⁽⁶⁴⁾	Bronson ⁽⁴¹⁾	Pratt in Morrison & Metzger ⁽¹⁶⁾
Gross motor (yellow) and fine motor (green) play objects.	Balls/Outdoor gym equipment									X	
	Push and pull toys									X	
	Gross motor play	X			X	X	X			X	
	Fine motor play						X				
	Visual-motor play (gross motor or fine motor)						X				
	Grasping toys									X	
	Objects encouraging manipulative play		X							X	
	Art, music & movement materials (could also be incl. under sensory objects)									X	
Sensory play objects (orange)	Sensory play			Sensory exploration			sensory exploration	X			
	Sensory-motor play		X						X		
	Exploratory play				X						X
	Exploration & mastery									X	
	Audio-visual materials									X	
	Music, art & movement materials									X	
Pretend play objects (blue)	Fantasy/ imaginary/ pretend				X		X			X	
	Symbolic play				X	X	X		X		X
	Self-care play		X								
	Functional play				X						
	Dramatic play				X				X		
Perceptual-cognitive play objects (turquoise)	Construction play				X				X	X	
	Perceptual-cognitive toys									X	
	Skill development ¹ toys									X	
Play objects eliminated in 3.4.3.2 (grey)	Pattern-making toys									X	
	Movement in space		X								
	Cognitive play	X									
	Practise behaviour							X			
	Motor play										
	Games with rules /achievement behavior				X			X	X		X
	Object play					X					
	Creative play & materials	X									X
	Rough & tumble				X						
Language/ Concepts											
Social Play	X			X	X	X			X		
Non-toy things		X									

¹ Specifically related to refinement of sensory perception and fine motor skills

The following types of play were eliminated from Table 3.1:

- (a) **Practise behaviour**, as it involves repetitive body movements (e.g. a baby learning to crawl) and does not depend directly on the availability of objects.⁽⁴⁵⁾
- (b) **Motor play**, as it combines gross motor and fine motor play and these two categories are already individually included.
- (c) **Games with rules and achievement behaviour**, as this developmental stage is typically only reached after the age of five years and this study focuses on pre-school children only.⁽⁶⁴⁾
- (d) **Object play**, as it can be seen as an over-arching category for all the other categories. Object play involves interaction with all objects as well as exploration of the environment and it can therefore be assumed that all categories of play objects will involve object play.⁽⁴⁵⁾
- (e) **Cognitive play**. This term (as used by Doctoroff⁽⁴⁷⁾ when classifying it as a type of play), is not specifically defined in the literature reviewed and can include a variety of play areas. Piaget⁽¹⁸⁾ states that construction play is the foundation of cognitive development and Dunn and Herwig⁽²⁶⁾ found that children who scored weakly in cognitive assessments also showed poor social play behaviour. Seifert⁽²⁸⁾ summarises this by linking cognitive development to social play, language and literacy and especially pretend play. It is therefore assumed that cognitive development is already included in the other developmental areas addressed.
- (f) **Movement in space** is included in the criteria for gross motor play (active movement in space) and sensory play⁽⁵⁸⁾ under vestibular stimulation (active and passive movement in space).
- (g) **Creative play**, as the definition found in the literature for creative play is very vague. It is defined as “experiences through which a child...explores combinations of actions on multiple objects and develops interests and competencies that promote performance of school-related work-related activities.”⁽¹⁶⁾ These aspects are included in construction play and exploratory play as well as fine motor development (specifically focussing on school related tasks) but the term does not cluster clearly with any one of these categories.
- (h) **Rough and tumble play**, as it does not necessarily depend on play objects, but rather on play mates. Although soft surfaces like mattresses and grass could encourage this kind of play, it is not a prerequisite.

- (i) **Language play.** Play facilitates story telling and encourages language development. The development of language is especially facilitated through social play and fantasy play,^(63,78) already included as separate categories.
- (j) **Social play.** Although certain toys encourage more group play than others it is difficult to limit toys in terms of their social potential. Fantasy play and dramatic play encourage group play, while other objects like puzzles and beads limit group play.⁽⁶³⁾ As fantasy play is already included as a category, this is already addressed.
- (k) **Non-toy play things.** Non-toy objects⁽⁴⁵⁾ are included in the survey, but rather than establishing a separate category for them these objects are included in the other categories. Non-toy playthings are not a necessity, but their inclusion implies that non-commercial toys should not be excluded from the toy-definition.

3.4.3.3 *Towards establishing play object categories: Clustering and organization of types of play objects to establish categories of play objects*

Clustering to establish main categories of play objects:

The next step in establishing categories of play objects is to cluster the types of play objects identified in Table 3.1, therefore establishing over-arching categories, or main categories of play objects. These categories are indicated in different colours in Table 3.1. The main categories identify the developmental areas that play objects need to cater for.

The following terms were grouped together to form one main category:

- **Gross-motor play objects** (labelled yellow in Table 3.1): Push-and-pull toys, outdoor gym equipment (jungle gyms), balls and gym equipment, visual-motor play. The definition for gross motor play objects is “Objects that encourage the use of the large muscles of the body.”⁽¹⁶⁾ It therefore includes all active movement through space. The above mentioned objects clearly fall within the definition of gross motor play.
- **Fine-motor play objects** (labelled green in Table 3.1): Grasping toys, objects encouraging manipulative play, art and craft materials, play objects enabling visual-

motor play. The definition of fine motor coordination includes the participation in activities that develop fine motor coordination and hand-function and includes reach, grasp, carry, voluntary release, in-hand-manipulation and bilateral hand use.⁽⁶⁹⁾ The above-mentioned terms are therefore grouped with fine motor coordination. Manipulative play includes the exploration of objects through the senses (already included in exploratory play) as well as development of fine motor coordination and hand-eye coordination,⁽⁶⁷⁾ thus supporting and clustering with fine motor development. Visual motor play is grouped both under gross motor and fine motor play, as it involves play that addresses both visual and motor abilities.

- **Sensory-play objects** (labelled orange in Table 3.1): Sensory-motor play, exploratory play, “exploration and mastery”, “music, art and movement materials”. The terms sensory-motor play and exploratory play are used interchangeably.⁽⁴⁹⁾ Sensory-motor play and exploratory play involve sensory experiences and motor actions.⁽⁶⁴⁾ While sensory play is mentioned in literature, it is not specifically defined and is categorized with sensory-motor play. The literature study emphasises the importance of taxing all the senses (including auditory, tactile, visual, vestibular and proprioceptive systems).⁽⁴⁶⁾ Audio-visual materials as well as music, art and movement materials as identified by Bronson⁽⁷⁷⁾ are included under sensory play, as they address the visual, auditory and tactile sensory systems (art materials will also be included under fine motor materials).
- **Pretend-play objects** (labelled blue in Table 3.1): Symbolic-play, dramatic play, fantasy play, imaginary play and functional play. According to Piaget⁽³⁷⁾ symbolic play involves the use of “objects as symbols” and includes drama and fantasy. Pretend play is defined as “Actions, objects, persons, places, or other dimensions of the here-and-now (that) are transformed or treated non-literally”⁽¹⁶⁾ making it similar to symbolic play, but stretching beyond the use of objects to include persons and places. Gartland⁽⁴⁹⁾ classifies symbolic play with imaginary play. Dramatic play is defined as elaborated imaginary play where children take on certain roles during make-believe games.⁽¹⁶⁾ Functional play occurs at the beginning stages of pretend play and involves using objects for their intended purpose, e.g. pretending to drink from a cup.⁽⁴⁾ Although there are slight differences in the definitions of these terms

and the developmental ages during which they typically occur, they all involve imagination and fantasy.

- **Perceptual-cognitive play objects** (labelled turquoise in Table 3.1): play objects enabling cognitive play, pattern making toys and specific skill-development toys. These play objects refer to the development of perceptual-cognitive abilities.

Following this elimination and grouping process, the following overarching categories emerge:

- i. Gross-motor play objects
- ii. Fine-motor play-objects
- iii. Sensory play objects
- iv. Pretend-play objects
- v. Construction play objects
- vi. Perceptual-cognitive play objects.

The colour coding in Table 3.1 provides a visual representation of the grouping of play categories discussed above

Clustering to establish sub-categories of play objects:

Above mentioned main play object categories are still quite broad and do not include all aspects of development as identified in the literature. A need for further specification therefore is evident and in order to refine the main categories, sub-categories with detailed definitions were established. This ensures that play object categories cater for all pre-school age-groups and all aspects of development (e.g. not only balls under gross-motor play objects, but also materials that provide for climbing or special exploration). In order to provide for a child's holistic development available play objects should therefore cover all the main categories and then also all the sub-categories identified

As criteria have to be relevant to a South African context, it was important not to limit play objects to commercial toys and to leave space for creativity and innovation. Sub-categories therefore had to be specific to ensure that each developmental area was adequately catered for, while at the same time not limiting crèches to commercially

available toys only. For this reason no specific examples of play objects were included as sub-categories (e.g. dolls or balls), but only “types” of play objects (e.g. push-and-pull objects) were included. In this way categorization accommodated both commercial and alternative materials.

Sub-categories were established through the following process:

- Those categories included in Table 3.1 that were grouped with the main category (e.g. functional play, symbolic play and fantasy play as sub-categories under pretend play) were used as sub-categories where applicable.
- In the literature review, the play development of children was discussed under the headings of sensory-motor play, constructive play, play developing perceptual-cognitive abilities, gross motor play, fine motor play and pretend play. This information was used in identification of sub-categories to ensure that the criteria for play objects cater for all relevant age groups (e.g. push-and-pull toys as sub-category of gross motor play objects).

i. Gross-motor play Objects

The following sub-categories of play objects for gross motor play were derived from the literature:

- Transportable objects: Push-and-pull toys.⁽⁷⁷⁾
- Transportable objects: Ride-on toys.^(45,77)
- Climbing equipment.^(63,65,75)
- “Special spaces”⁽⁴⁵⁾
- Play objects that allow for visual-motor play (this was included under gross-motor and fine-motor play objects as previously mentioned).⁽⁴⁹⁾

“Balls and sport equipment”⁽⁷⁷⁾ was excluded, as it refers to specific examples of play objects. It is also already included in the sub-category “play objects that can be used in visual motor play (on a gross motor level).”

The sub-categories “objects that encourage climbing”^(63,65,75) and “outdoor gym equipment”⁽⁷⁷⁾ were merged into one category, namely “climbing equipment.” This

does not only include outdoor equipment, but also indoor equipment that encourages the same gross motor skills.

