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Pedagogical quality of daycare centers on the Netherlands Antilles

Current quality and comparison with quality measures of 2007



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The present study investigated the pedagogical quality of daycare centers on the five islands of the Netherlands Antilles and compared it with the quality as measured in 2007 by Van Bragt. A total of 23 daycare centers with 45 groups participated in 2010 which was compared with 19 daycare centers with 38 groups from 2007 (total of 83 groups). Every group was observed for a morning and standardized measure instruments, the ECERS-R, ECERS-E, and ORCE, were used to assess the pedagogical quality. A total of 140 parents and 137 caregivers filled in a questionnaire and there were interviews with 23 directors and 16 key persons in the Early Childhood Care and Development on the Netherlands Antilles. In total 316 persons were asked about the quality of daycare centers. The results showed that the pedagogical quality of the daycare centers was inadequate for the development of the children. The sensitivity of the caregivers was at the mediocre level. When the scores were compared with the quality of 2007 there was an improvement on the overall pedagogical quality. Also there was an improvement on 'Space and furnishing', 'Language-reasoning', 'Activities' and 'Program structure'. The sensitivity of the caregivers did not improve. Results further showed that although the implementation of the High/Scope program neither was completed nor sufficient, the High/Scope program was a mediating factor between the quality of 2007 and 2010. The quality of daycare centers on the Netherlands Antilles definitely needs improvement, to give the children adequate stimulation in their development.

Keywords: Early Childhood Care and Development; daycare; process quality; structural quality; High/Scope; Netherlands Antilles

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1. Introduction

In the past decade the pedagogical quality of daycare centers has been examined all over the world. The Early Childhood Care and Development (ECD) becomes more and more a priority in politics and research. Also on the Netherlands Antilles there is attention to the ECD. A lot of children attend daycare, which has a great impact on the development of the children. This study focuses on the current pedagogical quality of daycare centers on the Netherlands Antilles and improvement since 2007.

1.1 Child care on the Netherlands Antilles

1.1.1 Netherlands Antilles

The Netherlands Antilles are five islands situated in the Caribbean Sea. The islands are part of the Dutch Kingdom, which also contains The Netherlands, and Aruba. Two of the five islands are near the coast of Venezuela, Bonaire and Curaçao, which are called the Leeward Islands. The other three islands are called the Windward Islands; Sint Maarten, Saba and Statia, and they are situated near the United States Virgin Islands. The capital of the Netherlands Antilles is Willemstad, located on Curaçao (Unesco, 2000). The Netherlands Antilles have a geographical area of 960 km² and have approximately 200.000 inhabitants of which nearly 14.000 are children from 0 – 4 years old (7%) (Central Bureau of Statistics, 2010; Bureau of Western Hemisphere Affairs, 2010).

The Netherlands Antilles have a parliamentary system with two governmental levels. The first is the central government and the second level consists of five island governments that deal with the local island affairs. The Netherlands Antilles are semi-autonomous on most internal matters and defers to the Kingdom of the Netherlands in matters of defence, foreign policy, final judicial review, human rights, and good governance. On the 10th of October 2010 there will be changes in the structure of the Netherlands Antilles. The central government will no longer exist. Curaçao and Sint Maarten will get a country status within the Dutch Kingdom, similar to the status of Aruba. The smaller islands Saba, Statia and Bonaire will become Dutch communities.

The largest part of the Netherlands Antilles population is of African derivation, approximately 85%. The remaining 15% is made up of various races and nationalities, including Dutch, natives from other Caribbean islands, Latin Americans, Asians, and others. Of religious

backgrounds the Roman Catholicism predominates, but several other religions are represented, which among others include, Protestant, Jewish, Baptist, Islam, and Hindu. Tourism and financial services have been the main resource of the Netherlands Antilles' economy for years. Other sources are industry and agriculture (Bureau of Western Hemisphere Affairs, 2010).

The official language of the Netherlands Antilles is Dutch. However in the Antillean society there is a large variety of languages spoken. On the Leeward Islands the language most used in homes where there are children present between the ages of 0 and 4 is Papiamentu. On Curaçao Papiamentu is spoken in 81% of the homes and at Bonaire this is in 74% of the homes. Other predominant languages are English, Dutch and Spanish. On the Windward Islands the most predominant language used in homes with children present between the ages of 0 and 4 is English. On Sint Maarten 70% of the households uses English as first language and for Saba and Statia this is respectively 93% and 84%. On Sint Maarten predominant languages besides English are Creole, Spanish and Dutch. On Statia this is Spanish and Dutch (Hellings, 2006).

1.1.2 ECD on the Netherlands Antilles

There are three major events that caused countries all over the world to commit to the child and its rights. These are the Convention of the Rights of the Child (1989), ratified by the Netherlands Antilles in 1998, the world conference 'Education for All' 1990 Jomtien, and the 'world education forum', Dakar/Senegal in 2000 (Sifma, 2001). In accordance with these events the Netherlands Antilles acknowledges the importance of Early Childhood Care and Development. In 2001 the general government through the minister of Education, Culture, Youth, and Sports requested Sentro di Informashon i Formashon na Bienestar di Mucha (SIFMA) to formulate a framework policy on early childhood care and development for the Netherlands Antilles. The main motive to formulate a framework policy was the acceptance of an urgency program for integral education, which also contains ECD. In 2002 Foundation Based Education (FBE) was implemented in primary and secondary education of the Netherlands Antilles (Sifma, 2001). In this program ECD deserves special attention in order to make a smooth transition into formal education possible. To enlarge the chance of success of FBE the Antillean government strives to more participation of three-year old children to preschool and improvement of the quality of the daycare centers (Hellings, 2006). The framework policy is set to plan the policy on ECD for the next 15 years and the policy was planned to be evaluated every two or three years. This policy is the basis for the policies of the five island governments (Sifma, 2001). To ensure that the policy and implementation of the policy will be close to reality, there were inventories to assess the

existing situation in daycare centers of all the islands. Based on these inventories every island set up a report about the results and how to implement the policy in daycare centers. The reports of every island differed widely, but every report did address the minimum quality requirements set down in each island ordinance (Sifma, 2001). The framework policy focuses on courses for daycare center personnel, a diploma for caregivers and directors, minimum requirements valid for all islands and parenting support. Sifma will monitor the progress of the development. Furthermore the central and island governments will require yearly progress reports (Unesco, 2000).

1.1.3 SIFMA

Sentro di Informashon i Formashon na Bienestar di Mucha (SIFMA) is a centre for the information and formation for the welfare of children. The centre was founded on October 3rd 1991 and is an Antillean organization and executes programmes on all five islands of the Netherlands Antilles. The organization has offices on both Curaçao and Sint Maarten. Its missions to promote ECD and a harmonious family life at the Antilles, this especially for children and families in risk situations. The organization aims to help the caregivers of the young child, parents and other caregivers. The young mother, in particular the teenage mother deserves special attention of Sifma. In short the general objectives of Sifma are Early Childhood Care and Development, parenting and teenage parenting. These objectives of Sifma are based on the Convention of the Rights of the Child. To reach the goal of Sifma, it works with local and foreign public and private sector agencies and other Non-Governmental Organizations (NGO's; Dekker, 2001).

1.1.4 Daycare centers on the Netherlands Antilles

Background information of the daycare centers and children on the Netherlands Antilles is difficult to specify. Not all the daycare centers are centrally registered. Also there is a lot of turnover of daycare centers, caregivers and children. Daycare centers on the Netherlands Antilles do not register background information of children structurally, so information about the children attending is also hard to specify. The present study uses the numbers from the island inventory reports described in Hellings (2006). Hellings combined these reports, which contains the most recent numbers at hand.

The children in the enlisted daycare centers on the Netherlands Antilles all range from age 0 to age 4. There are 181 daycare centers at the Netherlands Antilles registered. Of the daycare centers 129 are situated on Curaçao, 35 on Sint Maarten, 15 on Bonaire, 1 on Statia and 1 daycare center on Saba (Hellings, 2006).

On all the islands approximately 40-45% of children aged between 0-4 attend a daycare center, except for Statia where this is 55% of the children. With age the percentage of attending grows. Proportionally the amount of babies is lowest and the amount of three year olds attending daycare centers is largest. When looking at the separate islands, Statia has the most three year olds attending daycare (88%) and Saba the least with 60%. The percentage of the other three islands is around 70% (Hellings, 2006).

The language spoken in the daycare center corresponds for the most part with that of the predominant language spoken in the households. On the Windward Islands the languages at the daycare centers is English. On Bonaire it is Papiamentu and on Curaçao most daycare centers use Papiamentu as well as predominant languages. On Curaçao there are also a few daycare centers that choose to use Dutch as predominant language (Hellings, 2006).

When comparing the income background of the households with children present from age 0-4, there is a clear difference in attending a daycare center. On all the islands the lower income families do not send their child to daycare as often as the higher income families (Hellings, 2006).

1.1.5 Quality of child care on the Netherlands Antilles

There is little known about the quality of daycare centers on the Netherlands Antilles. A few studies give an indication of the quality, but not a complete overview. In 2006 Hellings made an inventory report regarding the quality of daycare centers on the Netherlands Antilles. This report is based on the inventory reports of Sint Maarten, Curaçao, Bonaire, Saba and Statia between 2002 and 2006. Hellings (2006) discusses a lot of aspects concerning the quality of daycare centers. A few of them; the caregiver-child ratio, education level of the staff and the buildings of daycare centers, will be discussed here. In the island ordinances the caregiver-child ratio is set. For a baby-group 1 caregiver per six babies is the norm, for 1 - 2 year olds 1 caregiver per 8 children and for 2 – 4 year olds 1 caregiver per 12 children. On the five islands the caregiver-child ratio is higher than the allowed number (Hellings, 2006). The education level of the staff is set in the island ordinance as well. The director of a daycare center should have a relevant HBO-education completed. A social-pedagogical LBO-education is the minimum education level for

caregivers. The buildings daycare centers are located in are not always suitable. Daycare centers are located in independent housing or parts of a house. On Sint Maarten only 5% of the daycare centers are located in independent housing. On Bonaire and Curaçao around half of the daycare centers are located in independent housing and on Saba and Statia both daycare are located in independent housing. The daycare centers located in parts of houses are not always suitable in terms of space, sanitation and building construction (Hellings, 2006).

The process and structural quality of 19 daycare centers on the Netherlands Antilles was assessed by Van Bragt of the University Utrecht in 2007. Van Bragt (2007) concluded that the quality of the child care at the five islands is at the lowest level comparing with international standards. At the quality levels 'inadequate', 'minimal' and 'good' all observed daycare centers (100%) obtain the total score of 'inadequate'. This means that the quality of care that children receive in daycare centers was inadequate for the stimulation of their development (Van Bragt, 2007).

A first step in the direction of improving the quality of daycare centers was the development of a 'framework curriculum for preschool education on the Netherlands Antilles' in 2007. This framework curriculum describes the pedagogical activities for children and the minimal quality standards for daycare centers (Nederlands Jeugdinstituut (NJI), 2007). The development of a framework curriculum received special attention from the Antillean government, because of the introduction of an important education innovation in 2002, Foundation Based Education (Sifma, 2001). In order to realize Foundation Based Education there should be some changes in daycare centers: first, a greater participation of young children in preschool education, and second, the improvement of the quality of preschool facilities. These changes can be realized by High/Scope as described in the framework curriculum (NJI, 2007).

1.1.6 Curriculum daycare centers Netherlands Antilles

Through the years the High/Scope program has been used by many daycare centers, schools and other institutions that work with young children all over the world. In 2007 the High/Scope curriculum for caregivers of daycare centers and for teachers of the lower levels of primary school was developed on the Netherlands Antilles. This choice is based on national and international experiences and research (NJI, 2007). Children living in poverty who participated in the High/Scope Perry Preschool project showed better progress in many aspects than their peers who did not participated in the program. A high-quality High/Scope program contributes to social development, school success, economic performance, and reduced commission of crime in

adulthood (Schweinhart, 2005). Furthermore, the program connects well to Foundation Based Education. The High/Scope program offers optimal opportunities for a continuous line of development of young Antillean children. There is room for cultural or local interpretation of the program also, which makes it suitable for the Antillean situation (NJI, 2007).