While all the sub-categories pertain to all the age-groups, the age-appropriateness of the equipment was determined for each individual play object (e.g. a high jungle gym ladder is not appropriate for a two year old to climb on).

ii. *Play objects that allow for fine motor play*

The following sub-categories of play objects for fine motor play were derived from the literature:

- Play objects that allow for reach,⁽⁷⁷⁾ grasp,⁽⁷⁷⁾ carry⁽⁶⁷⁾ and release⁽⁶⁷⁾.
- Objects that can be poked, squeezed or crumpled⁽⁷⁷⁾
- Objects that require a more refined grasp, e.g. pincer grasp or bilateral hand-use.⁽⁷⁷⁾
- Art materials.⁽⁷⁷⁾
- Visual-motor play objects (fine motor level).⁽⁴⁹⁾

As an object that allows for grasp will necessarily also allow for reach, carry and release, these types of play objects were combined to form one sub-category. As grasping develops, the type of play that encourages grasping evolves to include pulling, pushing, squeezing and poking in an effort to explore, as well as more complex and refined grasping, requiring the use of the pincer grasp. As toddlers develop more refined grasps, they seek out these more complex fine motor play⁽⁷⁷⁾ and a sub-category for this was therefore included. “*Objects encouraging manipulative play*”⁽⁶⁷⁾ was also removed as a sub-category. Literature explains manipulative play as involving exploration of toys through the senses (already included in sensory play) and as being important for the development of eye-hand coordination (already included under visual-motor play) and fine movements (included under grasp).⁽⁶⁷⁾

iii. *Sensory play*

The following sub-categories of play objects for sensory play were derived from the literature:

- Cause-and-effect toys.⁽⁷⁷⁾
- Play objects that can provide tactile input.^(58,60,77)
- Play objects that can provide auditory input.^(58,60)
- Play objects that can provide visual input.^(58,60)
- Play objects that can provide vestibular input.^(58,60,77)
- Play object that can provide proprioceptive input.^(58,60)

Sensory-motor play includes practising simple motor skills, problem solving and copying by sensory exploration. According to a study done by McCall⁽⁵³⁾ cause-and-effect toys appeal to babies most and encourage sensory-motor play most. Sensory-motor play was therefore not included as a sub-category, as cause-and-effect toys already cater for this area of play. “*Audio-visual materials*” as well as “*music, art and movement materials*” indicated by Bronson⁽⁷⁷⁾ were not included as sub-categories for sensory materials as they are already included under materials that provide visual, auditory, vestibular and tactile input.

iv. *Construction play*

No sub-categories for construction play could be derived from the literature and therefore only the main category was included.

v. *Pretend play*

The following sub-categories of play objects for pretend play were derived from the literature.

- Fantasy/ dramatic play objects.^(16,64,4,77)
- Symbolic play objects.^(4,16,37)
- Functional play objects.⁽⁴⁾

In terms of toys or play objects, the types of pretend play can be divided into two groups: one group where objects are used as symbols for something else (e.g. a block for a car, a box for a house, or a cup as a hat)⁽¹⁸⁾ and the other group involving

the pretend use of objects for their functional purpose (e.g. pretending to iron with a wooden iron, pretending to drink from a cup, or even brush own hair with a brush).⁽⁴⁾ Toys promoting *self-care skills*⁽⁴⁶⁾ were also seen as being part of the latter category. Both “*dramatic play*” and “*symbolic play*” materials were included as sub-categories (the terms fantasy play and dramatic play are used interchangeably in the literature).⁽¹⁶⁾ Symbolic play objects were not included for the 0-3 year old class, as pretend play on a symbolic/abstract level only develops after the age of three years.

vi. *Perceptual-cognitive play*

The following sub-categories of play objects for pretend play were derived from the literature:

- Stacking or nestling toys, or fit-in puzzles.⁽⁷⁷⁾
- Objects that allow for matching, sorting, ordering or pattern-making.^(77,46)
- Objects that allow exploring with numbers and size.⁽⁷⁷⁾
- Objects that allow for sensory discrimination.⁽⁷⁷⁾

“Specific skills development toys” are defined broadly by Bronson as objects that encourage a variety of skills, including linguistic and scientific categories, problem solving, or mastery of specific techniques.⁽⁷⁷⁾ However, except for producing examples, Bronson does not elaborate on what these techniques include and the examples mentioned stretch across various other sub-categories. “Specific skills development toys” was therefore not included as a sub-category. However the examples mentioned by Bronson are included under other sub-categories (e.g. pattern-making materials were grouped with matching, sorting and ordering as they share similar features).

3.4.3.4 *Identifying criteria for each category and sub-category*

Definitions for the sub-categories were identified in the literature, or decided upon after consulting literature. These definitions were then used to establish criteria for each category and sub-category. In order for a play object to qualify for one of the categories, it had to comply with the criteria. (See Addendum C for definitions and criteria).

Categories and sub-categories were established to cover the entire spectrum of development between zero and six years. However, the age-group of the children concerned was taken into account when judging whether a toy was age-appropriate or not. These age-groups were decided upon in accordance with the crèches' division of the children into classes (class one: zero to three years; class two: three years to four and a half years; class three: four and a half years to six years).

3.4.4 Research tools

Survey forms (Addendum D and E) included spaces to document the number of children in the classes, the number of caregivers as well as their qualifications and years of experience, the classroom routine or daily program, an indication whether the classroom space was divided into different play areas as well as a table for listing all the play objects in the crèche. After all the forms were completed, data was transferred to measurement tables for each environmental factor. These tables will be illustrated and discussed in the following paragraphs.

3.4.4.1 Play space

As mentioned in section 3.4.2.1, the physical space at the crèches is measured and calculated by the Health and Safety department as a pre-requisite for registration. The measurement of the physical space was therefore not included in the survey, as the space had already been measured by a staff member of the Department of Social Welfare.

3.4.4.2 Play time

The classroom routine was documented in Table 3.2 in order to determine whether all the different types of play that need to be accommodated and facilitated in a crèche's daily routine (as identified by the National Guidelines for ECD Services) were included in the routine. The types of play were not defined in the Guidelines and the researcher therefore had to settle on a set of definitions as included in Table 3.2.

Crèche number: _____	
Daily program	
Activity	Type of play
Criteria for Play time	
Type of play provided for in day planning	Was time scheduled for this activity? (Yes/No)
Gross motor activities <i>Time provided for outdoor play, or play involving gross motor activities</i>	
Fine motor activities <i>Activities involving the use of the hands, in construction, manipulation, mark making or creative activities.</i>	
Creative activities <i>Structured activities where specific materials are provided that children can use to create something with.</i>	
Talking and listening activities <i>Activities involving stories or songs, or set out time where children are provided with the opportunity to tell a story, answer questions or sing a song.</i>	
Activities to develop intellectual abilities <i>Playing of educational games, or "ring time" where children are taught on specific topics and concepts.</i>	
Opportunity for make-believe play <i>Time allowed for free-play</i>	
Opportunities for quiet play	

Table 3.2: Documentation of play time

3.4.4.3 Caregiver-child ratio

After the surveys were completed, information about the number of children and caregivers at each crèche were documented in Table 3.3 in order to measure the caregiver-child ratio at the crèches. As the children’s birth dates were not always known and some of the caregivers rotated between the classes and were not assigned to one specific class, the table sometimes had to be completed using a total number of children and total number of caregivers only.

Crèche Number:				
Caregiver-child ratios				
Ages	Amount of children	Amount of caregivers	Caregiver-child ratio	Suggested ratio
0 - 18 months				01:06
18 months - 3 years				01:12
3 years - 4 years				01:20
4 years - 5 years				01:30
Total				
Are the children separated according to ages?			Yes	No

Table 3.3: Documentation of caregiver-child ratio

3.4.4.4 *Play Objects.*

After the categories, sub-categories and category criteria for play objects had been established and finalized, Table 3.4 below was created. Table 3.4 contains all the categories and sub-categories as horizontal headings. Play objects documented at each crèche during the survey could then be written into the left side column and each sub-category that this play object fulfils can then be ticked. Table 3.4 therefore acts as a checklist for measuring whether the play objects at a crèche is adequate to address the spectrum of a child's play development. Ideally, crèches should have play objects that fit into each of the sub-categories in the table. In order to qualify for a specific sub-category, a play object had to comply with the definition of the main category and the sub-categories. Objects could qualify for more than one main or sub-category.

To ensure that all the toys qualifying for the various categories were appropriate to be handled by the children and were in adequate condition to serve their purpose, two extra columns were added to Table 3.4, namely "age-appropriateness" and "functional condition". In terms of age-appropriateness, toys that were specific to their function and clearly only relevant for children above six years and unsafe for younger children were eliminated (e.g. 100 piece puzzles). Although wear and tear of toys was not taken into account, toys were disqualified if the function of the toys was impaired (e.g. dry felt-pens or deflated balls), or when toys were unsafe because of small parts or sharp edge

Crèche number: _____

		1. Play objects that allow for gross motor play					2. Play objects that allow for fine motor play					3. Play objects that allow for sensory play					4. Play objects that allow for construction play		5. Play objects that allow for pretend play			6. Play objects that allow for perceptual-cognitive play			
		Play objects that allow for large muscle activity and coordination					Play objects that require the use of the hands to participate in an activity					Play objects that provides sensory stimulation of one or more of the sensory systems.					Play objects that a child can manipulate in order to build or construct something		Play objects that can be incorporated in pretend play and fall in one of the categories below			Play objects that allow for the development of perceptual-cognitive abilities			
		1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5	3.6	5.1	5.2	5.3	6.1	6.2	6.3	6.4	
		Push-and-pull toys	Ride-on toys	Climbing equipment	"Special spaces"	Objects that allow for visual-motor play (gross motor)	Grasping: Objects that allow for reaching, grasping, carrying & releasing by infants	Grasping: Objects that can be crumpled, squeezed, twisted or manipulated	Grasping: objects that require more complex or refined grasp	Art materials	Play objects that allow for visual-motor play (fine motor)	Cause& effect toys	Play objects that can provide proprioceptive input	Play objects that can provide vestibular input	Visual	Tactile	Auditory		Play objects that allow for fantasy/dramatic	Play objects that allow for symbolic play	Play objects that allow for functional	Stacking or nesting toys; fit-in puzzles	Objects that allow for matching, sorting, or pattern-making	Objects that allow for exploration with numbers and sizes	Objects that allow for sensory discrimination
Play objects (List of play objects available at crèche).																									
	Age-appropriate? (If not, indicate with X)																								
	In functional condition (If not, indicate with X)																								

Table 3.4: Checklist for measuring play object adequacy (scaled to fit page).

3.5 Phase II – A survey of the Play environment at crèches in Macassar

The second phase of the study involved implementing the measurement tools developed during the first phase of the study to evaluate the play milieu at crèches in Macassar. This process, including the sampling process, pilot study and data gathering is described in more detail in the following section.

3.5.1 Research sampling

Macassar, a community on the Cape Flats, was identified as a geographic sampling area and registered crèches in this area formed the research population. It is a low-income area, struggling with social problems typical of developing areas, including unemployment, drug-use, poverty and malnutrition.⁽⁸⁴⁾ This area was chosen as a research population after speaking to an occupational therapist who worked in the Helderberg area (Somerset West and Macassar) and being convinced of the suitability of the area for practical research purposes. The occupational therapist said that after conducting a workshop for crèche teachers in Somerset West, she wanted to repeat the course in Macassar and would therefore benefit from information regarding the crèche environments. She indicated that information on the play environment would provide insight into the situation at these crèches and improve the effectiveness of such a program.

At the time of data gathering there were eleven registered crèches in the area. Children's homes and care centres caring for disabled children were not included in the study as this study focussed specifically on crèches. It is compulsory for crèches to register with the Social Welfare Department, the Department of Education (in terms of the Schools Act) and the Department of Environmental Health.⁽⁸⁵⁾ They also have to apply for running a business in a residentially zoned area. Unregistered (or illegal) crèches were not included in the study. Although it could be argued that the biggest need for evaluation exists in these "illegal" day-care centres the study seeks to inform formal future interventions, which will in the first instance focus on legally registered crèches.

Crèches with children ranging from birth to five years were included in the survey. Although UNICEF includes children from birth to eight years old in their definition of early childhood development, children from six years of age should legally be included in the formal school setting and as such the survey did not include classes catering for these older children.

The original plan was to include all eleven registered crèches that met the inclusion criteria in the survey (saturated sample). However the principal of one of the crèches did not consent to the survey and it could not be included.

3.5.2 Pilot study

A pilot study was conducted in an attempt to identify any challenges in conducting the survey of crèches. The pilot study would also allow for improvement of the data sheets where necessary, and provide information on how to process the data. A pilot study was first conducted at two crèches, one in a middle to high socio-economic area (Durbanville in the Northern suburbs of Cape Town) and another at a crèche in a lower socio-economic area (Kayamandi, Stellenbosch). Two challenges were faced during the pilot study:

- The first crèche had a large number of play objects to document. It took about two hours to list all the toys, but it was nevertheless found to be possible.
- On arrival at the crèche in Kayamandi, the children were sitting in the television room. However, upon further investigation, a room with crates of educational toys was found at the back of the house and apparently the children were mostly taught in this back room. Although it was impossible to know how much time the children spent with the toys, all toys available were recorded. This emphasised the importance of enquiring about any extra store rooms or classrooms during data gathering and of including the content of these rooms in the survey.

The pilot study emphasised the need to make detailed notes regarding the estimates and materials of the play objects surveyed, in order to afterwards add the objects to the play object categories according to the criteria and enough space was provided for this on the data sheets (see Addendums D and E for the finalized survey forms).

3.5.3 *Gathering data*

Data for the ten crèches included in the study was gathered during June and July 2009. The researcher was first accompanied by an employee from the Social Welfare Department who knew all the crèche owners well. This made it easier to find the crèches as she was familiar with the area. As the employee from social welfare had a good and trusting relationship with the crèche owners, her presence also reassured the crèche owners and helped to create a relationship of trust between the researcher and owners of the crèches. She provided a list of all the registered crèches and introduced the researcher to the crèche owners. The introductory meetings were also used to provide the crèche owners or principals with an informed consent document and the information was then also discussed with them verbally. This included information on the purpose and extent of the study and the information required. It was also stated on the consent form that all information gathered during the study would remain anonymous and that no information linked to a specific crèche would be provided to the Social Welfare Department. (See Addendum F1 and F2 for informed consent form). Once Crèche owners agreed to participate in the study, a date and time was arranged for data gathering.

Of the eleven crèches, ten crèches consented to participate. One crèche owner preferred not to be included in the study and this was respected according to the ethical considerations.

The following information was gathered:

- (a) The number of children in the different classes was documented, according to information provided by the crèche owner.
- (b) The number of caregivers or teachers was documented.
- (c) A rough sketch (indicating how rooms, classes or play areas were divided), was drawn by the researcher (not on scale).
- (d) The daily program, as indicated on the wall, or in the teacher's planning schedule, was documented exactly as stated by the teacher.
- (e) An inventory was compiled of all the available play objects. No interpretations were made during gathering and materials were simply named and described in order to classify them during the first step of data analysis. As the crèches often

shared, or rotated play objects between the various classrooms, play objects were not documented separately for the different ages or classrooms.

As an employee of the Health and Safety Department had measured the layout of the crèches as part of the registration process, these measurements were not repeated. All the measurements had been done by a specific employee of the Department of Health and Safety. According to the employee the measurements had been done by measuring the walls and then using a drawing of the crèche building to work out the surface area. Furniture (e.g. beds and desks) had also been measured and then subtracted from the total surface area to determine the actual play space available. According to this staff member's findings all the crèches complied with the requirements.

The biggest challenge encountered during data gathering was that the materials were not stored in an organized fashion. However, all the play objects on each crèche's property, including those in storerooms, were documented. The crèche principal, or in the cases when she/he was not available at that time, a permanent staff member of the crèche, familiarized the researcher with the building. The researcher specifically inquired about any store-rooms or outside rooms containing play objects. The play objects in each room were listed systematically, starting at one side of the room, one room at time. The outdoor equipment and indoor play objects were documented separately, in order to organize the data for easier analysis. If any play objects were duplicated, it was noted when transferring the data to Table 3.4. (See Addendums D and E for the survey forms used to document the data.)

3.6 Ethical considerations

The study was registered at the Committee of Human Research of the Faculty of Health Sciences of the University of Stellenbosch to ensure that it complied with ethical standards (ethics reference number *N09/01/004*).

Crèches were contacted in advance and suitable times were arranged to visit them, to fit into their daily schedule. The purpose of the visit was first explained and information relating to the timespan of the visit was provided. An informed consent form was signed by the principal/head of the crèche as well as all the teachers and

caregivers (Addendum F1 and F2) after the researcher had spoken to them about the purpose of the research study and had provided them with adequate time to read through the form. Participation in the study was completely voluntary.

Confidentiality was ensured at all times by allocating each crèche a number and only writing the number on data sheets. To ensure confidentiality, only these numbers were used to identify crèches on the checklists used. Forms were kept safe in a file in the researcher's cupboard and will be destroyed after the completion of the research. No names were recorded.

Crèches were informed that the aim of the research was to determine needs and trends in order to improve capacity building and community empowerment programmes. They were told that, although this study might not benefit them directly, it could provide useful information for future educational development program and training. It was made clear that the researcher was not affiliated with the Health or Social Departments.

3.7 Research validity

3.7.1 The face validity and content validity of the table measuring play time

The face validity of the table measuring play time at crèches is sufficient. It includes all the criteria documented in the National Guidelines for Early Childhood Development⁽¹⁰⁾ and documents the play time as indicated on the crèches' day routine. However, the content validity can be questioned as only the planned routine is documented and it is not indicated whether this routine is consistently followed. In order to determine which of the activities are actually executed, an observational study would be necessary.

3.7.2 The face validity and content validity of the table measuring the caregiver-child ratio

As the table allows for the documentation of the staff-members employed and the children registered at the crèches at the time of the survey, the face validity and content validity of this table is well established. As the concept under question is quite specific

(the ratio of caregivers vs. children), the full content of this concept is easily fulfilled.⁽⁸³⁾

3.7.3 The content validity of the play object checklist

Content validity focuses on whether a measuring instrument actually measures the content that it is intended to measure.⁽⁸³⁾ The scope of this study only allows for investigating the diversity of play objects to cover the spectrum of developmental needs of a child between the ages of zero and five years. The play object checklist is therefore not intended to measure the quantity or quality of play objects. When reviewing the validity of the checklist the question should be posed as to whether the checklist measures the variety of play objects at crèches.

During the design of the checklist various resources were used to identify as many “types of play” and “types of play objects” as possible. Irrelevant types were systematically eliminated and relevant categories were elaborated on through the use of definitions obtained from literature. It was therefore ensured that the checklist contained the fullest possible spectrum of “types” of play objects that are relevant to a child’s development. However, the types of play and play objects identified varied greatly across the literature, resulting in the inclusion of some play objects that were only mentioned in one or two literature resources. This may have affected the validity of the categorization as all the types of play included were not confirmed by more than one resource.

Although a wide spectrum of object categorization was obtained from literature, no research or information could be found that discusses the impact these play objects have on a child’s development and whether the availability of these play objects in the environment actually improves a child’s development. Whether complying to this checklist actually proves adequacy in the play object facet of the play environment could therefore be questioned.

3.8 Bias

3.8.1 Selection bias

As all the crèches in the research population were included in the sample, there was no research bias present.

3.8.2 Measurement bias

In “measuring” the play objects, bias was prevented by simply listing the play objects at the crèches with a short description relating to the size and material of the play object. The play objects were then categorized in Table 3.4 after all the data was gathered. However, this might have resulted in some recall bias, as the researcher might have remembered the play object recorded differently, especially where the researcher left out some details in the description of the objects (e.g. the shape or size of the object). This could result in objects being excluded from categories where in reality, they did meet the criteria.

In this particular study, attention bias was also not relevant. Although the crèche owners were aware of when the researcher was going to gather the data at their crèches, the nature of the data did not depend on how well prepared the crèche staff were or how the play space was organized.

3.8.3 Intervention bias

As the study was descriptive in nature and no intervention took place, preventing intervention bias was not applicable.

3.9 Limitations

The following limitations must be taken into consideration:

3.9.1 Limited extrapolation

The Population (the Macassar area), is quite limited and the study only included crèches in one particular area of the Cape flats. In addition, the sample population is limited to formally registered crèches from the area.

3.9.2 Caregiver-child ratio

The National Guidelines for ECD services⁽¹⁰⁾ have set criteria for caregiver-child ratio's. These ratio's are relative to the ages of the children. While conducting the surveys, the teachers had no record of the children's dates of birth.

Although the children were divided into classes more or less according to their ages, the classes were not divided according to the exact same age-ranges as the age-ranges in the National Guidelines. In addition, some of the crèches only had one big class, or two classes. Apart from two crèches, the children in the crèches were divided into three classes. The majority of the crèches grouped infants and toddlers between zero and three in class one, children between the ages of three years and four and a half years in class two and children between the ages of four and a half and five and a half years in class three. Although each class mostly had at least one specifically allocated class-teacher, extra caregivers rotated between classes and it was therefore not possible to pin them down to caring for one specific age-group.

This complicated the calculations regarding the caregiver-child ratio and the calculations had to be based on the assumption that the youngest children enjoy priority at the crèches and that the caregivers are therefore distributed between classes accordingly. Some estimates regarding children's ages also had to be made, as the age-divisions in the guidelines and the age-divisions in the classes didn't correspond exactly.

3.9.3 A particular perspective on play

The developmental approach is merely one perspective on play. This study aimed at determining the adequacy of the play environment to cater for the developmental needs of children and the scope of the study could only cater for the evaluation of the play environment from this angle. However, it does not take into account the children's psycho-social growth, or the effect that the play environment might have on their social interactions or emotional functioning. The effect that the type of play objects or number of available play objects have on children's social interaction, for example, was not accounted for.

3.9.4 Limited attention to the cultural aspect of the play environment

The environmental factors that occurred most commonly in literature that addressed the assessment of the play environment were play objects, play mates, play time and play space. However, when referring to the term "environment," in the literature, the cultural aspects of the environment are also included in the definition.⁽⁶⁾ Although the study aimed at taking the cultural environment into account by leaving space for e.g. non-commercial play objects, it did not assess the cultural environment at the crèches, or the effect culture had on the play environment at these crèches.

3.9.5 Quantity and organization of play objects

During the survey, the researcher observed that a great number of play objects were kept in the storage-rooms at the back of the buildings. These objects were included in the survey, as the crèches had access to them, but the study did not aim to determine whether they are made available for the children to play with on a regular basis. In general, the possible difference between the play objects present at the crèches and the play objects that the children actually engaged with, could not be determined in the scope of this study.

The organization of the play objects was another variable not taken into account. It is stated in the literature that the organization of play objects is important.⁽⁴⁷⁾ Although it was noted that the organization of play objects differed widely across the surveyed crèches, this survey did not investigate the organization or storage of the materials.

Another factor not taken into account, due to the scope of the study, was the quantity of each type of play object available at each crèche, vs. the number of children. As there is no literature available on how many objects are needed per child, a study exploring the effect that quantity of play objects have on children's play engagement will first need to be conducted.

Although potential uses of objects were taken into account (e.g. a crate as a push-and-pull object), it was impossible to include all the ways that children could potentially play with an object. It is possible that children could use play objects in unforeseen and innovative ways. However, the researcher attempted to cater for this by including non-commercial toys and reviewing each object according to the criteria set for each individual sub-category. This ensured an objective assessment of the play objects. The use of a set of detailed criteria for each sub-category was therefore crucial.

3.10 Summary

In summary, the first phase of the research involved establishing measurement criteria for measuring the play environment at crèches in a developing country. This was done by means of a literature search and where already set criteria were not available, definitions and classifications from literature were combined to establish criteria. These criteria were used to develop research tools that were applied to a limited population of crèches in the Macassar area in the Western Cape. Chapter 4 will discuss the results obtained during this survey.