The fundamental idea of the High/Scope program, as described in the framework curriculum, is active learning. Active learning is a learning process in which children acquire a new concept by being actively involved with things, people, ideas and events. Children acquire new concepts optimally in an environment that is geared toward their stage of development (Schweinhart, 2003). Second, the environment must stimulate the children to make choices and must provide materials that challenge children toward play and cooperative play. Third, important in the developed curriculum is the daily routine. A fixed daily routine gives children, caregivers and parents a holdfast. In the daily routine the planning of activities in small groups, carrying out their plan and review what they have done is the focus. The interaction between adults and children in all types of situations plays an important role in the learning and development process of the children. If caregivers are sensitive and open to the interests and actions of children and support them in their activities they will take initiative more often and develop better. Finally, the High/Scope program gives much attention to the involvement of parents (Schweinhart, 2003). Parents are seen as partners of the caregivers to cooperate with and who must be given information about the child. In order to realize this, the caregiver and parent have a conversation about the child regularly during drop-off and pick-up children or during a home visit.

The High/Scope program on the Netherlands Antilles can only be realized and be successful if the daycare centers meet to minimal preconditions for implementation, for example a caregiver-child ratio of 1:8, small groups, minimum education of Middelbaar Beroeps Onderwijs (medium level vocational education) for the caregivers, etc. It is unclear to what extent the daycare centers on every island meet to the minimal preconditions for implementation. Nevertheless, the implementation of the High/Scope program started (NJI, 2007). The decision to start with the High/Scope program was made based on discussions on Antillean level and with NJI. At the same time it was decided to start working on improvement of the quality, making use of funds of the Education and Youth Program. There are three phases in this innovation process for daycare centers (NJI, 2007). The first phase is the adoption phase. In this phase caregivers and directors will become familiar with the framework curriculum. This goal can be realized by organizing several meetings or workshops on the Framework Curriculum for each daycare center or at island level. In the second phase, the implementation phase, the daycare centers develop a plan. The plan contains an indication of what areas the stakeholders want to improve in the

daycare center based on the Framework Curriculum. The implementation phase includes the High/Scope training of caregivers and directors also. After the implementation of the Framework Curriculum the process and achieved results need to be evaluated. A Program Implementation Profile can be used for this. Based on these results a follow-up training for the caregivers can be planned or new goals for the daycare center can be formulated (NJI, 2007).

On all islands of the Netherlands Antilles NJI trained a total of 20 persons to be High/Scope trainers. This training took one year. After the training the High/Scope trainers started with the introduction of High Scope on the islands. On Curaçao, Bonaire and Sint Maarten, the High/Scope trainers did not start training all the caregivers at the same time, because intensive coaching is needed (NJI, 2007).

1.2 Early Childhood Care and Development

1.2.1 Importance of ECD

Child care, or pre-primary education, refers to several different models. These models vary from care oriented to instruction oriented, and they entail centre-based, home-based and community based approaches. In most countries formal instruction in school skills, as reading, spelling, arithmetic and math, starts at age six or seven. Therefore, pre-primary education refers to all efforts before age 6 or 7. Pre-primary education, if provided on large scale in a sufficient 'dose', fosters the emergence of school skills in the areas of language, literacy, math and science. Pre-primary education supports also the development of young children's learning-related social-emotional skills, in particular self-regulation and social competence (Leseman, 2009).

Pre-primary education is a very important factor in the development of children. A carefully crafted preschool program has shown significant effects on young children's cognitive growth and on their social development (Loeb, Fuller, Kagan & Carrol, 2004; Leseman, 2002). These effects were first found in the longitudinal Perry Preschool Project (Schweinhart, 2005), which investigated the effects of pre-primary education of young children's development between the ages of three and seven years (Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart, 2004). The positive effects of cognitive growth and social development were still visible 40 years later (Schweinhart, 2005).

Children attending a daycare center show better cognitive development than children who do not attend daycare (Sylva et al, 2004). These effects remain even if controlled for factors like

child, parent and surrounding influences. The impact of attending pre-primary education is related to the duration. Better intellectual development is shown for children attending the daycare earlier, under age of three years. The frequency of visiting the daycare does not play a role in the intellectual development. Children who attend the daycare center full-time do not have a better cognitive development than children who attend the daycare center part-time. Beside cognitive skills children develop social skills by attending pre-primary education (Kagıtcıbası, Sunar & Bekman, 2001). Adults and children share periods of joint focus and express positive affect in interactions. This provides children a secure base to develop social skills (Burchinal & Cryer, 2003).

Gains in cognitive ability as a result of pre-primary education have been regularly observed in the short-term, but they disappear in the longer term. The long-term efficiency of pre-primary education, the later social outcomes, is shown in a higher education level, higher economic independence and less juvenile delinquency (Leseman, 2009; Kagıtcıbası et al, 2001).

1.2.2 Effects of child care quality

An established view among child care researchers is that higher-quality care is associated with better developmental outcomes, and lower-quality care with poorer developmental outcomes (Burchinal & Cryer, 2003; Vandell & Wolfe, 2000; Votruba-Drzal, Coley & Chase-Lansdale, 2004). The quality of daycare centers is usually operationalised by variables indicating structural quality (maximum group size, staff-child ratio, staff qualifications, salaries, availability of play materials), staff pedagogical beliefs, the centre's pedagogical concept, and process quality (observational measures of caregiver-child interaction, degree of verbal interaction, emotional support, disciplining and conflict solving style) (Leseman, 2002).

In this section the effects of process quality and structural quality will be discussed.

1.2.3 Process quality

The essence of process quality is the direct experience of the child with the caregivers and other children (Fukink, Tavecchio, de Kruif, Vermeer & van Zeijl, 2005). Children develop in interaction with their environment at the daycare center. Three proximal processes can be distinguished: 1) the interaction between the caregiver and the child, 2) the interactions between the child and the physical environment and, 3) the interaction between children. The caregivers play a very important role in these interactions. The caregiver interacts directly with the child and

has influences on the interactions between the child and the environment and the interactions between children. The interaction style of a caregiver determines the process quality. Children who experience more positive interaction with caregivers and have a more secure relationship with caregivers appear more pro-social and positively engaged with other children (Howes & Smith, 1995; Vandell & Wolfe, 2000). The quality of the verbal interactions between the caregiver and the child influences the cognitive ability of the child (Sylva et al, 2004; Fukkink et al, 2005). High quality of verbal interaction is marked by modelling through shared thinking and modelling combined with open-ended questioning.

1.2.4 Structural quality

Structural quality is marked by characteristics that directly or indirectly influence the daily care routines and child rearing in a daycare center (Fukkink et al, 2005). First, the education level of the caregivers is an important aspect for the development of children (Loeb et al, 2004). Burchinal, Roberts, Nabors and Bryant (1996) report that children have better language skills when the caregivers are better educated. Vandell and Wolfe (2000) found an effect of the education level of teachers and the cooperative behaviour of children. The height of the wages of the staff is also a useful indicator of the quality of daycare centers and promotes continuity of the staff (Scarr, Eisenberg, Deater-Deckard, 1994).

The staff-child ratio has also an effect on the development of children. When child-adult ratios are lower the caregivers spend less time managing their children. The caregiver can concentrate on the interactions with the children, which offers the children more stimulating, responsive, warm and supportive care (Vandell & Wolfe, 2000). The quality of daycare centers and the development of the children will improve by a low caregiver-child ratio. The scores on two observational instruments to measure the quality of daycare centers, the ITERS and the ECERS, were more likely to be 'good' and 'very good' in preschool groups with child-caregiver ratios of 9:1 or less. Children in groups with a low child-caregiver ratio appear less apathetic and distressed and show more positive interactions with peers (Vandell & Wolfe, 2000). In the NICHD Study of Early Child Care (2000) comparable results were found. If there are fewer children in the classroom caregivers were more responsive, socially stimulating, and less restrictive.

The effects of the structural characteristics, education level, group size and child-caregiver ratios are different for infants and preschoolers. Group size and child-caregiver ratios were stronger predictors of process quality for infants and the education level of caregivers was a

stronger predictor of process quality for preschoolers (NICHD Early Child Care Research Network, 2000).

High quality child care has positive effects on the development of children but this doesn't hold for all children or all pre-primary education facilities. Research that finds a relationship between high quality pre-primary education and child development cannot always be generalized to non-average children, such as socio-economic disadvantaged children (Leseman, 2002). The relationship between childcare quality and the development of socio-economic disadvantaged children will be discussed below.

1.3 Child care and socio-economic disadvantaged children

1.3.1 Low-SES children and development

For children from low-income families in modern societies, like the Netherlands Antilles, their low-income status can have consequences for their early childhood development. Leseman (2009) states, that there are at least four explanations for the disadvantages in early childhood development among low-income children. The first two, who have the most relevance with the quality of daycare centers, will be discussed here. These are the accumulation of socio-economic and psychological risks; and the lack of stimulation of cognitive and language development in family interactions. The first explanation takes into account the different socio-economic and psychological risks that a family may have, combined with a lack of social support. Examples of risk factors are low birth weight, parent's psychiatric problems, marital conflict, single parenthood, low income, job stress, unemployment of the bread winner, bad housing conditions, unsafe and polluted neighbourhoods and ethnic minority status. An overarching concept in this context is poverty. Children are very vulnerable to poverty, which can result in learning problems and behavioural difficulties (Leseman, 2009). There is a significant relationship between low- Socio Economic Status (SES) and negative developmental and educational outcomes of children growing up with low-SES (Arnold & Doctoroff, 2003). Poverty is often combined with risk-factors, as the factors named above, which contribute to this relationship (Bradley & Corwyn, 2002). When we realize that poor educational achievement can be a great cause for poverty, there is a vicious circle that needs to be taken into account.

The second explanation that seems relevant for the early childhood development according to Leseman (2009) is the level of cognitive stimulation and informal preparation of children for elementary school. Low-SES children tend to experience less consistent care giving, less supportive and cognitively stimulating home environments, and greater environmental stress than children from higher SES, which appear to have a negative influence during early childhood for children's short and long-term development (Brooks-Gunn & Duncan, 1997; McLoyd, 1998). For example, Scheele (2010) found a relationship between language stimulation and school achievement of three to six year old children of ethnic minorities. Children of low-income and minority families are less prepared for formal schooling (Leseman & van Tuijl, 2006). Family characteristics, like low social class and low-literature cultural life styles, can be an explanation of the educational differences between lower income and ethnic minority families and middle class families.

The two aspects discussed above can be causes of early deficiencies in core skills as literacy and mathematics, which can impede the academic process of the children (NRC, 1998 and National Reading Panel, 1999 in Arnold & Doctoroff, 2003; Stevenson and Newman, 1986). It is very important for children to gain basic skills prior to attending pre-school, because the basic skills influence academic performance at older ages (Arnold & Doctoroff, 2003). Children's interest also influences the academic achievement with basic skills as moderator/mediator. Low-SES children start pre-school with the same interest as children with higher SES, but in the first year the interest of children with low SES declines. One of the reasons for this decline is a lack in skills (Reynolds, 1989; Arnold & Doctoroff, 2003), which low-SES children more often have less developed. Interest declines when skills are absent, which influences the academic achievement. The influence of SES on children's academic skills begins before children start kindergarten, so this vicious circle needs to be approached before children start school.

Above explanations support the theory that young children with low-SES have a greater risk of developing early educational disadvantages. This may be preventable during the early ages, in daycare centers.

1.3.2 Effects of child care quality on the development of low SES-children

After reviewing many studies Lamb (1998) concludes that the quality of pre-primary education matters crucially in the development of early educational disadvantages with low-SES children.