Chapter 4 – Results and Discussion

4.1 Introduction

Chapter 4 presents the results obtained through the survey conducted at the ten crèches. Each environmental factor researched (play space, play time, caregiver-child ratio and play objects), is discussed separately.

The results regarding the play objects at the crèches are discussed according to the categories and sub categories of play objects established in Chapter 3 with the purpose of identifying gaps in the types of play objects available at the surveyed crèches.

4.2 Presentation of data

The raw data obtained during the survey was recorded in tabulated format for analysis purposes Addendum G1-3 present examples of such recordings for a single crèche (crèche 7). From these tables, Table 4.1, 4.2 and 4.5 were derived, summarizing the results of the three environmental factors, namely the use of play time, play objects, and child-caregiver ratio at the ten crèches. This data is discussed further in Section 4.3 below.

4.3 Discussion of data

4.3.1 *Play time*

As reflected in Table 4.1, all ten crèches met the criteria set by the Guidelines for ECD Services⁽¹⁰⁾ for play time at crèches and play time at these crèches was therefore adequately planned for according to the set guidelines. This indicates that the crèches planned for fine motor and gross motor play, creative activities, talking and listening activities and intellectual activities every day and also allowed time for make-believe play and quiet play. It is important to note that this only indicated what the crèches planned for in their daily program and does not indicate the actual time spent on these activities.

Table 4.1 Play time data recorded for the ten surveyed crèches.

	Crèches									
	1	2	3	4	5	6	7	8	9	10
Physical activities (Gross motor or outdoor play)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Physical activities (Fine motor play)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Creative activities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Talking and listening activities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Activities to develop intellectual abilities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Opportunity for make-believe play	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Opportunities for quiet play	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ - the crèche did include activities within this category in their day-planning.

From the biographical data obtained, at least one teacher and principals of the crèches, had done some kind of training or course in Early Childhood Education. The fact that all the crèches had a planned daily program emphasises the fact that they were aware of the need for variety in a child’s daily routine. All the crèches have included structured and unstructured play time, including time for outside play, language activities and fine motor activities like crafts.

4.3.2 Child-caregiver ratio

The minimum caregiver-child ratios proposed by the National Guidelines for ECD Services in South Africa⁽¹⁰⁾ are presented according to age groups. For example, according to these guidelines more caregivers should be employed to care for younger children than older for older children. However, as discussed in Chapter 3, the dates of birth or exact ages of the children at the crèches were not available at the time of gathering the data. Caregivers employed at the crèches were also not necessarily assigned to only one class and one of the caregivers (e.g. the classroom assistants) was often observed rotating between the classes, depending on where the need was. The caregiver-child ratio at the ten crèches are presented in Table 4.2. For the above-mentioned reason, the caregiver-child ratio at each crèche had to be considered separately. Although the age-groups clusters in the classes at the crèches did not correspond exactly with the age groups in the National Guidelines, age-groups were matched as closely as possible (e.g. the proposed caregiver-child ratio for three to four year olds were used to measure the caregiver-child ratio in three and a half to four and a half year old class).

Table 4.2 Caregiver-child numbers recorded for the ten surveyed crèches.

	Crèches									
	1	2	3	4	5	6	7	8	9	10
Number of children in class 1	27	7	16	0	21	8	24	13	12	12
Number of children in class 2	41	12	12	12	25	15	19	17	14	20
Number of children in class 3	26	7	22	15	24	19	29		17	0
Total children in crèche	94	26	50	27	70	42	72	30	43	32
Number of caregivers	5	3	3	2	4	2	3	3	3	3

Table 4.3 indicates the ratios per class at the ten crèches, according to the criteria set by die National Guidelines.⁽¹⁰⁾ The ratio's indicated in red represent inadequate ratio's according to the set criteria. The orange ratio's indicate inadequate ratio's if the class included mostly younger babies or young toddlers (younger than eighteen months). If there were mostly toddlers older than eighteen months in these classes, the ratio would however be adequate; hence the "orange" coding of the result. This is due to the fact that in 90% of the crèches, children younger than 3 years old were all clustered together. Ratio's presented in green indicate adequate caregiver-child ratio's according to the set criteria.

Table 4.3: Adequacy of caregiver-child ratio at the ten crèches.

Ages	Crèches												
	CR	1	2	3	4	5	6	7	8	9	10	Ave	
0 – 18 months	01:06				00:00								01:17
18 months - 3 years	01:12	01:09	01:07	01:16		01:11	01:08	01:24	01:07	01:12	01:06		
3 years - 4 years	01:20	01:41	01:12	01:12		01:25	01:15	01:19	01:06	01:14	01:20		
4 years - 5 years	01:30	01:26	01:07	01:22	01:15	01:24	00:19	01:29		01:17			
Ave	01:17	01:19	01:09	01:17	01:14	01:18	01:21	01:24	01:10	01:14	01:10		

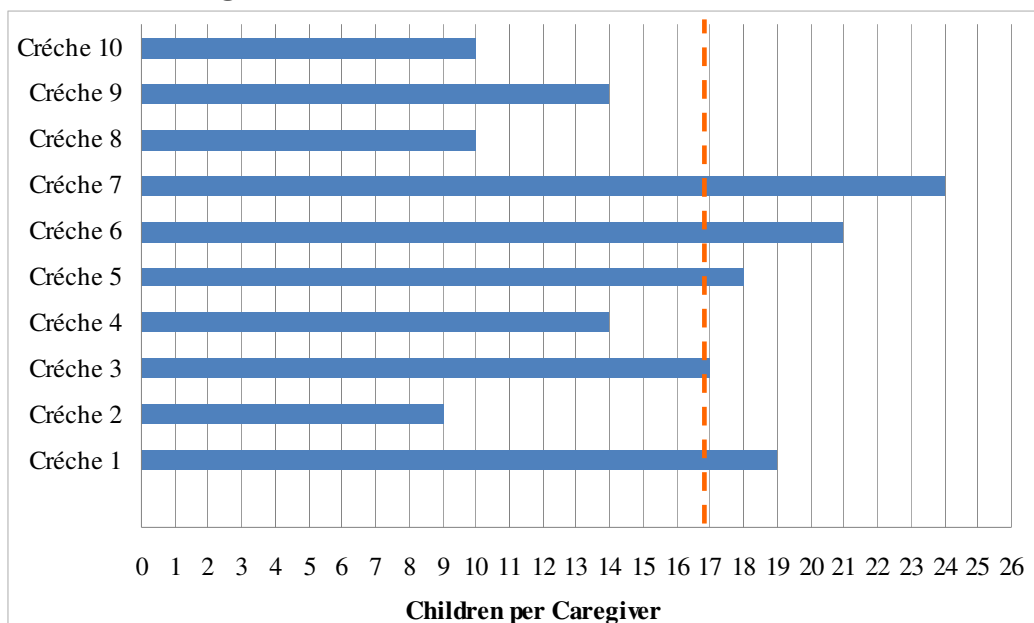
CR	<i>Criteria ratio as proposed by the National Guidelines⁽¹⁰⁾</i>
Red	<i>Ratio's according to the set criteria.</i>
Orange	<i>Inadequate ratio's if the class included mostly babies or toddlers younger than eighteen months.</i>
Green	<i>Adequate caregiver-child ratio's according to the set criteria.</i>
Ave	<i>Average</i>

From this table it can be observed that there was a shortage of caregivers employed at the majority of the crèches and that this shortage affected the whole spectrum of ages. It can also be observed that, if the majority of the children in the infant and toddler classes were younger than eighteen months (this information is not known), the infant and toddler classes would be the most affected by the shortage in staff. According to these findings, only two crèches definitely complied with the criteria regarding caregiver-child ratio (C4 and C10) and three crèches (C2, C8 and C9) possibly complied with the criteria (depending on the number of babies younger than 18 months in the crèches). Five of the ten crèches (fifty percent of the crèches) definitely did not comply to the caregiver-child criteria for all the age groups in their crèches (C1, C3, C5, C6 and C7).

An average of the caregiver-child ratios as proposed by the National Guidelines as well as the average ratio of caregivers to children in each crèche were also calculated in order to make a conclusion on the adequacy of each crèche. This gives an estimate of the average caregiver-child ratio at the crèches (it does not take the number of children in each age group into account, but assumes an equal amount of children in each age group). The average ratio recommended by the National Guidelines amounts

to one caregiver for every seventeen children. The average caregiver-child ratio for each crèche was also calculated (in other words the ratio of total caregivers employed at a crèche and the total children enrolled there). This ratio was compared to the average ratio proposed by the National Guidelines. According to these ratio's four crèches did not comply to the set criteria (C1, C5 C6 and C7), while six crèches did comply. Table 4.4 provides a visual representation of the average number of children per caregiver at each crèche. The orange line indicates the average number of children (seventeen) for each caregiver proposed by the National Guidelines.

Table 4.4: Caregiver-child ratio



In conclusion, it would seem from the average care-giver child ratio analysis (Table 4.3) that there is an inadequate amount of caregivers at four of the 10 crèches. However, when one applies the age-specific guidelines, it is clear that it is an even bigger problem: five crèches did not comply with the set criteria regarding caregiver-child ratio for all the age-groups and another three crèches possibly did not comply with the caregiver-child ratio, depending on the number of infants in their care. Only two crèches completely adhere to the set guidelines in terms of age-defined care-giver child ratios.

4.3.3 Play Objects

Table 4.5 reflects a summary of the data on play objects at the crèches, obtained during the survey. The areas coded in yellow, indicate where crèches did not comply to the

minimum requirements in that category, in other words, where there were no play objects available that fit into that category.

Table 4.5: Summary of data recorded for the ten crèches.

			CRECHES									
			1	2	3	4	5	6	7	8	9	10
PLAY OBJECTS			Number of play object types at crèches									
Play objects that allows for gross motor play	1.1	Push-and-pull toys	5	2	5	8	0	5	1	3	0	5
	1.2	Ride-on toys	3	0	3	0	3	5	2	4	0	3
	1.3	Climbing equipment	6	0	0	0	5	5	1	2	0	1
	1.4	"special spaces"	8	0	0	0	5	6	0	2	0	1
	1.5	Objects that allow for visual-motor (gross motor)	9	1	10	6	7	14	6	3	6	8
Play objects that allows for fine motor play	2.1	Grasping: Objects that allow for reaching, grasping, carrying & releasing by infants	62	19	51	50	38	67	20	31	40	50
	2.2	Grasping: Objects that can be crumpled, squeezed, twisted or manipulated	16	5	8	15	8	12	6	6	5	7
	2.3	Grasping: objects that require more complex or refined grasp	32	12	34	21	22	42	12	20	26	24
	2.4	Art materials	7	7	8	1	9	9	4	4	7	5
	2.5	Play objects that allow for visual-motor (fine motor)	32	12	23	11	22	47	11	20	27	26
Play objects that allows for sensory play	3.1	Cause& effect toys	3	0	6	9	2	5	3	4	3	0
	3.2	Play objects that can provide proprioceptive input	10	1	4	0	6	9	2	4	1	1
	3.3	Play objects - vestibular input	1	0	2	0	4	5	2	5	1	3
	3.4	Visual	57	23	70	52	53	72	27	45	57	63
	3.5	Tactile	19	6	9	19	15	23	5	7	8	15
	3.6	Auditory	5	0	6	7	2	3	3	3	1	6
Construction play	4	Construction play objects	17	5	10	5	3	13	3	8	6	8
Pretend play	5.1	fantasy/ dramatic play	33	13	25	40	22	44	12	21	21	36
	5.2	symbolic play	52	15	45	27	28	44	15	26	30	26
	5.3	functional play	12	6	6	11	3	13	3	10	7	14
Perceptual-cognitive	6.1	Stacking or nestling toys; Fit-in puzzles	2	1	4	2	2	4	0	1	1	0
	6.2	Objects that allow for matching, sorting, or pattern-making	21	10	18	9	12	27	6	15	15	13
	6.3	Objects that allow for exploration with numbers and sizes	4	2	8	4	2	8	0	3	3	3
	6.4	Objects that allow for sensory discrimination	26	16	39	13	28	3	12	22	27	26

As can be observed from this table, three of the ten crèches complied with all the criteria set for play objects that should be available at crèches. The criteria refer only to

the diversity of play objects to cover the areas of play development and do not take the quantity of objects relative to the number of children into account. The play object results also do not reflect variety within a certain category. The gaps in play object categories are discussed further in the following paragraphs.