One of the most consistent findings in developmental research is a link between high quality pre-primary education and young children's developing skills and achievement (Lamb,

1998; Vandell & Wolfe, 2000). High-quality pre-primary education relates with better cognitive and social outcomes for young children (Barnett, 1995; Burchinal & Cryer, 2003; Currie, 2001; Lamb, 1998). Also McCarney, Dearing, Taylor and Bub (2007) investigated whether child care can serve as a naturally occurring intervention for children from low-income families. They found that children with low-SES who can use higher quality pre-primary education had better outcomes than children in lower quality pre-primary education or children who are not in a formal arrangement. Two studies of the NICHD (1997) also found when centre-based child care is of above-average quality medium sized cognitive and language benefits can be obtained for children of low-income. This shows that higher quality child care serves as a buffer for the negative effects of growing up in a low income family. High-quality pre-primary education care may provide low-SES children with opportunities that otherwise might not be available to them and therefore may serve as an important protective factor for their development. For low-SES families there are two problems with high-quality childcare. Low-income families tend to select lower quality care types (Leseman, 2002) and low-SES children have less access to high-quality pre-primary education (Philips, Voran, Kisker, Howes, & Whitebook, 1994; Pianta, La Paro, Payne, Cox, & Bradley, 2002).

These conclusions are very direct and clear, but do need to be taken with caution. A very recent study of NICHD (in press) focused on the effects of child care when a child attends at a very young age, high intensity of use and a long duration. This study confirms that the cognitive and language development improves with center-based daycare. The start at a young age, high intensity of use and long duration all found to be positively related to the developmental outcomes. However, the study also found that there is a negative effect on social-emotional outcomes at 4,5 years of age. This result was regardless of the daycare quality or quality of the home environment. Votruba-Drzal and colleagues (2004) found that extensive child care did not seem to be harmful to low-income children's development, except when the care was of low quality.

An earlier NICHD study (1997) also reveals interaction effects with the home environment. The positive effects of average quality child care on cognitive, language and social-emotional outcomes are stronger when the pedagogical environment at home is lower. This generally holds for disadvantaged children. There are no positive effects with children from privileged homes.

There can be concluded that quality of daycare centers matters, especially for the cognitive development. The effects of attending a daycare center on the social development needs to be further looked at.

1.4 The present study

The present study examines the pedagogical quality in 23 daycare centers on the Netherlands Antilles and is distinguished in two parts. In the first part the current situation of the daycare centers on the Netherlands Antilles is assessed with the following questions: what is the current quality of the daycare centers on the Netherlands Antilles, as assessed with standardized international instruments? And to what extent is the High/Scope program implemented in daycare centers? In the second part, the differences between the quality of daycare centers on the Netherlands Antilles between 2007 and 2010 are examined with the questions: To what extent has the pedagogical quality of daycare centers changed between 2007 and 2010? And are there factors that may have influenced this possible change?

Based on the special attention from the Antillean government for Early Childhood Care and Development and the implementation of the High/Scope program, we expect an improvement on the pedagogical quality of daycare centers on the Netherlands Antilles.

2. Methods

2.1 Procedure and sample

2.1.1 Daycare centers

To measure the quality of the daycare centers on the Netherlands Antilles, a sample of 23 daycare centers was visited between January and April 2010. The aim was to select the same daycare centers as visited in the study of Van Bragt in 2007, so the present study would be a replica of the study in 2007. In 2007 Van Bragt visited a sample of 19 daycare centers. Almost all of these centers participated in the present study as well (18 of 19 centers). One daycare center on Bonaire that was visited in 2007 could not be visited in 2010, due to innovations and construction of the building in the period that the observations were planned. Another daycare center on Bonaire was visited to replace the missing daycare center. On Sint Maarten the sample was expanded with four daycare centers and on Saba, Statia and Curaçao the same daycare centers participated as in the study of Van Bragt (2007). On Sint Maarten 10 daycare centers were selected out of 35 daycare centers (28.6 %) to participate in the research. On the islands of Saba and Statia there is one daycare center present per island. These daycare centers were part of the sample (100%). On Bonaire three daycare centers were selected out of 15 daycare centers (20 %) and on Curaçao 8 out of 129 daycare centers were selected (6.2 %).

The selected daycare centers were approached by contact persons of Sifma on every island. Shortly after the approach each daycare center received a letter to inform them about the procedure of the observation, the interview and the questionnaires. Most of the daycare centers, 23 of 24, responded positively and participated in our research (95,8%).

2.1.2 Groups

Almost every daycare center participated with two groups. Both groups were visited at the same day. Almost every daycare center had the same distribution of groups: baby-groups from 0-1 years old, toddlers from 1-2 years old, toddlers from 2-3 years old and preschoolers from 3-4 years old. In each daycare center the aim was to observe two preschool groups. When this was not possible a 2-3 year old toddler group was observed. This toddler group was randomly chosen. If there was only a preschooler and a baby group, only the preschooler group was visited. One of the

daycare centers on Sint Maarten participated with one group because there was only one toddler/preschooler group. Ultimately a total of 45 groups from 23 different daycare centers participated in the research. The sample contained 27 preschool groups and 18 toddler groups.

2.1.3 Caregivers, parents and key persons in ECD

The parents of the children, the caregivers of each group that was visited, the director of each daycare center, and key persons in ECD were asked to participate in the research. The parents and the caregivers filled in a questionnaire, and the director of each daycare center was interviewed. The key persons in ECD were also interviewed. At each daycare center approximately five parents were asked to fill in a short questionnaire. A total of 137 caregivers, 23 directors, 140 parents and 16 key persons in ECD participated in the research. In total 316 persons were asked about the quality of daycare centers. All caregivers were female and most of the caregivers had a Caribbean background (92,7%). The average age of the caregivers was 38 years.

2.2 Measures

2.2.1 Process quality

ECERS-R and ECERS-E

The ‘Early Childhood Environment Rating Scale-Revised’ (ECERS-R; Harms, Clifford & Cryer, 1998) and the ‘Early Childhood Environment Rating Scale-Extension’ (ECERS-E; Sylva, Siraj-Blatchford & Taggart, 2003) were used to assess the process quality; the daily experiences of children at the daycare centre.

The ECERS-R is an observational instrument that focuses on the day-to-day quality of the group environment, activities and interactions in a daycare center (Harms, et al., 1998). The instrument is suited for children aged 2,5-5 years. Researchers must at least spend two hours observing in a group of a daycare center, to conduct an ECERS-R assessment, however observations longer than two hours are preferred. This study used observations with a minimum length of five hours. During the observations, the researchers asked the caregivers questions about subjects that are not visible at that moment (e.g. provisions for professional needs of staff). The measure of the ECERS-R includes 43 items arranged in seven content areas, which provides an average score of the (process) quality at the daycare center, and average scores for every subscale. The subscales of the ECERS-R are space and furnishing; personal care routines; language-

reasoning; activities; interaction; program structure; and parents and staff, which respectively contain 8; 6; 4; 10; 5; 4; 6 items. The items are scored on a seven-point answering scale with the indicators 1 = inadequate, 3 = minimal, 5 = good, and 7 = excellent (Harms, et al., 1998). The researchers had four practice-days in three different daycare centers in The Netherlands with a licensed trainer. This training period was to get a good inter-observer reliability using the ECERS-R. At the end of the training the inter-observer reliability of the ECERS-R was .80, this means 80% of the scored items of the observers corresponded to the scores of the licensed trainer and each other.

The ECERS-E is an extension of the ECERS-R scales and consists of four curricular subscales: literacy; mathematics; science; and diversity. These scales respectively contain 6; 4; 5; 3 items and these items assess the quality of the provision and pedagogy aimed at fostering children's academic development (Sylva, et al., 2003). The observation of these scales can be attained at the same time as the assessment of the scales of the ECERS-R. The scoring system of the items of the ECERS-E is exactly the same as it is in the ECERS-R. After the training period with the ECERS scales in the Netherlands, the inter-observer reliability of the ECERS-E was .90.

The reliability (α) of the scales was .89 for the ECERS Total, .89 for the ECERS-R and .72 for the ECERS-E.

ORCE

To measure the process quality of the interaction between the caregivers and children, this study uses the Observational Record of the Caregiving Environment (ORCE), which is an observational instrument (ORCE; De Kruif & Tavecchio, 2004). This study use the same subscales as Van Bragt (2007) used, so the results would be comparable. The subscales of the ORCE used are: 'Sensitivity at distress situations'; 'Sensitivity at non-distress situations'; 'Intrusiveness', 'Indifference'; and 'Cognitive stimulation'. At the end of the observations for the ECERS scales, the caregivers of each observed group were given a score on these scales on a four-point answering scale with the indicators 1 = does not fit the caregiver, to 4 = very characteristic for the caregiver. The reliability was $\alpha = .86$.

2.2.2 Structural quality

Background information about the daycare centers, parents and caregivers was obtained through questionnaires filled in by parents and caregivers, and structural interviews with the director of the daycare center. Also some of the structural characteristics, for example caregiver-child ratio,

were obtained through observation. The questionnaires parents filled in contained five questions that focused on which aspects of daycare centers are important to parents. Every caregiver at each daycare center filled in a questionnaire of 16 questions about his/her education, experience, ethnicity, etc. The researchers also interviewed the director of the daycare center face-to-face for about 20 minutes. This interview was based on a questionnaire of 42 items about characteristics of the daycare center, the children, the parents and the implementation of the High/Scope program. Some characteristics, for example rules and regulations, education of caregivers, etc were also obtained from Sifma.

2.2.3 High/Scope implementation

To assess the degree to which the daycare centers implemented the High/Scope program, the researchers filled in an implementation instrument. The implementation instrument was based on the Framework Curriculum for Preschool Education of the Netherlands Antilles (2007). The checklists that were developed for this framework to implement the High/Scope program on the Netherlands Antilles, were formed into five scales; 'Active learning', 'Play/learning environment inside', 'Plan-do-review', 'Small-group time', 'Large-group time', with a total of 23 items. These five scales were chosen in consultation with a staff member of 'Program implementation and training' of the Nederlands Jeugd Instituut (NJI). The scale 'Play/learning environment inside' was scored on a five-point scale (1= does not fit the standard and 5 = fits the standard. The four remaining scales were scored on a three-point scale (1= no, 2= partly, 3= yes). The information to fill in the implementation instrument was obtained through observations and questions to the caregivers during the observation. The reliability of the High/Scope implementation instrument was $\alpha = .83$.

2.3 Procedure measurement

The observations in the daycare centers on the Netherlands Antilles took place during morning time. Before opening hours of the daycare center the observers arrived and resided in the group until the children went to sleep in the afternoon. When the children were brought to the daycare center parents were randomly asked to fill in a questionnaire. When approximately five parents had participated, the observation for the other instruments began. The observation took at least five hours per group. First, the ECERS- R and the ECERS-E were scored. At the end of the

observation the ORCE and the High/Scope implementation instrument were scored. During or after the observation the caregivers were asked some questions concerning additional information of the ECERS items. All caregivers of each daycare center, present at the day of the observation, were personally asked to fill in the caregiver-questionnaire. On the same day as the observation took place an interview with the director of the daycare center was held.

2.4 Statistical analysis

The mean scores, Standard Deviation and the range of the scores of the ECERS scales (ECERS-R and ECERS-E), the ORCE and the High/Scope implementation instrument were analyzed. A comparison was made between 2007 and 2010 on the scores of the ECERS scales and the ORCE by performing a Independent Samples T-Test . The samples of 2007 and 2010 were not totally the same. On some of the daycare centers the distribution of the groups was different in 2007 and 2010. Also there were extra daycare centers observed in the sample of 2010. Because of these differences an Independent Samples T-Test was chosen to compare 2007 with 2010. To examine the differences between the scores on the ECERS scales and the ORCE in 2007 and 2010 a Standardized Effect Size was also determined. The Standardized Effect Size was determined based on the mean of the Standard Deviations of the 83 groups (38 from 2007 and 45 from 2010) on the Netherlands Antilles. To test whether the deviation of the groups on scores of the ECERS scales differ between 2007 and 2010 a binomial non-parametric test was executed. To examine the relationship between the results of 2007 and 2010 and possible mediators, a correlation and a hierarchical regression analysis were executed. The differences between the five islands on the pedagogical quality were examined by an ANOVA and a LSD Post-hoc test.

3. Results

The results are presented in three parts. First the structural characteristics of the daycare centers, directors, groups and caregivers are described. Then the process characteristics of the ECERS scales, ORCE, and the High/Scope implementation instrument are presented and compared with the scores of 2007. And third the qualitative analysis of interviews with key persons on the Netherlands Antilles and of parents' questionnaires is presented. Finally the results per island are described shortly.

3.1 Structural characteristics

The 45 groups that were visited for this study cared for a total of 1217 children and there were 164 caregivers working in these groups. Table 1 shows characteristics of the daycare center, the groups and the caregivers.

Table 1.

Structural characteristics of the daycare center, the groups and caregivers

	M	SD	Range
Number of children per daycare center	52.91	26.81	24.00-122.00
Number of caregivers per daycare center	7.13	5.12	2.00-22.00
Number of children per group	13.27	4.39	5.00-23.00
Number of caregivers per group	1.47	.69	1.00-3.00
Caregiver-child ratio	9.94	3.36	5.00-18.00
Age of caregivers	37.65	11.19	20.00-60.00
Years working in this daycare centers	7.66	7.62	0.00-31.00
Hours working a week	37.43	8.53	8.00-60.00

Of the 45 groups that were observed, 29 groups had one caregiver, 11 groups had two caregivers and five groups had three caregivers. The mean caregiver-child ratio of the 45 groups was 1 : 9.94 (SD = 3.36). The amount of caregivers that filled in the questionnaire was 137 out of 172 (79.7%).

Gender and ethnicity

All caregivers were female and most of the caregivers had a Caribbean background, 10 of them had a different background, which is 7.3% of the total amount of caregivers. Of the caregivers with a different background than Caribbean, five came from South-America (Guyana and Suriname), two came from Asia (China and Philippines), and three of them came from Europe (The Netherlands). A total of 62.7% caregivers were born on one of the Netherlands Antilles. Most of them were born on Curaçao (46.7%).

As shown in table 1 the average age of the caregivers was 37.65 years (SD = 11.19), with a range of 20 to 60 years. The caregivers had an average of 7.66 years of working experience in their daycare center (SD = 7.62), with a minimum of less than one month and a maximum of 31 years. The average amount of hours a week a caregiver worked at a daycare center was 37.43 hours (SD = 8.53), with a minimum of 8 and a maximum of 60 hours a week.

Language

Of the caregivers (N=137) 35% had English as mother tongue, 53.3% had Papiamentu as mother tongue and 3.6% had Dutch as mother tongue. Of the other caregivers 5.1% were bilingual, with one of the languages being English and the other one differed (Dutch, Creole, French, Patawie, and Papiamentu). The other 2.9% spoke other languages as a mother tongue (French, Visayan, Chinese, and Spanish).

The caregivers' ability of the language spoken in the daycare center was rated by the caregivers themselves. Of the caregivers 59.9% estimated their ability in the language spoken in the daycare center was very good/fluent, 34.3% estimated their ability to be good, 5% estimated to be moderate and .7% estimated their ability to be not very good.

When looking at mother tongue and ability of the language spoken in the daycare center more carefully, there is a clear difference between the Windward Islands and the Leeward Islands. The language spoken at the daycare centers on the Windward Islands is English and at the Leeward Islands this is Papiamentu.

Of the Windward Islands (N= 59) 79.7% had English as their mother tongue. Of the other caregivers 11.9% were bilingual, with one of the languages being English and the other one differed (Dutch, Creole, French, Patawie, and Papiamentu). The other 8.5% spoke other languages as a mother tongue (Dutch, French, and Visayan). The ability of the caregivers to speak English at their daycare center was very good/fluent with 64.4% of the caregivers and 35.6% estimated to be good at speaking English.

Of the Leeward Islands (N=78) 93.6% had Papiamentu as their mother tongue, the other 6.4% spoke various languages as a mother tongue (English, Dutch, Spanish, and Chinese). The ability of the caregivers to speak Papiamentu at their daycare center was very good/fluent with 56.4% of the caregivers, 33.3% estimated to be good, 9.0% estimated to be moderate and 1.3% was not very good.

Education

Concerning education 46.0% of the caregivers completed Lager Beroeps Onderwijs (low level vocational education), 27.0 % completed Secundair Beroeps Onderwijs, Voorbereidend Secundair Beroeps Onderwijs, Sociaal Pedagogisch Werker or Middelbaar Beroeps Onderwijs (medium level vocational education), and 11.7% completed Hoger Beroeps Onderwijs (higher professional education) or University. Of the caregivers 13.1% completed only secondary or primary education, and were not educated to work in a daycare center.

Concerning education of the directors, 17.4% completed Hoger Beroeps Onderwijs (higher professional education), 13.0% completed University, 21.4% completed Secundair Beroeps Onderwijs or Middelbaar Beroeps Onderwijs (medium level vocational education), 17.4% completed Lager Beroeps Onderwijs (low level vocational education) and 30.4% completed only secondary or primary education. This means that 69.6% is not educated to work as a director in a daycare center.

Religion

Most of the caregivers filled in to be religious (97.1%). Of the caregivers 89.1% were Christian, 3.6% were Islamic and 2.9% had a different religion. The other 2.9% of the caregivers were not religious. Of the caregivers 68.6% found their religion very important in their daily situation, 19.3% found it important, 9.5% found it moderately important and the other 2.6% rated it as not important.

High/Scope

The questionnaires on the Windward and Leeward Islands both had a different question about the implementation of High/Scope, because the program was implemented differently.

On the Windward Islands the High/Scope workshops had started. Of the caregivers 18.6% finished their High/Scope training and 3.4% was following the High/Scope training at this moment. Of the other caregivers 69.5% followed workshops provided by Sifma, 5.1% did not follow workshops and for 3.4% it was unknown. Of the caregivers 67.8% found the High/Scope

program suited for their daycare center and 28.8% found it partially suited. None of the caregivers answered that they did not find it suited for their daycare center.

On the Leeward Islands the High/Scope workshops did not start yet. There have been information evenings for some of the daycare centers. Of the caregivers 28.2% did not know the High/Scope program, 9% did know the program, but did not get any information about it yet, 16.7% had information about the program, but their daycare center did not implement the program yet, and 28.2% said that their daycare center will be implementing the High/Scope program soon. Of the caregivers 16.7% said that the High/Scope program is implemented. Of the caregivers 60.3% found the High/Scope program suited for their daycare center and 6.4% found it partially suited for their daycare center. None of the caregivers answered that they did not find it suited for their daycare center. Of the caregivers on the Leeward Islands 33.3% did not answer this question.

3.2 Process characteristics

3.2.1 ECERS-R and ECERS-E

An overview of the mean scores and Standard Deviation of the 45 groups on the ECERS Total, ECERS-R, ECERS-E and ORCE is given in table 2.

The score of the subscale 'Parents and staff' was not included in the total score of the ECERS-R. Excluding the scale 'Parents and staff' has been done in the Netherlands as well (Vermeer, et al., 2005; De Kruif, et al., 2008). This subscale does not directly affect the children.

The mean scores for the ECERS Total (M=2.2, SD = .47), the ECERS-R (M = 2.4, SD = .55) and ECERS-E (M = 1.9, SD = .39) were in between 'inadequate' and 'minimal' (the quality levels on the ECERS are 'inadequate' (score < 3), 'minimal' ($3 \leq \text{score} < 5$) and 'good' (score ≥ 5)). Although the scores on the subscales of the ECERS-R and ECERS-E differed from each other, all the scores were 'inadequate'. The lowest score on the ECERS-R was measured for the subscale 'Personal care routines'. The highest scores were measured for the subscales 'Language reasoning', 'Interaction' and 'Program structure'. On the ECERS-E the score of subscale 'Science and environment' was the lowest. The highest score was measured on the subscale 'Literacy'.

Table 2.

Descriptive statistics for ECERS Total, ECERS-R and ECERS-E 2010

	M	SD	Range
ECERS Total	2.24	.47	1.28-3.32
ECERS-R	2.40	.55	1.31-3.71
<i>ECERS-R subscales</i>			
Space and furnishing	2.61	.67	1.13-4.50
Personal care routines	1.79	.43	1.00-3.17
Language-reasoning	2.59	.80	1.00-4.50
Activities	2.29	.66	1.22-4.00
Interaction	2.73	.83	1.00-4.20
Program structure	2.64	1.04	1.00-5.67
Parents and staff*	2.93	.73	1.67-4.17
ECERS-E	1.86	.39	1.20-2.73
<i>ECERS-E subscales</i>			
Literacy	2.34	.57	1.17-3.83
Mathematics	1.60	.67	1.00-3.33
Science and environment	1.07	.19	1.00-1.67
Diversity	1.94	.46	1.00-3.00
ORCE Total	2.46	.69	1.00-3.60

* This subscale is not included in the total score

The mean scores on the ECERS-R and ECERS-E are shown in figure 1. The highest scores on the subscales are not clearly visible. The low scores for the subscales ‘Personal care routines’, ‘Mathematics’ and ‘Science and environment’ are clearly visible.

3.2.2 ORCE

The mean score for the caregivers on the ORCE was 2.46 (Scale from 1-4, scale score 1 = ‘not’ , 2 = ‘somewhat’ , 3 = ‘mainly’ and scale score 4 = ‘very’), with an SD of .69 and a range of 1.00-3.60, as shown in table 2. The caregivers appeared to be at the mediocre level when it comes to their sensitive interaction with children.

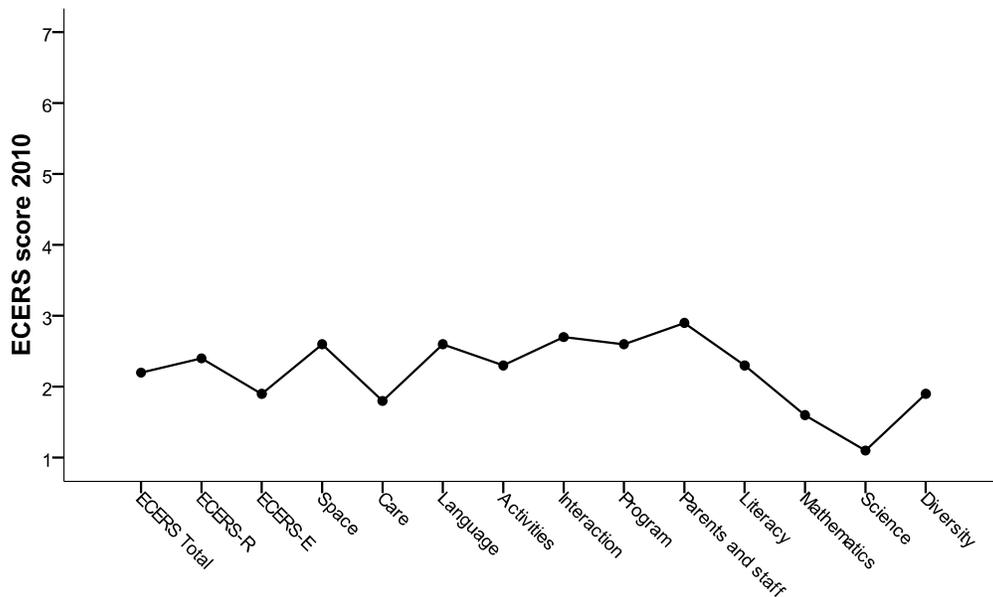


Figure 1. Mean scores ECERS-R and ECERS-E.

3.2.3 High/Scope implementation

An overview of the mean scores of the High/Scope implementation instrument is given in table 3. The scale ‘Play/learning environment inside’ was scored on a five-point scale. The mean score on this scale was 2.33 (SD = .89). The daycare centers appeared to be on the negative side when it comes to the implementation of ‘Play/learning environment inside’ by the standards of High/Scope. The four remaining scales were scored on a three-point scale (1= no, 2= partly, 3= yes). The mean scores on the implementation of ‘Active learning’, ‘Plan-do-review’, ‘Large-group time’ and ‘Small-group time’ were in between ‘no’ and ‘partly’. This means that all the subscales of the High/Scope implementation instrument were not implemented sufficiently.

Table 3.