4.3.3.1 *Play objects that allow for gross motor play*

Out of the ten crèches surveyed, four complied with all of the gross motor sub-categories, meaning that they provided an adequate diversity of gross motor play objects, according to the set criteria. As six crèches did not have gross motor play objects covering the spectrum of sub-categories, this category is the least fulfilled (compared to the other play object categories). Table 4.6 presents a summary of the number of crèches complying with each gross motor sub category. This is discussed in the following paragraphs.

Table 4.6: Summary of gross motor play object adequacy

Sub-categories	Percentage of crèches with adequate play objects in this category
Push-and-pull toys	80%
Ride-on toys	70%
Climbing equipment	60%
"Special spaces"	50%
Objects that allow for visual-motor (gross motor)	100%

Five of the crèches contained “special spaces” where children could climb through, or sit underneath objects. “Special spaces” at crèches were mostly situated outside, as part of the jungle gym, and little possibility for the exploration of space was found inside the crèches. However, crèches with outside jungle gyms all complied with the “special spaces” sub-category.

Six of the ten crèches had access to “climbing equipment”. According to the Guidelines for ECD Services,⁽¹⁰⁾ each Early Childhood Centre should have access to a jungle gym, emphasising the importance of climbing equipment in the development of pre-school children.⁽¹⁰⁾ These six crèches that had access to climbing equipment had at least one jungle gym which contained a variety of climbing equipment including

climbing nets, various ladders, stacked tyres and poles. Seven out of the ten crèches had “ride-on toys” and this varied between swings (those crèches who had jungle gyms mostly also had swings as part of these), plastic scooters and plastic “rockers.” Plastic containers or boxes big enough for children to fit into were also included in this category, as children can be pushed across the floor while sitting inside these boxes. Eight of the ten crèches had play objects available that can be pushed or pulled across the floor, promoting mobility.

All ten crèches that participated in the survey had play objects promoting visual-motor integration on a gross motor level. These objects mostly consisted of balls in various sizes, sport-equipment (e.g. cricket bats, tennis racquets, plastic golf sticks and skipping ropes), as well as climbing equipment (e.g. monkey bars as part of a jungle gym). All ten crèches had at least one ball.

Out of the six play object categories, “gross motor objects” was the category where the most crèches lacked adequate equipment: out of the ten crèches, six crèches lacked adequate play objects to cover all the sub-categories. The poor diversity of play objects allowing for gross motor play can be linked to the lack in play objects providing proprioceptive and vestibular input (discussed below). However, visual-motor objects were well represented. This is probably because these objects (balls and sport equipment), are so mobile and as most of the crèches share space with a church or other rented building, these objects can be easily packed away after crèche hours.

4.3.3.2 Play objects that allow for fine motor play

All ten of the crèches had at least one play object representing each of the sub-categories of the fine motor category, meaning that they offer an adequate diversity of fine motor play objects, according to the set criteria.

Grasping objects appropriate for the development of an infant’s initial reach, grasp and release were the most represented. Art materials were the least represented, but there was an average of six types of art materials per crèche, including various sizes of crayons, colouring-in pencils and felt-pens as well as paints, glue and paper.

4.3.3.3 *Play objects that allow for sensory play*

Seven out of the ten crèches surveyed had play objects to cover all the sub-categories of sensory play objects, meaning that they have an adequate diversity of sensory play objects according to the set criteria. Table 4.7 presents a summary of the number of crèches complying with each gross motor sub category. This is discussed in the following paragraphs.

Eight out of the ten crèches that participated in the survey had cause-and-effect toys amongst the play objects at their crèche. Cause-and-effect toys mostly consisted of musical instruments (e.g. xylophones, drums, shakers, bells and rattles) as well as electronic equipment that produce a sound when a button is pushed. Out of the eight crèches containing cause-and-effect toys, three crèches had five or more cause-and-effect toys available. Nine crèches had play objects stimulating the auditory system, again mostly comprising of musical instruments and electronic cause-and-effect toys.

Nine crèches contained objects that could potentially provide proprioceptive input and eight crèches contained objects that could potentially provide vestibular input. Those crèches which did contain objects that fall within this category contained an average of four objects within the proprioceptive sub-category and three objects falling within the vestibular sub-category.

All ten crèches contained objects falling within the visual and tactile sub-categories. This could be expected, as most play objects provide some kind of visual or tactile sensory input to a child’s sensory system.

Table 4.7: Summary of sensory play object adequacy

Sub-categories	Percentage of crèches with adequate play objects in this category
Cause& effect toys	80%
Play objects that can provide proprioceptive input	90%
Play objects - vestibular input	80%
Visual	100%
Tactile	100%
Auditory	90%

4.3.3.4 Play objects that allow for construction play

All ten crèches had various play objects available for the children to play with, that could potentially be used in construction play. This mostly comprised of commercial construction toys like Duplo© and Lego© and wooden blocks, but also included non-toy play objects like washing-pegs, home-made play-dough, measuring cups and empty egg-boxes. Eight of the crèches had traditional wooden blocks in various sizes and shapes and all ten of the crèches owned Lego© and/or Duplo© blocks.

4.3.3.5 Play objects that allow for pretend play

All ten crèches had play objects available that represented all three of the fantasy-play-object categories. In other words, these ten crèches had objects available for play that could be used in fantasy play (with realistic objects), symbolic play (using an object to represent something else) as well as functional pretend play (early pretend play when toddlers imitate every-day tasks like eating, speaking on the phone or putting a baby to sleep). Crèches contained an average of twenty seven fantasy play objects per crèche and three of the crèches had a corner specifically set up for fantasy play.

Nine of the ten crèches owned at least one doll and six crèches had dress-up clothes, including hand-bags, adult shoes and dresses. Eight of the crèches had eating utensils (e.g. cups, saucers, jugs) available, as well as kitchen equipment or furniture (e.g. wooden oven). Cleaning objects and little wooden irons with iron boards were also popular fantasy play objects and six of the ten crèches had child-sized ironing sets as well as cleaning objects like dust-pans and child-sized brooms. The boys were also catered for well and all crèches had transport objects including cars, trucks, aeroplanes and boats.

4.3.3.6 Play objects promoting perceptual-cognitive development

Eight out of the ten crèches covered all the sub-categories under the perceptual-cognitive category. Table 4.8 presents a summary of the number of crèches complying with each perceptual-cognitive sub category and it is discussed in the following paragraph.

All ten of the crèches contained pattern-making materials as well as objects promoting sensory discrimination. These objects included peg-boards and commercial perceptual games like Geo-stacks or ring o’links. Nine crèches fulfilled the criteria for “objects that specifically address size and number concept” as well as “nestling and stacking toys or fit-in puzzles.”

Peg boards were quite popular and half of the crèches had pegs and peg board. All the crèches had a variety of age-appropriate books as well as a variety of puzzles.

Table 4.8: Summary of play objects promoting perceptual-cognitive development

Sub-categories	Percentage of crèches with adequate play objects in this category
Stacking or nestling toys; fit-in puzzles	80%
Objects that allow for matching, sorting, or pattern-making	100%
Objects that allow for exploration with numbers and sizes	90%
Objects that allow for sensory discrimination	100%

4.3.3.7 Summary of play object adequacy

According to the set criteria for play object adequacy, three of the crèches surveyed had adequate play objects to cover the whole spectrum of a pre-school child’s development and seven crèches therefore did not have an adequate diversity of play objects to cover the full spectrum of a child’s development, according to the criteria set for the purpose of this study. However, four out of the seven crèches failed in the gross motor or sensory categories only. The sub-categories where seventy percent or less of the crèches fulfilled the criteria were ride-on toys, climbing equipment and “special spaces”. All of these sub-categories form part of the gross motor category. On average, play objects at the ten crèches covered twenty-two out of the twenty-four sub-categories.

Although six crèches did not have a diversity of gross motor play objects and lacked especially in the areas of climbing and space exploration (both climbing equipment and “special spaces” involve exploration of ones body in space), all the crèches had

equipment that promote visual-motor integration (including hand-eye coordination) on a gross motor level and sport equipment were popular play objects at the crèches.

All of the ten crèches surveyed had an adequate diversity of play objects to cover the spectrum of fine motor development, fantasy play as well as construction play.

4.4 Conclusion

It can be concluded that the planned play time at all of the respondent crèches were adequate according to the criteria proposed by the National Guidelines for Early Childhood Services published by the South-African Department of Social Development and UNICEF in 2006.⁽¹⁰⁾

Play object adequacy was also lacking: six crèches lacked in play objects developing gross motor skills, three crèches lacked in sensory-play objects and two crèches had inadequate play objects to cover the full spectrum of perceptual-cognitive development. Five crèches had a shortage of caregivers to provide optimal care to at least one age group and four crèches did not comply with the criteria regarding the average caregiver-child ratio.

The implications of these results in answer to research question and consequent recommendations will be discussed in the following chapter.

Chapter 5 – Conclusion and recommendations

5.1 Introduction

The results of the survey are presented and discussed in Chapter 4. The research question is concluded and the relevance of the results in the context of South African crèches is further discussed in this chapter. This includes the limitations of the study as well as recommendations for further research.

5.2 Research conclusions

It is clearly stated throughout the literature that play is crucial to a child's emotional and physical development and one of the core aspects of childhood. It is also emphasised that the play environment can not be separated from children's play performance and that the environment can therefore not be ignored when addressing ECD in South Africa. However, before encouraging well-rounded play environments that adequately cater for children's development, we first need to know what an adequate play environment constitutes and what aspects it entails. A clearer picture of the current play environment in our country and how it benefits, or influences, our children's play development and playfulness is also needed. The description and attempted measurement of the play environment at crèches in a South African community (in this case Macassar), is therefore relevant to childhood development in South Africa.

For the purposes of this study, already established National Guidelines for ECD Services published in 2006⁽¹⁰⁾ were used as a starting point in evaluating the play environment at crèches. However, gaps in these guidelines were identified regarding children's developmental needs, specifically with regard to the availability of play objects. The establishment of criteria regarding the availability of play objects can therefore improve the guidelines and standards for promoting children's health and ensuring optimal developmental stimulation and opportunities in South Africa.

The study found that thirty percent of crèches in the Macassar area had play objects to cover the entire spectrum of children's development. The results indicated that most of the crèches in Macassar adhered to the set Guidelines and therefore provided adequate play time and caregiver-child ratio.