Descriptive statistics for High/Scope implementation instrument

	M	SD	Range
Active learning	1.87	.39	1.33-2.78
Play/learning environment inside*	2.33	.89	1.00-4.17
Plan-do-review	1.91	.67	1.00-3.00
Large-group time	1.70	.87	1.00-3.00
Small-group time	1.26	.61	1.00-3.00

Scale from 1-3, scale score 1 = no, 2= partly, 3= yes

* scale from 1-5, scale score 1 = does not fit the standard and 5 = fit the standard

3.2.4. Correlations between High/Scope and the quality of the daycare centers

Table 4 shows the Pearson correlations between the High/Scope implementation instrument, structural characteristics; and the ECERS scales and the ORCE. The score of the High/Scope implementation total is based on the mean of the standardized scales.

Table 4.

Pearson correlations of High/Scope implementation instrument and structural characteristics and ECERS Total, ECERS-E, ECERS-R, and ORCE.

	Active learning	Play/learning environment inside	Plan-do-review	Large-group time	Small-group time	High/Scope implementation total	Education caregivers	Years working	Group size	Caregiver -child ratio
ECERS Total	.83**	.57**	.75**	.48*	.68**	.81**	-.10	-.30*	-.32*	-.23
ECERS-R	.81**	.56**	.73**	.48*	.67**	.82**	-.07	-.25	-.26	-.25
ECERS-E	.57**	.46**	.51**	.26	.46*	.59**	-.15	-.41**	-.45**	-.09
Space	.54**	.73**	.41*	.23	.60**	.71**	-.11	.04	-.23	-.34*
Care	.28	.00	.26	.17	.36	.35*	-.04	-.08	-.39**	-.15
Language	.84**	.37*	.81**	.64**	.52**	.78**	-.13	-.42**	-.27	-.11
Activities	.61**	.62**	.56**	.34	.47*	.71**	-.03	-.23	-.15	-.18
Interaction	.55**	.07	.55**	.46*	.33	.50**	-.04	-.33*	-.14	-.12
Program	.74**	.52**	.65**	.31	.64**	.73**	-.05	-.24	-.11	-.25
Parents and staff	.42*	-.02	.30	.14	.50**	.34*	-.18	-.05	-.02	-.63**
Literacy	.75**	.44**	.66**	.46*	.63**	.65**	-.15	-.40**	-.36*	-.11
Mathematics	.11	.20	.14	-.02	-.01	.24	-.12	-.27	-.36*	.08
Science	.46*	.24	.33	.25	.61**	.37*	-.21	-.03	-.19	-.42**
Diversity	.03	.45**	-.03	-.19	.03	.37*	-.19	-.30*	-.41**	-.06
ORCE	.62**	.34*	.70**	.41*	.32	.62**	-.05	-.33*	-.19	-.07
Active learning		.61**	.87**	.54**	.64**	.90**	-.12	-.39**	-.18	-.10
Environment inside			.55**	.35	.29	.69**	-.04	-.11	-.21	-.02
Plan-do-review				.51**	.49*	.90**	-.07	-.32*	-.26	-.11
Large-group time					.30	.72**	-.03	-.21	-.09	-.08
Small-group time						.67**	-.05	.04	-.07	-.34*

** $p < .01$, * $p < .05$

The High/Scope implementation total score has a positive relationship with all the ECERS scales, ORCE and the scales of the High/Scope implementation instrument, except for ‘Mathematics’. The higher the High/Scope implementation total, the higher the scores on the ECERS scales and ORCE. Remarkable is the high correlation between the ECERS Total (.81), ECERS-R (.82), and the High/Scope implementation total score. In the High/Scope program following aspects are represented and correlate significantly highly with the High/Scope implementation total; ‘Space and furnishings’ (.71), ‘Language-reasoning’ (.78), ‘Program structure’ (.73), ‘Activities’ (.71) and

'Literacy' (.65). When the High/Scope implementation total was higher these ECERS-R scale scores were higher as well. Further correlations between the scales of the High/Scope implementation instrument and ECERS Total, ECERS-R and ECERS-E are all significant, except the correlation between 'Large-group time' and ECERS-E. Regarding 'Personal care routines' and 'Mathematics', it is remarkable that there is no correlation with a subscale of the High/Scope implementation instrument. There is no relationship between the ORCE and 'Small-group time'. The other subscales of the High/Scope implementation instrument show a significant positive relationship with the ORCE, which means that when the High/Scope implementation total is higher, the sensitivity of caregivers is higher as well.

The structural characteristics 'Education of caregivers' and 'Caregiver-child ratio' do not show a significant relationship with the ECERS Total, ECERS-R and ECERS-E. There are significant negative correlations between the structural characteristics 'Years working in this daycare center' and 'Group size'; and ECERS Total and ECERS-E. This means that when caregivers worked for a shorter period in the daycare center and when the group size was less, the quality of the daycare center was significantly higher. 'Group size' shows a significant negative relationship with three of four of the scales of the ECERS-E, namely 'Literacy', 'Science' and 'Diversity', the smaller the group size the higher those educational aspects scored. 'Years working in this daycare center' was the only structural characteristic which correlated with the ORCE. This is a negative association: older caregivers were less sensitive in their interactions. Regarding the correlation between the High/Scope implementation instrument and the structural characteristics, a relationship is shown between 'Years working in this daycare center' and 'Active learning' and 'Plan-do-review' and between 'Caregiver-child ratio' and 'Small-group time'. All these correlations are negative. The shorter caregivers worked in the daycare center, the higher the scores on 'Active learning' and 'Plan-do-review', and the smaller the caregiver-child ratio, the higher the score on 'Small-group time'.

The correlations between the subscales of the High/Scope implementation instrument are differentiated. The subscales 'Active learning', 'Play/learning environment inside' and 'Plan-do-review' show a positive relationship with the other subscales of the High/Scope implementation instrument. The subscales 'Large-group time' and 'Small-group time' do not relate to each other and both do not have a relationship with 'Play/learning environment inside'.

3.2.5 Comparison ECERS-R, ECERS-E and ORCE 2007-2010

ECERS-R and ECERS-E

Table 5 shows the Mean, Standard Deviation and the Standardized Effect Size *d* on the ECERS-R and the ECERS-E in 2007 and 2010. The Independent Samples T-Test between 2007 and 2010 is also shown in table 5.

The significance levels of the Independent Samples T-Test prove that the score of the ECERS-R has improved significantly between 2007 and 2010 ($p < .05$). The scores of the subscales ‘Space and furnishing’, ‘Language-reasoning’, ‘Program structure’ ($p < .001$) and ‘Activities’ ($p < .01$) have also improved significantly between 2007 and 2010. The scores of the subscales ‘Personal care routines’ ($p < .001$), and ‘Science and Environment’ ($p < .05$) have deteriorated significantly.

Table 5.

Descriptive statistics for ECERS Total, ECERS-R, ECERS-E and ORCE 2007 (38 groups) and 2010 (45 groups)

	M		SD		T	P	Mean SD*	d	Range	
	2007	2010	2007	2010					2007	2010
ECERS Total	2.00	2.24	.45	.47	-1.19	.24	.45	.53	1.25-2.86	1.28-3.32
ECERS-R	2.11	2.40	.55	.55	-2.44	.02	.57	.51	1.28-3.17	1.31-3.71
<i>ECERS-R Subscales</i>										
Space and furnishing	2.03	2.61	.68	.67	-3.91	.00	.73	.79	1.13-3.63	1.13-4.50
Personal care routines	2.54	1.79	.78	.43	5.50	.00	.72	-1.0	1.17-4.00	1.00-3.17
Language-reasoning	1.67	2.59	.53	.80	-6.04	.00	.83	1.11	1.00-3.25	1.00-4.50
Activities	1.84	2.29	.47	.66	-3.50	.00	.62	.73	1.20-2.80	1.22-4.00
Interaction	2.95	2.73	1.20	.83	1.00	.32	1.02	-.22	1.00-5.20	1.00-4.20
Program structure	1.52	2.64	.67	1.04	-5.73	.00	1.05	1.07	1.00-3.00	1.00-5.67
Parents and staff*	3.01	2.93	.85	.73	.48	.63	.78	-.10	1.00-4.83	1.67-4.17
ECERS-E	1.74	1.86	.33	.39	-1.52	.13	.36	.33	1.07-2.47	1.20-2.73
<i>ECERS-E subscales</i>										
Literacy	2.14	2.34	.49	.57	-1.70	.09	.54	.37	1.00-2.83	1.17-3.83
Mathematics	1.42	1.60	.46	.67	-1.39	.17	.59	.31	1.00-2.67	1.00-3.33
Science and environment	1.19	1.07	.33	.19	2.08	.04	.26	-.46	1.00-2.33	1.00-1.67
Diversity	1.80	1.94	.52	.46	-1.33	.19	.49	.29	1.00-2.67	1.00-3.00
ORCE Total	2.34	2.46	.70	.69	-.86	.39	.68	.18	1.00-3.80	1.00-3.60

* the mean SD is based on the standard deviations of 83 groups

The standardized effect sizes on the total scores on the ECERS-R ($d = .51$) and the ECERS Total ($d = .53$) have a medium standardized effect size ($.40 < d < .60$). The total score on the ECERS-E ($d = .33$) has a weak standardized effect size ($.25 < d < .40$). The standardized effect sizes on the subscales ‘Language-reasoning’ and ‘Program structure’ are very strong ($d > .80$), when comparing 2007 with 2010. The standardized effect sizes on the subscales ‘Space and furnishing’ and ‘Activities’ are strong ($.60 < d < .80$). The subscales ‘Diversity’, ‘Literacy’ and ‘Mathematics’ have a weak standardized effect size ($.25 < d < .40$). On ‘Parents and staff’ and ‘Interaction’ there was no effect ($d < .25$). The subscale ‘Personal care routines’ had a very strong negative effect ($d > -.80$). And ‘Science and Environment’ had a medium negative effect ($-.40 < d < -.60$).

This means that there is an improvement on the ECERS Total and the ECERS-R. There is also a weak improvement on the ECERS-E. The subscales ‘Language-reasoning’ and ‘Program structure’ have improved very clearly. ‘Space and furnishing’ and ‘Activities’ both show a clear improvement and ‘Diversity’, ‘Literacy’ and ‘Mathematics’ have a weak improvement. Also there is a clear deterioration on the subscale ‘Personal Care Routines’. ‘Science and environment’ has a medium deterioration. The subscales ‘Parents and staff’ and ‘Interaction’ do not have any changes.

The Independent Samples T-Test and the Standardized Effect Size both show a clear improvement on the ECERS-R and on the subscales ‘Space and furnishing’, ‘Language-reasoning’, ‘Activities’ and ‘Program structure’. Both scores also show that the subscales ‘Personal care routines’ and ‘Science and environment’ have deteriorated. The improvement on the ECERS Total is only visible when using the Standardized Effect Size.

Figure 2 shows the mean scores on the ECERS scales per scale in 2007 and 2010.

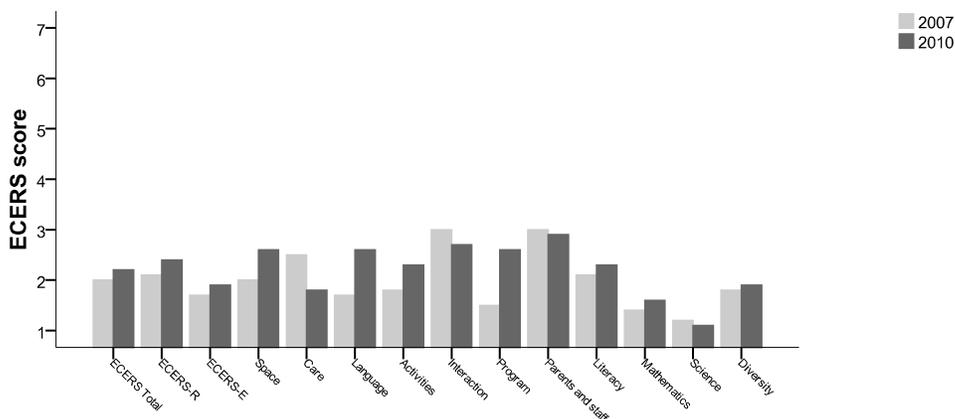


Figure 2. Comparison ECERS Scales 2007 and 2010

Figure 2 shows a clear improvement between 2007 and 2010 on the ECERS-R and on the subscales ‘Space and furnishing’, ‘Language-reasoning’, ‘Activities’ and ‘Program structure’. It is also clear that the subscales ‘Personal care routines’ and ‘Science and environment’ have deteriorated since 2007.