Most of the crèches failed to cater for the whole spectrum of development regarding play objects and lacked play objects in the gross motor object category. This might be because the outside spaces used by some of the crèches were rented from churches or the city council and the crèches were therefore not able to build permanent structures like jungle gyms on the grounds. Another hypothesised reason for this occurrence is the perceived importance of different kinds of play. Although these crèches are located within a lower income area, all the crèches possessed puzzles, books and other perceptual cognitive toys. It may be that crèche owners perceive these "academic" toys to be more important and significant for a child's development than gross motor or sensory play objects, or it may be that some of these play objects were donated to the crèches. This could only be determined through a further study of caregiver's attitudes and beliefs regarding play and development. Another important factor to consider when reviewing gross motor play objects, is that not all gross motor play depend on the availability of play objects. Running, dancing and jumping are examples of gross motor play that can potentially occur spontaneously without any objects.

The research objectives were reached in the following ways:

1. Four environmental factors were identified in the literature review, namely play space, play time, play objects and play mates (including caregivers).
2. Measurement criteria to measure the environmental factors against were identified through the literature review. These criteria were obtained from the National Guidelines for ECD Services published by the South-African Department of Social Development and the United Nations International Children's Fund (UNICEF) in 2006.⁽¹⁰⁾
3. Criteria for the measurement of play object adequacy were developed by identifying categories and sub categories of play objects that should be available at crèches and then setting criteria for each category, according to the definitions and descriptions of these terms in literature. This was addressed in Chapter 3 section 3.4.3

4. The adequacy of the play environment at registered crèches in Macassar, according to these measurement criteria, was analysed and discussed.

In answering the research question, it can therefore be stated that the current play milieu at registered crèches in Macassar meet the criteria proposed by the National Guidelines for ECD Services published by the South-African Department of Social Development and UNICEF⁽¹⁰⁾ regarding play space and the structuring of play time. However, with regard to play objects, there seems to be a distinct lack in the gross motor play objects category and to a lesser extent in the sensory play objects and perceptual-cognitive play objects categories as measured by the criteria set in phase one of the research study.

At least five of the crèches did not comply to the minimum caregiver-child ratio proposed by the National Guidelines.⁽¹⁰⁾

5.3 Recommendations for further research

By highlighting the importance of play and subsequently also the play environment in child development, this study emphasises the need for not only investigating the environment at crèches from a health and safety perspective, but also to take the developmental potential of the play environment into account. However, understanding and assessing the play environment in a South African context requires more research. This should include further environmental measurement criteria and realistic, practical guidelines for teachers at formal and informal crèches. The following paragraphs highlight some recommendations regarding further research required, as well as recommendations regarding the application of already established information.

The following specific aspects require further investigation.

5.3.1 Providing support to informal crèches

As discussed under limitations, the research population in this study was small. The study also only included registered crèches. If further studies are commenced, looking at the play environment in South African day-care centres, it is recommended that

informal (non-registered) crèches are also included in the study population. As registered crèches are expected to comply with National Guidelines and Health regulations, the need for support and intervention at informal crèches might be bigger than the need at registered crèches.

Studies on how these informal crèches can be supported to maintain a higher level of care as well as how these crèches can be empowered, equipped and encouraged to also qualify for registration, will be beneficial to the development of South African Early Childhood Development.

5.3.2 A holistic approach to play

As mentioned in the literature review, the developmental benefits of play cover only an aspect of the significance of play in the world of a child. Play is also significant with regard to the social and emotional functioning of children and play as a meaningful occupation contributes to well-being. When assessing the play environment, these aspects need to be considered together with the developmental benefits of play. The influence of different play objects on children's social interactions and engagement as well as children's playfulness cannot be ignored. In the study by Lindell done in 1995,⁽⁵¹⁾ it was found that when toy enrichment packages were presented to children in pre-schools, one of the negative effects was a decline in the children's social functioning. It can therefore not be assumed that the presence of developmentally appropriate toys guarantee development.

Although literature confirmed that a diversity of play objects is beneficial to a child's development, the question remains: is there in reality a correlation between children's playfulness and play development and the play objects available for them to play with?

It is therefore recommended that future studies in this field explore the effect of a greater quantity and diversity in play resources (including play space and play objects) on aspects like the playfulness, social interactions, emotional expression and creativity. These aspects could also be investigated in a variety of socio-economic and cultural contexts.

In a diverse cultural and socio-environmental country like South Africa, the effect of cultural beliefs and expectations as well as economical limitations on the availability of play resources would also be applicable. Information on the effect of these aspects on the play environment as well as children's play functioning and playfulness would therefore contribute to more effective early childhood interventions.

5.3.3 *Application of the available resources*

The description of the play environment in this study involves the play objects, caregivers and space available at the Macassar crèches. However, it does not include the application of these resources. Although provision was made for space, caregiver-child interaction, a variety of play objects and time for different kinds of play at these crèches, it is not known whether it is actually applied effectively.

Although there might be adequate play objects available, this does not imply that the children actually engage with all the objects. The questions arise whether the children are allowed to play with all the play objects, whether the children choose to engage with certain toys more than with others, or whether playing with certain types of play objects are encouraged more by the caregivers. Although the caregiver-child ratio might be adequate, the question could be asked if, and to what extent the caregivers actually interact with the children? The same applies to the play time at the crèches. Further studies could investigate the amount of time allocated for each activity in order to determine how the play time at crèches is spent and which types of play enjoy preference at the crèches.

A participant observation study, investigating the dynamics between the play environment and the individuals as well as the application of the resources would provide a more holistic and realistic picture of the environment at these crèches.

5.3.4 *A "checklist for crèches"*

As discussed in the literature review, most guidelines and information on the play environment at crèches are related to Western crèches in developed communities. Formal and informal crèches and day-care in developing communities, centres could benefit from guidelines on how they could optimally provide for their learners'

development in a manner that is realistic in terms of their resources (space, infrastructure and finances). The play-object checklist developed during this study is one tool that could be used in this set-up by crèche owners to identify gaps in their play environments. However, some information on how to fill these gaps will need to be provided alongside this checklist. This could include examples of affordable toys to cover each category and sub-category of play objects. By conducting the survey of play objects among a larger population of crèches and in a variety of communities examples can be obtained of innovative play objects that are popular in the South African context. Some patterns of commonly occurring, non-commercial play objects were already identified during the survey in Macassar. This included used clothes for dress-up, hand-made wooden blocks and puzzles or matching cards made from used magazine pictures.

5.3.5 Organization of play objects

According to Doctoroff,⁽⁴⁷⁾ the organization of play objects and play space is an important consideration when investigating the play environment. Doctoroff mentions that space should be divided into different play areas.⁽⁴⁷⁾ Except for the literature by Doctoroff, there was limited literature describing an optimal organization of space and objects at crèches. Further studies investigating the lay-out of space and the storage of play objects in South African crèches, as well as the effect of this on children's play, would therefore be valuable. This could include recommendations on the optimal use of space for crèches in low-income areas, where space is often a luxury.

From the observations during the survey, there were differences in the organization of space and play objects amongst the ten crèches. While some crèches had clearly put effort into the arrangement of play space by separating areas into specific play spaces (e.g. a reading- or fantasy corner), other crèches had no division of space and play objects were stored in plastic crates, not necessarily arranged according to type or ordered in any way. This also leaves questions regarding the hygiene of the play objects.

Although this area will benefit from further studies, it can be highlighted as an aspect that could also be addressed further during any training workshops aimed at crèche

staff members. This could include practical ideas for more effective organization of space, as well as knowledge on why proper organization of play space is important.

5.3.6 *The importance of gross motor play*

As highlighted in Chapter 4 and the section 5.1 of Chapter 5, the biggest gap in play object types at the surveyed crèches was in the area of gross motor play objects. The reasons for this could be numerous. However, the fact remains that gross motor play is an integral part of childhood play. Investigating the reasons for the lack in gross motor equipment will be a start in understanding how to assist in overcoming this challenge. It might be that gross motor equipment is more expensive than e.g. perceptual games, blocks and rattles, or it might be that rented space (e.g. using a church building to run a crèche in) might prevent crèche owners from putting up permanent structures outside. Other environmental factors like a lack of shade or grass play areas might also limit their focus on gross motor play.

As with organization of space, this aspect can be viewed as a gap in the play environment at Macassar crèches. Further studies, investigating the reasons for the lack in gross motor play objects would therefore assist in directing further interventions.

In conclusion, there is still much to learn about the play environment and the way it influences children's play, playfulness, social interactions and development. In addition to this, one simple "model" for an "optimal environment" covering all contexts will be hard to establish, as the cultural and economic context will always create a dynamic and ever-changing system. However, ECD is a priority for the South African government and play forms the basis of childhood development. A greater understanding of the play environment at South African day care centres and crèches is therefore a logical precedence. Although this study assessed a small community on the Cape Flats, it also aimed to establish a framework for evaluating the environment at crèches, specifically related to child development. A more detailed investigation of the application of environmental resources, amongst a wider population of South African crèches, will provide even more valuable insight into the needs, gaps and areas of strength in this vital area of education in our country.

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Addendum A: Table of terms

Abbreviations

WCED	Western Cape Educational Department
ECD	Early Childhood Development
UNICEF	The United Nations International Children’s Fund
WHO	World Health Organization

Definitions of terms

Environment/ Milieu	<p>The environment includes both the physical, social and cultural aspects of our surroundings. The physical aspects referring to the “non-human context” and the social environment referring to “availability and expectations of important persons such as family, caregivers and social groups.” The cultural environment includes beliefs, customs, behaviour and expectations from society.⁽⁶⁾</p> <p>The term “environment” is used synonymously with the term “milieu”, but as the term “environment” more commonly appeared in literature, this term was referred to in this study.</p>
Occupation	“Everything people do to occupy themselves, including looking after themselves, enjoying life and contributing to the social and economic fabric of their communities” ⁽⁸⁶⁾
Occupational Performance	“The dynamic experience of a person engaged in purposeful activities and tasks within an environment” ⁽⁵⁾
Crèche	For the purpose of this study this term will refer to any registered child-care facility, caring for children between the ages of 0 and 6 years and therefore including day-care centres and pre-schools.

Caregivers	For the purpose of this study caregivers refer to staff members at crèches employed to specifically care for, teach, or interact with the children. This will include teachers and classroom assistants.
Play objects	For the purpose of this study the “play objects” refer to any objects that are safe and available for children to use in their play. This term will refer to Du Bois’s definition of toys namely: “the medium of play.” ⁽⁴⁶⁾ It will be used instead of the word “toys” as it refers both to toys in the traditional sense as well as “non-toy” play things, e.g. household objects and empty containers. Play things, play materials and play objects are used synonymously.
Types of play	In this study the terms “types of play and play objects” refer to the totality of play types and play object types found in the literature.
Play object categories	This term is used to refer to the categories of play objects used as measurement criteria in the survey.

Addendum B: Definitions for Play Time

a. Gross motor activities

Time provided for outdoor play, or play involving gross motor activities

b. Fine motor activities

Activities involving the use of the hands, in construction, manipulation, mark making or creative activities.

c. Creative activities

Structured activities where specific materials are provided that children can use to create something with.

d. Talking and listening activities

Activities involving stories or songs, or set out time where children are provided with the opportunity to tell a story, answer questions or sing a song.

e. Activities that develop intellectual abilities

Playing with perceptual-cognitive play objects, or “ring time” where children are taught on specific topics and concepts.

f. Opportunities for make-believe play

Time allowed for free-play when children can play fantasy games, or otherwise time structured specifically for fantasy play or play in the fantasy corner of the classroom.

g. Opportunities for quiet play

Allocated time where children have a choice in how they want to use their time inside the classroom e.g. reading a book, building a puzzle or participating in non-gross motor play.