ORCE

An overview of the mean scores, Standard Deviation, Standardized Effect Size *d* and the Independent Samples T-Test of the caregivers in 2007 and 2010 on the ORCE are given in table 5. The scores on ORCE Total do not differ significantly between 2007 and 2010 ($p > .05$). Using the Standardized Effect Size, there is also no improvement between 2007 and 2010 ($d < .25$).

Deviation of the groups on the ECERS scales

Figure 3 shows the deviation of the 38 groups of 2007 and the 45 groups of 2010 at the quality levels classified as ‘inadequate’ (score < 3), ‘minimal’ ($3 \leq \text{score} < 5$) and ‘good’ (score ≥ 5) of the ECERS scores.

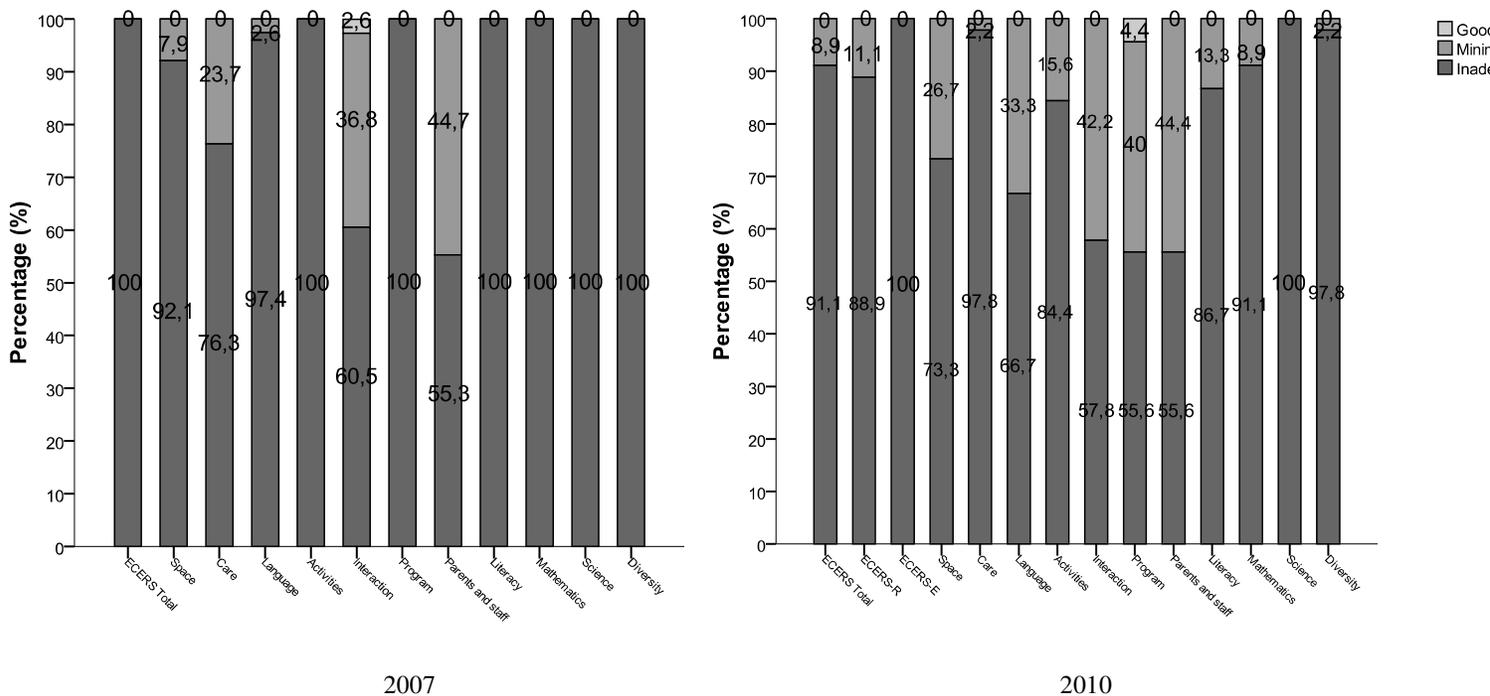


Figure 3. Deviation of 38 groups in 2007 and 45 groups in 2010 on the quality levels of the ECERS scores

Looking at the graph of 2010, on the ECERS Total 8.9% of the groups scored minimal and 91.1% scored inadequate. Regarding the ECERS-R, 11.1% of the groups scored minimal and 88.9% scored inadequate and none of the groups scored higher than minimal. When looking at the scales the most apparent score is on 'Program Structure'; 4.4% of the groups scored good on this scale. The lowest scores were on 'Science and Environment', where no group scored higher than inadequate, and on 'Personal care routines' and 'Diversity', where 97.8 % of the groups scored inadequate.

The two graphs in figure 3 make clear the difference between the groups in 2007 and 2010. In 2007 on six subscales all groups scored inadequate (100%), were as in 2010 total inadequacy (100%) was only seen in one scale ('Science and environment'). In total it is clear that there are more groups in 2010 that score minimal or good instead of inadequate, when comparing with 2007. Very apparent is the score on the ECERS Total. In 2007 none of the groups scored higher than inadequate on the ECERS Total and in 2010 8.9% of the groups scored minimal, which is a significant improvement binomially tested ($p < .001$). This significant improvement is also the case for the subscales 'Activities', ($p < .001$) 'Program structure' ($p < .001$), 'Literacy' ($p < .001$), 'Mathematics' ($p < .001$), and 'Diversity' ($p < .05$). In 2007 all the groups on these scales scored inadequate and in 2010 most groups scored inadequate, but there were also some groups that scored minimal. On the subscale 'Program structure' 4.4% of the groups even had a 'good' score. On the subscales 'Space and furnishing' and 'Language-reasoning' there were significantly more groups that scored 'minimal' than there were in 2007 ($p < .001$). The subscale 'Science and environment' stayed the same in 2010 and 'Personal care routines' had deteriorated significantly ($p < .001$), there were 21.5% less groups that scored minimal on this scale. The last apparent difference between 2007 and 2010 is on the subscale 'Interaction'. In 2007 36.8% of the groups scored minimal, 2.6% scored good, and 60.5% of the groups scored inadequate. In 2010 none of the groups had a 'good' score, but 42.2% scored minimal.

The sample in 2010 was expanded with seven groups. Looking at the scores on the ECERS of these seven groups, there can be concluded that the differences between 2007 and 2010 are not caused by these specific extra daycare centers in the sample of 2010.

Comparison with different countries

The pedagogical quality of daycare centers has been studied in the Netherlands commissioned by the Netherlands Consortium Kinderopvang Onderzoek (NCKO) in 2005 and 2008 (Vermeer, et al., 2005; De Kruif, et al., 2008). There has also been a study in the United Kingdom as part of

the effective provision of pre-school education project (EPPE; Sylva, et al., 2004). Figure 4 shows the mean scores of the ECERS-R of the Netherlands Antilles in 2007 and 2010, the NCKO study in 2005 and 2008, and the EPPE study.

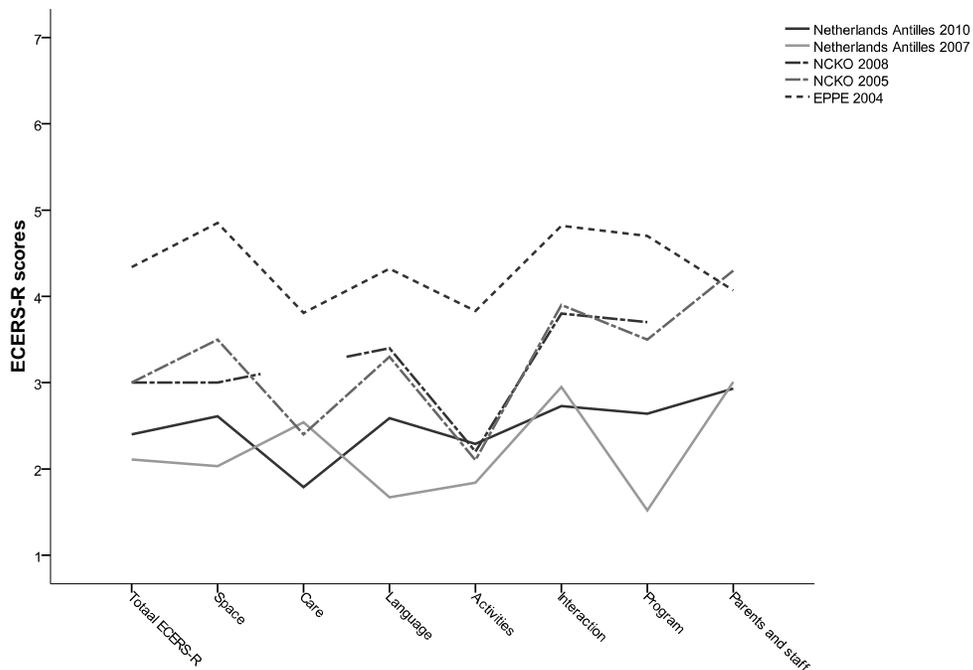


Figure 4. Mean scores ECERS-R Netherlands Antilles, Netherlands, and United Kingdom

The differences between 2010 and 2007 have been discussed above. The scores of 2010 were compared with the scores of NCKO 2005, NCKO 2008 and the EPPE study. All these scores were significantly different from the scores of 2010 ($p < .001$), except for the scores at the subscale ‘Activities’ between the NCKO studies of 2005 and 2008 and this study ($t(44)=1.96$, $p=.06$); $t(44)=.94$, $p=.35$). This means that the EPPE study, NCKO 2005 and NCKO 2008 all scored higher than this study, except for the subscale ‘Activities’ with the NCKO studies.

The subscale ‘Personal care routines’ is one of the lowest points on the line in the Netherlands in 2005, in the EPPE study and in the Netherlands Antilles in 2010 (this subscale is not measured in the Netherlands in 2008). In the Netherlands Antilles in 2007 this was not one of the lowest points.

3.2.6 Regression analysis

To examine the relationship between the pedagogical quality of daycare centers in 2007 and the quality in 2010 a regression analysis was performed. The correlations in table 4 show that

‘High/Scope implementation’, ‘Years working in this daycare center’ and ‘Group size’ are related to ECERS Total 2010, and therefore are presumed mediators. A variable has to meet a few conditions to function as a mediator variable (Baron & Kenny, 1986). The relationship between the independent variable and the presumed mediator has to be significant (path a). Also, a significant relationship has to be shown between the presumed mediator and the dependent variable (path b). When path a and b are controlled, a previously significant relation between the independent and dependent variables (path c) is no longer significant, with the strongest demonstration of mediation occurring when path c is zero (Baron & Kenny, 1986).

The correlations between the independent variable, ECERS Total 2007, and the presumed mediators ‘High/Scope implementation instrument’ and ‘Years working in this daycare center’ (path a) are significant (respectively $-.34$ and $.36$, $p < .05$). The correlations between the dependent variable, ECERS Total 2010, and the presumed mediators ‘High/Scope implementation instrument’ and ‘Years working in this daycare center’ (path b) were significant also (respectively $-.30^*$, $p < .05$ and $.81^{**}$, $p < .01$). ‘Group size’ is not related significantly with ECERS Total 2007 ($p > .05$) and therefore is not considered a mediator.

Table 6.

Results multiple regression model with different variables as extra independent variable in model 2.

Model	Variables	β	R ²
0	ECERS Total 2007	.483**	.23*
1	ECERS Total 2007	.213*	.71*
	High/Scope implementation	.740**	
2	ECERS Total 2007	.445**	.24
	Years working in this daycare center	-.111	

** $p < .01$, * $p < .05$

Table 6 shows two multiple regression models with ECERS Total 2007 entered as the first independent variable in step 1 and in which different variables are entered in step 2. ECERS Total 2010 is the dependent variable. First in the 0-model there is a significant relationship between ECERS Total 2007 and ECERS Total 2010 ($R^2 = .23$, $p < .01$), the quality of 2007 predicts the quality of 2010. When ‘High/Scope implementation’ is put in the first model as extra independent variable, the significance of path c does not disappear. The significance deteriorates and also the ‘High/Scope implementation’ is a significant mediator ($R^2 = .71$, $p < .01$). The quality of 2010 is predicted by the quality of 2007 and the ‘High/Scope implementation’ with 71% of the variances explained by these variables. The regression analyses shows a mediation of ‘High/Scope

implementation' between the ECERS Total of daycare centers in 2007 and the quality of daycare centers in 2010. When the variable 'Years working in this daycare center', is put in the model as extra independent variable, the significance between ECERS Total 2007 and ECERS Total 2010, path c, does not disappear and the extra variables do not mediate between ECERS Total 2007 and ECERS Total 2010 ($R^2 = .24, p > .01, ns$).

A multiple regression between ORCE Total 2007 and ORCE Total 2010 with the presumed mediators has not been executed, because the first condition was not met. The presumed mediators did not correlate with the independent variable ORCE Total 2007 (path a).

3.3 Qualitative analysis

3.3.1 Findings of key persons on the Netherlands Antilles

On each island of the Netherlands Antilles interviews were planned with key persons in the Early Childhood Care and Development. A total of 16 persons were interviewed, for example High/Scope trainers, staff members of the department of Education and inspectors of daycare centers. The interviews were structured, and some of the questions were adopted to the specific function of the person.

The general trend of the interviews on a few questions concerning the quality of daycare centers and the High/Scope program is discussed here. The overall view of the key persons on the quality of daycare centers on the Netherlands Antilles is that the quality is inadequate. The interviewed persons pointed out that the quality has improved during the past years, but a lot needs to be done to improve the quality of daycare centers further. In the interviews some aspects that need to be improved were mentioned several times. First, the structure of the buildings was mentioned as an aspect that needs improvement, so the building is suitable for a daycare center. Second, it is important that the daycare centers are under inspection and that there are consequences when centers do not meet the minimum standards of quality. Third, daycare centers need to receive structural financial support by the government.

The general trend about the High/Scope program is clear in the interviews. According to the key persons the High/Scope program is suitable for the Netherlands Antilles. There are some difficulties mentioned. An overall conclusion that can be drawn from the interviews is that daycare centers do not meet the preconditions to fully implement the High/Scope program on the Netherlands Antilles. First, the caregiver-child ratio is too high, so not all the elements of the

High/Scope program can be done in the way it has to be done. Second, the education level of the caregivers is not adequate to implement the essence of the program fully. Third, after the workshops there is no supervision of the caregivers and they do not receive feedback. The general trend about the implementation of the High/Scope program is that the implementation is not in a final stadium yet.

3.3.2 Findings of parents

A total of 140 parents were asked to fill in a questionnaire that consists of five questions about parent' vision on daycare. The general trend of parents' answers of three of the questions will be discussed here. One of the questions was closed and the other two were open questions. The first question concerned parents' rate of the quality of the daycare center they sent their child to, on a seven-point scale. The mean rate was 6.09 (SD = .90), with a range of 4.00-7.00.

The second question concerned three aspects parents find most important for a daycare center. Of the parents 18.3% named 'education' as one of the most important aspects of daycare. Also 'hygiene' (13.5%) and 'general development of the child' (12.2%), which holds the independence, social abilities, discipline and personal care of the children, were found important to parents. Some other aspects parents named were 'care' (10.3%), 'safety' (8.2%), 'quality of caregivers' (8.2%), 'love and involvement' (7.9%), and 'pedagogical climate' (7.7%).

Parents were also asked to write down what they would like to see improved in the daycare center their child attends. Of the parents 46.4% did not have any suggestions for improvement, because they were satisfied with the daycare center they sent their child to. Of the other parents most suggested the stimulation of development of the children (14.9%), which includes education, materials, activities, etc, to be improved. Also the infrastructure of the building was often mentioned as aspect in need of improvement (11.9%). Some other aspects that need improvement according to parents are the caregivers (amount of teachers, education, caregiver meetings, etc), namely 8.3%, provisions for parents (6.0%), and hygiene (4.7%).

3.4 Summary of results per island

3.4.1 Overview of the islands

To get a more differentiated view of the results the mean scores of the ECERS Total, ECERS-R, ECERS-E and the ORCE on the five islands of the Netherlands Antilles are presented in table 7.

Table 7.

Mean scores on the ECERS Total, ECERS-R, ECERS-E, and ORCE on the five islands of the Netherlands Antilles.

	ECERS Total		ECERS-R		ECERS-E		ORCE	
	M	SD	M	SD	M	SD	M	SD
Sint Maarten	2.37	.29	2.50	.36	2.08	.26	2.58	.66
Saba	2.89	.49	3.16	.42	2.27	.66	3.40	.28
Statia	3.02	.28	3.39	.39	2.13	.00	2.60	.57
Curaçao	1.89	.47	2.04	.56	1.55	.33	2.10	.65
Bonaire	2.30	.28	2.52	.30	1.78	.25	2.73	.52

Sint Maarten

The overall quality of daycare centers on Sint Maarten was 2.37 (SD = .29), which is between an 'inadequate' and 'minimal' score. The ECERS-R scored higher than the ECERS-E and the sensitivity of the caregivers was 2.58 (SD = .66), which is mediocre. The subscales of the High/Scope implementation instrument all had low scores, with a very low score for 'Small-group time' (M = 1.08, SD = .34). The High/Scope program was not implemented sufficiently.

Saba

The overall quality of the daycare center on Saba was 2.89 (SD = .49), which is between an 'inadequate' and 'minimal' score. The score on the ECERS-E (M = 2.27, SD = .66) was between 'inadequate' and 'minimal' as well. The total score on the ECERS-R was between 'minimal and good' (M = 3.16, SD = .42). The sensitivity of the caregivers was 3.40 (SD = .28), which is the highest score of the five islands. The scores on the subscales of the High/Scope implementation instrument score were mediocre, with a very high score on 'Plan-do-review' (M = 2.8, SD = .35) and a low score on 'Small-group time' (M = 1.5, SD = .71).

Statia

The overall quality of the daycare center on Statia was 3.02 (SD = .28), which is 'minimal'. The score on the ECERS-R (M = 3.39, SD = .39) was between 'minimal' and 'good' and the score on the ECERS-E (M = 2.13, SD = .00) was between 'inadequate' and 'minimal'. The sensitivity of the caregivers was 2.60 (SD = .57), which is mediocre. The subscales of the High/Scope implementation instrument all scored mediocre. Apparent is the high score on the subscale 'Small-group time' (M = 2.3, SD = 1.06).

Curaçao

The overall quality of the daycare centers on Curaçao was 1.89 (SD = .47), which is between 'inadequate' and 'minimal'. Also, the scores on the ECERS-R and the ECERS-E were between 'inadequate' and 'minimal, respectively 2.04 (SD = .56) and 1.55 (SD = .33). The sensitivity of the caregivers on Curaçao was 2.10 (SD = .65), which is low. The scores on ECERS Total, ECERS-R and ECERS-E and the ORCE on Curaçao were the lowest of the five islands of the Netherlands Antilles. The subscales of the High/Scope implementation instrument all had very low scores, with the lowest score on 'Small-group time' (M = 1.2, SD = .60).

Bonaire

The overall quality of the daycare centers in Bonaire was 2.30 (SD = .28), which is between 'inadequate' and 'minimal'. Also, the scores on the ECERS-R and the ECERS-E were between 'inadequate' and 'minimal, respectively 2.52 (SD = .30) and 1.78 (SD = .25). The sensitivity of the caregivers was 2.73 (SD = .52), which is mediocre. The scores on the subscales of the High/Scope implementation instrument were differentiated. The score on 'Play/learning environment' was mediocre (M = 3.00, SD = .41), the scores on 'Small-group time' and 'Large-group time' were low, the scores on 'Plan-do-review' and 'Active learning' were beneath the average.

3.4.2 Comparing the five islands

The scores on the ECERS Total, ECERS-R, ECERS-E and ORCE were compared between the five islands. There was a statistically significant effect of the five islands on the ECERS Total ($F(4,40) = 8.027, p < .001$) and the ECERS-R ($F(4,40) = 6.996, p < .001$). Employing the LSD Post-hoc test significant differences were found on the ECERS Total and ECERS-R between Curaçao and the other four islands ($p < .05$), Curaçao scored lower than the other four islands. Statia scored significantly higher than Sint Maarten and Bonaire ($p < .05$) on the ECERS Total and ECERS-R. Between the other islands no significant differences were found ($p > .05$). There was a statistically significant effect of all the five islands on the ECERS-E ($F(4,40) = 8.328, p < .001$). Employing the LSD Post-hoc test significant differences were found on the ECERS-E between Curaçao and Saba, Statia and Sint Maarten ($p < .05$), Curaçao scored lower than these other three islands. Also, Sint Maarten scored significantly higher than Bonaire on the ECERS-E ($p < .05$).

There was a statistically significant effect of the five islands on the ORCE ($F(4,40) = 3.083, p < .05$). Employing the LSD Post-hoc test significant differences were found on the ORCE between Curaçao and Saba, Sint Maarten and Bonaire ($p < .05$), Curaçao scored lower than these other three islands.

The results show that Curaçao scored lower than most islands on most of the quality scores. Also on the ECERS Total and the ECERS-R the islands differ from each other mostly.

A more differentiated view of the pedagogical quality on the five islands separately can be found in the island reports (Meerdink & Schonenburg, 2010).

4. Discussion

4.1 Conclusion

To examine the current pedagogical quality of the daycare centers on the Netherlands Antilles two areas of research were taken into account. First, the current situation of the daycare centers on the Netherlands Antilles was assessed with the following questions: What is the current pedagogical quality of the daycare centers on the Netherlands Antilles, as assessed with standardized international measure instruments? And to what extent is the High/Scope program implemented in daycare centers? Second, the differences between the quality of daycare centers on the Netherlands Antilles between 2007 and 2010 were examined with the questions: To what extent has the pedagogical quality of daycare centers changed between 2007 and 2010? And are there factors that may have influenced this possible change?

The results of this study show that the current overall pedagogical quality of the daycare centers on the Netherlands Antilles, with a score of 2.24 on a seven point scale, is inadequate. The score is in between 'inadequate' and 'minimal', which means that the pedagogical quality of daycare centers on the Netherlands Antilles is not sufficient for the stimulation of the development of the children that are cared for in daycare centers. The sensitivity of the caregivers appears to be mediocre. This means that in interaction with the children, the caregivers show sensitivity. The implementation of the High/Scope program on the Netherlands Antilles is not in a final stage yet. Looking at the different aspects of the High/Scope implementation, none of the aspects are implemented sufficiently.

Comparing the results of 2007 and 2010 the overall pedagogical quality of daycare centers was improved using the Standardized Effect Size. When looking at the scales, there are important improvements on the aspects 'Space and furnishing', 'Language-reasoning', 'Activities' and 'Program structure'. The aspects 'Personal care routines' and 'Science and environment' were deteriorated between 2007 and 2010. The sensitivity of the caregivers did not improve between 2007 and 2010. The implementation of the High/Scope program is related to the overall pedagogical quality of daycare centers and most of the subscales of the ECERS and the total of the ORCE. The analysis shows that the High/Scope implementation is a mediating factor for the improvement of the pedagogical quality between 2007 and 2010.

Although the High/Scope program has not been adequately implemented yet and the total pedagogical quality is not optimal, significant positive changes in the learning environment on the

aspects of language and literacy, activities and environment, and the program structure of the preschool children has taken place. The implementation of the High/Scope program is a significant cause of these important improvements in pedagogical quality of the daycare centers on the Netherlands Antilles between 2007 and 2010.

4.2 Explanation of the results

4.2.1. Current quality

Although the quality of daycare centers on the Netherlands Antilles has improved between 2007 and 2010, the current quality still is inadequate for the stimulation of the development of children that attend daycare. This can cause poor developmental outcomes (Burchinal & Cryer, 2003; Vandell & Wolfe, 2000; Votruba-Drzal, et al., 2004). Especially for children from low-SES families this can cause educational disadvantages (Lamb, 1998; McCarney, et al., 2007). This study shows different causes that can explain this inadequate quality of daycare centers.