Addendum C: Criteria for play object categories

	Category	Definition	Derived Criteria
1.	Play objects that allow for gross motor play	<i>Objects that encourage the use of the large muscles of the body.⁽⁵⁾ It therefore includes all active movement through space.</i>	<input type="checkbox"/> Require use of large muscles of body <input type="checkbox"/> Allow for whole body movement
1.1	Transportable objects: Push and pull toys	<i>Any play objects on wheels or that can be easily pushed or pulled along the floor.(Bronson) As it falls under the heading of gross motor play it needs to encourage gross motor movement, in other words its size requires the child to move around the room in order to move it.</i>	<input type="checkbox"/> The size and features of the object must allow it to be pushed or pulled <input type="checkbox"/> The size must encourage the child to use the large muscles of his body. <input type="checkbox"/> Must be realistic for a child to move around.
1.2	Transportable objects: Ride-on toys	<i>A play object that the child can sit on and propel in order to move. This includes swings and rocking or bouncing ride-on equipment.⁽⁴¹⁾</i>	<input type="checkbox"/> Child must be able to sit or stand safely on the object <input type="checkbox"/> Child must propel the object to create some kind of movement
1.3	“Special spaces”	<i>Large stationary objects in the room that allow for the child to move over, under, around and in between objects.⁽⁴⁰⁾</i>	<input type="checkbox"/> Stationary objects <input type="checkbox"/> Size allows for child to climb under, around and in-between.
1.4	Climbing equipment	<i>Jungle gyms, steps, ladders or anything that the child can safely climb onto and that requires a climbing action to get onto. Climbing equipment is appropriate for children as young as 2 years, but it must be the appropriate size for their age-group.⁽⁴¹⁾</i>	<input type="checkbox"/> Must allow for climbing. (Estimates of the object must encourage climbing versus just stepping over the object). <input type="checkbox"/> Size must be appropriate for the age of the child.

1.5	Objects that allow for visual-motor play	<i>No specific definition for visual-motor play could be found in the literature. "Visual-motor integration" is defined as "the degree to which visual perception and finger-hand movements are well coordinated".(beery). The term "visual-motor development" is used for any movement or task where the child applies both visual skills together with movement, either on a gross motor or fine motor level (e.g. kicking a ball, or building a tower with blocks.(Beery) For the purpose of this study visual motor play will be defined as play where a child uses a combination of visual perceptual skills and movements to accomplish a purpose (e.g. catching a ball)</i>	<input type="checkbox"/> Task must allow for the integrated or simultaneous use of motor coordination and visual information (on a gross motor level, therefore large body movements)
2	Play objects that allow for fine motor play	<i>Fine motor activity refers to the use of the hands to participate in activities, thus developing fine motor coordination and hand-function.⁽⁶⁵⁾</i>	<input type="checkbox"/> Object must require the use of one or both hands
2.1	Grasping: objects that allow for reaching, grasping, carrying and releasing by infants	<i>The skill of reaching, grasping and releasing objects develops from around fourteen weeks to 6 months.⁽⁶³⁾ This naturally forms part of a young infant's play and includes "fiddling" with objects in a non-purposeful way.⁽⁵¹⁾</i>	<input type="checkbox"/> Object safe for baby to grasp and mouth <input type="checkbox"/> Fits comfortably in infant's hand.
2.2	Grasping: Objects that can be squeezed, crumpled, twisted, poked, etc.	<i>After this a toddler starts squeezing, crumple, twist while exploring (after 6 months).</i>	<input type="checkbox"/> Objects that can be squeezed, crumpled, twisted, poked, etc.
2.3	Grasping: Objects that require more complex grasping or pincer grasp	<i>During the 2nd year, infants loose interest in simple grasping toys and prefer objects that require more complex or refined grasping. This includes knobs, lids or taking apart toys as well as stringing, lacing or dressing (the pincer grasp is well developed by then).</i>	<input type="checkbox"/> Objects that require more complex grasping, e.g. knobs, taking apart OR <input type="checkbox"/> Objects that require refined or pincer grasp - stringing, lacing, dressing.

2.4	Art materials	<i>Mark-making materials or materials that can be used to construct something by manipulating it with the hands (Definition derived from Bronson's examples of these materials)</i>	<input type="checkbox"/> Must make a mark when applied to another surface OR must be usable to mould something by manipulating it with hands (e.g. play-dough).
			<input type="checkbox"/> Suitable surface to apply mark to must also be available
2.5	Play objects that allow for visual motor play (fine motor)	<i>As stated above (under the heading visual-motor play on gross motor level), for the purpose of this study, visual motor play will be defined as play where a child uses a combination of visual perceptual skills and movements to accomplish a purpose. In this case movement must refer to fine motor (hand) movement.</i>	<input type="checkbox"/> Task must allow for the integrated or simultaneous use of motor coordination and visual information (on a gross motor level, therefore movement of the upper limbs and hands only)
3	Objects that allow for sensory play	<i>Play objects that involve the senses (tactile, auditory, visual, vestibular or proprioceptive sense). This includes sensory-motor play where the child uses the senses to explore objects.</i>	<input type="checkbox"/> Must provide stimulation or input to one of the senses
3.1	Cause-and-effect-toys	<i>Toys that change shape or make a noise when manipulated.⁽⁶⁸⁾ These objects need to be simple enough for toddlers to cause an effect on (as the exploratory play phase typically occur in the toddler years)</i>	<input type="checkbox"/> Play object must produce some kind of effect in reaction to a child's action.
			<input type="checkbox"/> This reaction must provide input to the child's sensory system
3.2	Play objects that can provide proprioceptive input	<i>Objects that can potentially provide feedback through the muscles and joints either through active muscle working, muscle traction, joint-compression, or pushing and pulling heavy objects⁽⁴⁰⁾</i>	<input type="checkbox"/> Object must provide opportunity for active muscle work, muscle traction, joint-compression or pushing and pulling a heavy object.
3.3	Play objects that can provide vestibular input	<i>Play equipment that a child can ride on, swing on, or slide down from. This includes suspended equipment as well as non-suspended unstable surfaces like trampolines.⁽⁴⁰⁾</i>	<input type="checkbox"/> Must potentially provide external movement input
3.4	Play objects that can provide visual input	<i>Objects that provide the child's visual system with stimulation, appealing to a baby (i.e. bright, or high contrast).</i>	<input type="checkbox"/> Bright, or high contrast objects attractive to babies and promoting visual following.
3.5	Play objects that can provide tactile input	<i>Objects that provide the child's tactile system with stimulation.</i>	<input type="checkbox"/> Must be safe to touch and mouth <input type="checkbox"/> Must provide child with extra tactile input, therefore a textured object or material.

3.6	Play objects that can provide auditory input	<i>Play objects that produce a sound</i> ⁽⁴¹⁾	<input type="checkbox"/> Object must potentially produce a sound, either electronically, or mechanically (e.g. a rattle), other than just banging.
4	Objects that allow for construction play	<i>Construction play is the “manipulation of objects to construct or create something” therefore construction play objects include any objects that can be manipulated to construct something else.</i> ⁽⁵⁾	<input type="checkbox"/> Must have to potential to freely construct something with, with or without interlocking pieces, including materials that van be manipulated, e.g. play dough.
5	Objects that allow for pretend play	<i>“Actions, objects, persons, places, or other dimensions of the here-and-now are transformed or treated non-literally”.</i> ⁽⁵⁾	<input type="checkbox"/> Objects that can be incorporated in children’s pretend play and that fall under one of the categories listed below (Symbolic, dramatic, fantasy or functional play)
5.1	Play objects that allow for dramatic or fantasy play	<i>Objects that can be incorporated into role enactment and that is an imitation or realistic representation of objects normally found in different context (e.g. dressing up clothes, broom, doll) as initial fantasy play develops when realistic imitations of objects are used in pretend games.</i> ⁽⁵⁹⁾	<input type="checkbox"/> A realistic representation of a real life object that can be used in pretend play
5.2	Play objects that allow for symbolic play	<i>Symbolic play involves the use of “objects as symbols” (e.g. using a block as a phone) and therefore symbolic play objects can include any objects that are accessible to children.</i> ⁽⁵⁹⁾	<input type="checkbox"/> An object that can be used in children's pretend play in a symbolic manner, in other words not a real life presentation of an object.
5.3	Play objects that allow for functional play	<i>Functional play entails the beginning phase of pretend play when children use objects for their intended purpose, e.g. pretending to drink from a cup. Objects encouraging functional play will therefore include every-day, real-life objects (e.g. a brush) accessible to the baby.</i> ⁽⁴¹⁾	<input type="checkbox"/> Object must represent a real-life every-day object that is used to perform every-day tasks, e.g. brush, cup, spoon.

6	Objects that allow for the development of perceptual-cognitive skills.	<i>Includes the development of sensory discrimination, interest in numbers and quantities, literacy activities and matching activities.⁽⁴¹⁾ During the infant years it consists of fitting together toys and cause-and-effect toys (Bronson) already mentioned as separate sub-categories.</i>	<input type="checkbox"/> Any play object that is aimed at developing sensory discrimination, numbers and quantities, literacy, pattern-making or “matching” <input type="checkbox"/> Construction materials without specific guidelines (e.g. a picture to be copied) are not included in this criteria. <input type="checkbox"/> Toys that can fit together by stacking or nestling. Size or shape plays a role in the way they fit together
6.1	Stacking or nestling toys	<i>Toys that fit together by stacking or nestling, develops size and space concepts</i>	<input type="checkbox"/> Shapes, colours or pictures available in multiple numbers, can be used to make or copy patterns or sequences.
6.2	Objects that allow for matching, sorting, or pattern-making	<i>Playing with patterns, similarities and sorting, involves visual discrimination</i>	<input type="checkbox"/> Play objects must contain numbers or objects that must be sorted according to quantity
6.3	Objects that allow for exploration with numbers and sizes	<i>Play that involves numbers and sizes.</i>	<input type="checkbox"/> Play objects that develop sensory discrimination, including colour, shape and size discrimination by means of touch and vision as well as sound discrimination.
6.4	Objects that allow for sensory discrimination	<i>Play where sensory discrimination skills are practised, including color, shape, sound, smell, taste or size.</i>	

Addendum D: Survey form for documenting play objects

Number of crèche: ____ **Class:** ____ **Ages of children:** ____ **Number of children:** ____

OUTDOOR PLAT OBJECTS:

PLAY OBJECTS	DESCRIPTION

Number of crèche: ___ Class: ___ Ages of children: _____ Number of children: _____

INDOOR PLAY OBJECTS:

PLAY OBJECTS	DESCRIPTION

Addendum E: Survey form

Survey (The play milieu at crèches in Macassar)

Crèche number

Number of children attending (also record class)

0-3 years:		3 year to 4 years 6 months:	
4 years 6 months to 5 years 6 months:		Are children separated according to ages?	

Caregivers

Number of caregivers at crèches and level of education (secondary/tertiary)

initials	level of education	initials	level of education

Programme? Yes/no

Crèche times	
Hours/week of television allowed	

Write down program:

Is space divided into different play spaces? Yes/No

If yes, how? _____

Signature of Researcher _____

Date _____

Addendum F1: Informed consent form (English)

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT: The play milieu at crèches in Macassar
PRINCIPAL INVESTIGATOR: Marilize Kruger (Cell: 084 829 5560)

You are invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. It is important that you understand what this research involves. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the **Committee for Human Research at Stellenbosch University** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

The study

This study will be conducted at **all the crèches in the Macassar area willing to take part in the study**. The study will look at the **play environment at crèches** and will aim to determine needs and trends concerning the environment (this will include toys, number of caregivers and day programme).

The study will be done entirely **anonymously** and **does not aim to evaluate or compare individual crèches**, but rather to determine the needs of the greater community. The researcher works independently from any state organizations or departments. The study will entail doing a survey of all available toys and taking into account the daily programme.

What will your responsibilities be?

Should you choose to participate you will be asked to give some information regarding the amount of children in the crèche and the programme you follow. We will measure the physical space at your crèche and do a survey of available materials available. This will all be recorded anonymously and information will not be made available to any organizations, or institutions prior to analysis. The name of the crèche will not be written on the forms.

There are no direct benefits from participation in this study, but the study aims at benefiting the greater community in assisting with information in order to improve empowerment and educational programmes by creating a greater awareness of the specific needs at crèches and day-care-centres. Results of the study will be made available to the community if requested.

Is there anything else that you should know or do?

You can contact Marilize Kruger at tel 084 829 5560 if you have any further queries. You can contact the Committee for Human Research at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the researcher. You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I agree to take part in a research study entitled *The Play milieu at crèches in Macassar*).

I declare that:

- I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (*place*) on (*date*) 2009.

.....
Signature of participant

.....
Signature of witness

Declaration by investigator

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use a translator. (*If a translator is used then the translator must sign the declaration below.*)

Signed at (*place*) on (*date*) 2009.

.....
Signature of investigator

.....
Signature of witness

Addendum F2: DEELNEMERINLIGTINGSBLAD EN - TOESTEMMINGSVORM

TITEL VAN NAVORSINGSPROJEK: Die spelomgewing by creches in Macassar
HOOFNAVORSER: Marilize Kruger (084 829 5560)

U word genooi om deel te neem aan 'n navorsingsprojek. Lees asseblief hierdie inligtingstuk op u tyd deur aangesien die navorsingsprojek daarin verduidelik word. Indien daar enige deel van die navorsingsprojek is wat u nie heeltemal verstaan nie, is u welkom om die navorser daarvoor uit te vra. Dit is baie belangrik dat u volkome moet verstaan wat die navorsingsprojek behels. U deelname is ook **heeltemal vrywillig** en u is vry om deelname te weier. U sal op geen wyse hoegenaamd negatief beïnvloed word indien u sou weier om deel te neem nie. U mag ook te enige tyd aan die navorsingsprojek onttrek, selfs al het u ingestem om deel te neem.

Hierdie navorsingsprojek is deur **die Komitee vir Mensnavorsing van die Universiteit Stellenbosch** goedgekeur en sal uitgevoer word volgens die etiese riglyne en beginsels van die Internasionale Verklaring van Helsinki en die Etiese Riglyne vir Navorsing van die Mediese Navorsingsraad (MNR).

Wat behels hierdie navorsingsprojek?

Hierdie navorsingsprojek word by alle crèches in die Maccassar omgewing gedoen wat instem om aan die studie deel te neem. Die studie bestudeer die spelomgewing in die creches deur na die **speel spasie, hoeveelheid versorgers, beskikbare speelgoed en tyd uitgesit vir spel** te kyk. Behoeftes en neigings ten opsigte hiervan sal dan geïdentifiseer word. Die studie is heeltemal **anoniem** en die **doel is glad nie om creches te vergelyk, of te evalueer nie**, maar eerder of neigings en behoeftes binne die gemeenskap te bepaal. **Die navorser werk onafhanklik en is nie met enige staatsinstansies of departemente verbind nie**. Die Studie word heeltemal anoniem gedoen en geen name van creches sal by rou data of uitslae ingesluit word nie.

Wat sal u verantwoordelikhede wees?

Indien u instem om deel te neem, sal u gevra word om inligting te verskaf rakende die hoeveelheid kinders en versorgers en dagprogram wat u by u skool volg. Die navorers sal die area van die crèche meet en 'n opname doen van beskikbare speelgoed in die creche. Dit sal alles anoniem neergeskryf word en rou data sal nie aan enige departemente of organisasies verskaf word nie. Daar is geen direkte voordele daaraan verbonde om aan die studie deel te neem nie, maar die studie poog om die gemeenskap te bevoordeel deur inligting te verskaf wat kan lei tot verbeterde gemeenskapsontwikkelingsprojekte. Inligting verskry vanaf die studies al met aanvraag aan die gemeenskap bekend gemaak word.

Is daar enigiets anders wat u moet weet of doen?

- U kan Marilize kontak by selfoon nommer 084 829 5560 indien u enige verdere vrae het of enige probleme ondervind.
- U kan die Komitee vir Mensnavorsing kontak by 021-938 9207 indien u enige bekommernis/klagte het wat nie bevredigend deur die hoofnavorser hanteer is nie.
- U sal 'n afskrif van hierdie inligting- en toestemmingsvorm ontvang vir u eie rekords.

Verklaring deur deelnemer

Met die ondertekening van hierdie dokument onderneem ek,
....., om deel te neem aan 'n
navorsingsprojek getiteld "Die Spelmilieu by crèches in Macassar".

Ek verklaar dat:

- Ek hierdie inligtings- en toestemmingsvorm gelees het of aan my laat voorlees het en dat dit in 'n taal geskryf is waarin ek vaardig en gemaklik mee is.
- Ek geleentheid gehad het om vrae te stel en dat al my vrae bevredigend beantwoord is.
- Ek verstaan dat deelname aan hierdie navorsingsprojek **vrywillig** is en dat daar geen druk op my geplaas is om deel te neem nie.
- Ek te eniger tyd aan die navorsingsprojek mag onttrek en dat ek nie op enige wyse daardeur benadeel sal word nie.
- Ek gevra mag word om van die navorsingsprojek te onttrek voordat dit afgehandel is indien die studiedokter of navorser van oordeel is dat dit in my beste belang is, of indien ek nie die ooreengekome navorsingsplan volg nie.

Geteken te (*plek*) op (*datum*) 2005.

.....
Handtekening van deelnemer

.....
Handtekening van getuie

Verklaring deur navorser

Ek (*naam*) verklaar dat:

- Ek die inligting in hierdie dokument verduidelik het aan
- Ek hom/haar aangemoedig het om vrae te vra en voldoende tyd gebruik het om dit te beantwoord.
- Ek tevrede is dat hy/sy al die aspekte van die navorsingsprojek soos hierbo bespreek, voldoende verstaan.
- Ek 'n tolk gebruik het/nie 'n tolk gebruik het nie. (*Indien 'n tolk gebruik is, moet die tolk die onderstaande verklaring teken.*)

Geteken te (*plek*) op (*datum*) 2005.

.....
Handtekening van navorser

.....
Handtekening van getuie

Addendum G1: Play time at crèche 7 (example)

Daily program	
Activity	Type of play
Religious studies	Talking and listening
Morning ring and creative activities	Fine motor Talking and listening Intellectual Creative
Outside play	Gross motor Make believe
Literacy	Intellectual
Quiet play	Quiet play
Story	Talking and listening
Criteria for Play time	
Type of play provided for in day planning	Time Scheduled
Physical activities (Gross motor or outdoor play) <i>Time provided for outdoor play, or play involving gross motor activities</i>	Yes
Physical activities (Fine motor play) <i>Activities involving the use of the hands, in construction, manipulation, mark making or creative activities.</i>	Yes
Creative activities <i>Structured activities where specific materials are provided that children can use to create something with.</i>	Yes
Talking and listening activities <i>Activities involving stories or songs, or set out time where children are provided with the opportunity to tell a story, answer questions or sing a song.</i>	Yes
Activities to develop intellectual abilities <i>Playing of educational games, or “ring time” where children are taught on specific topics and concepts.</i>	Yes
Opportunity for make-believe play <i>Time allowed for free-play</i>	Yes
Opportunities for quiet play <i>Structured activities where children have a choice in how they want to use their time, inside the classroom either reading a book, building a puzzle or participating in non-gross motor play.</i>	Yes

Addendum G2: Play objects at crèche number 7 (example)

Crèche 7

Page number

Description of play object	Age-appropriate?	In functional condition?	1. Play objects that allows for gross motor play	2. Play objects that allows for fine motor play					3. Play objects that allows for sensory play						4. Play objects that allow for construction play	5. Play objects that allow for pretend play	6. Play objects that allow for perceptual-cognitive play									
			Objects that require large muscle activity and coordination					Objects that require the use of the hands to participate in an activity					Objects that provides sensory stimulation of one or more of the sensory systems.						Play objects that a child can manipulate in order to build or construct something	Objects that can be incorporated in children's pretend play and that fall under one of the below categories			Any play object that is aimed at developing sensory discrimination, numbers and quantities, literacy, pattern-making or "matching"			
			1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5	3.6	4	5.1	5.2	5.3	6.1	6.2	6.3	6.4
			Push-and-pull toys	Ride-on toys	Climbing equipment	"special spaces"	Objects that allow for visual-motor play (GM)	Play objects that allow for reach, grasp, carry & release	Grasping: Objects that can be crumpled, squeezed, twisted, manipulated	Grasping: objects that require more complex or refined grasp	Art materials	Play objects that allow for visual-motor play (FM)	Cause& effect toys	Play objects that can provide proprioceptive input	Play objects that can provide vestibular input	Visual stimulation	Tactile	auditory		Play objects that allow for fantasy/dramatic play	Play objects that allow for symbolic play	Play objects that allow for functional	Stacking or nestling toys; fit-in puzzles	Objects that allow for matching, sorting, or pattern-making	Objects that allow for exploration with numbers and sizes	Objects that allow for sensory discrimination
Old magazines						1																			1	
Thick crayons							1	1	1					1								1			1	
Powder paint & brushes							1	1	1					1	1										1	
Figurines						1								1				1								
Little plastic spade						1								1					1							
Children's books														1											1	
Beads and string (big, square beads, can be used for construction)						1		1		1												1			1	

Addendum G2 continued

Scissors (children size)									1	1	1																			
Wool									1	1					1	1														
Pritt sticks											1	1	1																	
Soft toys									1	1					1	1									1					
Little plastic cup, pan and jug									1						1									1			1			
Plastic gun									1						1									1						
Rattle									1					1		1									1					
child-sized pretend dust-pan									1						1									1			1			
Plastic Rocker (see-saw type); for children from 18 months - 6 years															1	1														
Portable plastic slide with ladder, for indoors																1														
Cricket bat (plastic)																														
Skittles									1	1																				
Skipping rope									1						1															
Washing pegs (wooden)																														
Plastic truck, hand-size																														
Rugby ball									1																					
Soccer ball									1																					
Old computer keyboard																														
4 x 12pc; 30pc; 40pc; 63 pc puzzles																														
Hand made lacing cards (cardboard, plastic covering)																														
Dolls																														
Baby keyboard that makes sounds when buttons are pressed																														
Xylophone																														
Car, hand size																														

Addendum G2 continued

Bigger cars (can be used as push and pull toys)			1													1														
Old handbag							1	1	1							1														
Little play oven – wooden.																						1								
Floor puzzle							1		1	1						1									1					
Light-weight, 30 cm ball						1										1														
Matching cards (pictures of 5 senses)																							1		1					
Lego (small)							1		1	1						1			1			1		1	1					
Wooden blocks, various shapes							1			1						1			1			1		1	1					
Pegs and peg boards (Small, pincer grasp)									1	1												1		1	1					
			1	2	1	0	6	20	6	12	4	11	3	2	2	27	5	3					3	12	15	3	0	6	0	12

Addendum G3: Caregiver-child ratio at crèche 7 (example)

Ages	Amount of children	Amount of caregivers	Caregiver-child ratio	Suggested ratio
0 - 18 months	24	1		01:06
18 months - 3 years			01:24	01:12
3 years - 4 years	19	1	01:19	01:20
4 years - 5 years	29	1	01:29	01:30
Total	72	3	01:24	