When looking at the daycare centers itself, in many centers the *infrastructure* is not suitable to be used as a daycare center. The scores on the subscale 'Space and furnishing' were between 'inadequate' and 'minimal'. This means that the space and furnishing of the daycare centers are not positive for the quality of the daycare centers. The outside area of a lot of the daycare centers is not well-kept and a dangerous place to play in for the children. The sanitary in daycare centers is also not suitable for children and for the amount of children in a center. Also the key persons in the Early Childhood Care and Development and Hellings (2006) mentioned that the arrangement of space in the centers is not optimal for the use as a daycare center. These aspects can cause problems for caregivers to provide optimal care for the children.

The directors and the caregivers need a *minimum education level* to work in a daycare center on the islands of the Netherlands Antilles (Hellings, 2006). The education level of caregivers is a strong predictor of process quality for preschoolers (NICHD Early Child Care Research Network, 2000). Concerning the caregivers the results show that 13.1 % is not educated to work in a daycare center. They have not completed a social-pedagogical LBO-education, which is the minimum education level for caregivers. This means that 84.7% of the caregivers is educated to work in a daycare center on the Netherlands Antilles, which is a relatively high percentage. Of the directors almost 70% is not educated to work as a director in a daycare center,

because they did not complete a HBO-education (Hellings, 2006). The high amount of directors who do not meet the minimal requirements concerning education can cause problems in managing the daycare centers and the caregivers. This can have an effect on the caregivers. Their education might not be optimally used, because there is a lack of feedback and guidance from directors to the caregivers.

Looking at the groups, the mean amount of children per group is 13.27. The *group size* shows a negative relationship with the pedagogical quality, the ECERS-E and the subscale 'Personal care routines'. This means that when the amount of children per group is higher, the pedagogical quality and the educational aspects (ECERS-E) are less present. Also, the quality of the care for the children is affected by the amount of children per group. This means in daycare centers with a smaller amount of children per group the caregiver can provide better pedagogical quality, education and care.

Also some daycare centers do not have enough varied materials or do not use the materials they possess in *activities*. This is reflected in the subscale 'Activities', which scored between 'inadequate' and 'minimal'. Even when a daycare center has materials, during the observations it became clear that the caregivers did not know how to optimally use the materials to stimulate the development of the children. The caregivers tried to offer activities to the children, but a lot of the time the activities were not age appropriate. According to Schweinhart (2003) children acquire new concepts optimally with activities that are geared toward their stage of development. This can also explain why the educational aspects as measured by the ECERS-E are lower than the other quality aspects, even though the results show that parents find education the most important aspect in daycare centers. Also the activities were presented in large groups, which makes it difficult for the caregivers to give individual attention to the children. In a lot of daycare centers all children are offered the same range of activities, therefore there is no opportunity for children to choose their own play material. Children also have to sit still and wait for many long periods of time, before an activity starts or ends. Often free play is limited to short periods of time during the day and even during this time the caregivers have a lot of influence on the playing of the children. This means children do not have access to the materials much of the time.

The *interaction* of the caregivers with the children is an apparent aspect as well. The interaction between adults and children play an important role in the learning and development process of the children (Schweinhart, 2003). The interaction is reflected in the subscale 'Interaction' in the ECERS-R and the ORCE Total score. The subscale 'Interaction' scored between 'inadequate' and 'minimal', which means it is not adequate for the stimulation of the

development of the children. The ORCE shows that the interaction of caregivers is mediocre, which means that the children do experience positive interaction with caregivers and receive sensitivity, which is positive for their development. Beside these standardized measurements, during the observations it became clear that there were a lot of differences between caregivers when it comes to interaction. Children who experience more positive interaction with caregivers and have a more secure relationship with caregivers appear more pro-social and positively engaged with other children (Howes & Smith, 1995; Vandell & Wolfe, 2000). One of the aspects of interaction that was remarkable during the observations was the imperative form of speaking that caregivers used towards the children. Also there were caregivers who control the children a lot and do not talk to the children at all unless it is necessary. The children seemed used to this form of lack of communication, therefore it might be a cultural form of communication, which does not have to be negative. The problem with this form of talking to children is that the children miss a lot of communication with adults, whereas high quality of verbal interaction is marked by modelling through shared thinking and modelling combined with open-ended questioning. Also, Scheele (2010) found that a lack of communication relates with lower school achievement of children. High quality of the verbal interactions influences the cognitive ability of the child (Sylva et al, 2004; Fukkink et al, 2005).

On the Netherlands Antilles most daycare centers are not under any *structural inspection*. From the interviews with the key persons in the ECD there can be concluded that if there is inspection of the daycare centers, the inspectors have a lot of daycare centers to inspect, so it is hard for them to follow up and give the guidance the daycare centers need. Also because there are already a lot of daycare centers operating that do not follow the minimum requirements of the island ordinances, there still is a lot in the daycare centers that needs to be changed, which gives the inspectors a lot of work. And when an inspector thinks it is best to close a daycare center, there is a process that has to be started and most of the times closure of the daycare will not be reached. The key persons in ECD named the inspection as one of the aspects that needs attention to further improve the quality of daycare centers.

Daycare centers on the Netherlands Antilles do not receive *structural financial support* of the government (Hellings, 2006). Fortunately this is improving in the last few years. On Curaçao there is a subject subsidy project which allows parents to get subsidy for their children. On Saba and Statia the salaries of the personnel are paid by the government. But because of this lack of subsidy in the other daycare centers, the only income the centers have is the child fee. This means that a lot of daycare centers do not have a stable income. The consequence of this is that daycare centers can not invest in new caregivers or materials that easily. The key persons in ECD also

named subsidy as one of the aspects that needs attention to further improve the quality of daycare centers.

The *High/Scope implementation* has started in 2007 and three years later a lot has happened. Unfortunately the results showed that the implementation is not sufficient on any of the central aspects yet. This might be caused by the manner of implementation. During the interviews with directors, key persons in the ECD and the observations it became clear that a lot of islands only use workshops to implement the program, and do not guide the daycare centers during the implementation. Also the preconditions to implement the program are not met by any of the daycare centers (NJI, 2007). The most apparent limitation of preconditions of the High/Scope program is the caregiver-child ratio, also named by the key persons in ECD. To meet the precondition, the caregiver-child ration needs to be 1:8 (NJI, 2007). The mean caregiver-child ratio on the Netherlands Antilles is 1:10, with a maximum of 1:18, which means that the Netherlands Antilles do not meet this precondition. The results show that this ratio has a great effect on small-group time, the higher the caregiver-child ratio is, the lower the implementation of small-group time. When visiting the daycare centers a lot of caregivers also mentioned that they had a hard time understanding the High/Scope program or the intention of the program. If caregivers have a hard time understanding the program, it is hard for them to implement it and there is less chance of success. That is why the precondition for the High/Scope program is that the caregivers have a minimum education level of Middelbaar Beroeps Onderwijs (NJI, 2007), however only 38.7% of the caregivers meet this precondition. The aspect of education of the caregivers was also named by the key persons in ECD. Although the implementation of the program is not sufficient yet, the efforts and activities that have been done to implement the program, already have had significant positive changes on the pedagogical quality of the daycare centers.

4.2.2. Comparing current quality with 2007

Since 2007 there has been improvements in the pedagogical quality of daycare centers on the Netherlands Antilles on several aspects. The implementation of the High/Scope program that started three years ago is a mediating factor between the quality of 2007 and the current quality.

By implementing the High/Scope program more attention has been drawn to several aspects of daycare centers by the government, Sifma, daycare centers and caregivers. The implementation of a program automatically draws attention to program structure, materials, room arrangement, interaction and education. In particular, the High/Scope program focuses on room

arrangement by creating centers in the group area, which might cause the improvement on 'Space and furnishing'. By implementing the High/Scope program there is more attention towards activities during the day. This can explain the improvement on both 'Language-reasoning' and 'Activities', although the improvement on 'Language-reasoning' is questionable. During the observations it became clear that in daily routines there was very little communication from caregivers to children. Stimulating communication was only present during activities. Because of this the scores on the subscale 'Language-reasoning' were mostly based on the communication during activities. The High/Scope program also focuses on the structure of the day. This becomes clear in the significant improvement that is present on the subscale 'Program structure'. All the efforts and activities that have been done to implement the High/Scope program, might have influenced these scales to improve and have had significant positive changes on the total quality in 2010 as well.

In 2010 there are also some deteriorations in comparison with the quality of 2007. First the subscale 'Personal care routines' has deteriorated. The results show that this scale is one of the lowest points in other countries, but in the Netherlands Antilles in 2007 this is not one of the lowest points. This can be explained by the extra attention that is drawn to implementing a program. Before the implementation in 2007 it became clear that the personal care routines had more attention on the Netherlands Antilles than in other countries (van Bragt, 2007). In 2010 the personal care routines had less attention. Another explanation is that the subscale 'Personal care routines' was not measured correctly in 2007. Also 'Science and environment' has deteriorated. There are no results or other information in this study that can explain this.

Apparent is the sensitivity of the caregivers as measured with the ORCE and the educational aspects as measured in the ECERS-E. Both have not changed since 2007. By implementing the High/Scope program there should have been more attention towards the educational aspects and the sensitivity of caregivers. The implementation of High/Scope is not sufficient yet, which can explain these results.

4.3. Strengths of this study

In collecting and analyzing data a mixed methods design was used, which consists of both quantitative and qualitative methods, in order to optimize the understanding of the complexity of ECD on the Netherlands Antilles. The use of interviews and observations provided a good understanding of the daycare centers on the islands. The quantitative analyses enabled us to

explore the quality of the centers and explore the factors that mediate between the quality in 2007 and the quality in 2010 in a structured manner.

A second strength of the present study is the use of internationally standardized observation instruments in the quantitative analysis. This made it possible to compare the pedagogical quality with the quality 2007 as measured by Van Bragt and with other studies that use the same standardized measure instruments.

A third strength of the present study is the participation of a large amount of groups, directors, caregivers, parents and key persons in ECD. On the five islands a total of 23 daycare centers with 45 groups participated. The aim was to replicate the study of Van Bragt (2007), therefore the same sample of daycare centers was approached to participate. In total, 18 of 19 daycare centers of the sample in 2007 participated in the present study, which means a total of 36 of the 38 groups of 2007 was visited again. The amount of groups of 2010 was expanded with nine extra groups which gives the analysis more power. In the analysis to compare the quality between 2007 and 2010 a total of 83 groups was observed (38 from 2007 and 45 from 2010). A total of 140 parents, 137 caregivers, 23 directors and 16 key persons in the ECD on the Netherlands Antilles were asked about the quality of daycare centers, which gives a total of 316 participants.

The fourth strength of the study is that it gives a complete overview of quality of the daycare centers on all the islands of the Netherlands Antilles. The research is done on all the five islands, which gives us an opportunity to compare the islands and get a good view per island and of the Netherlands Antilles as a whole.

Fifth, the present study is a follow-up study and gives the opportunity to use the results of 2007 and 2010 when the quality of daycare centers on the Netherlands Antilles will be investigated in the future. Both studies used the same methods to measure the quality of the daycare centers and both studies visited the same daycare centers.

4.4 Limitations of this study

The present study also has limitations that should be considered in future studies. First, the aim of the study was to replicate the study of Van Bragt (2007). The sample of the present study is not an exact replica, 18 of 19 daycare centers participated. The second limitation is that the daycare centers in the original sample were chosen by staff members of Sifma, so the sample was not a-select. Also use of the same sample as in 2007 limited the option of selecting other daycare centers. Third, the scales of the High/Scope implementation instrument were chosen in

collaboration with a staff member of 'Program implementation and training' of the Nederlands Jeugd Instituut (NJI). Some of the aspects of High/Scope were not taken into consideration and the instrument is not suitable to evaluate the complete High/Scope program, it only gives an indication of the implementation of High/Scope. Fourth, in other studies that used the ECERS scales the researchers were qualified to use the instrument. The researchers of the present study did receive three day training in the use of the ECERS scales from a qualified person. When comparing the results of the present study with other studies this must be taken into account.

The fact that no relation was found between 'Education of caregivers' and the ECERS Total and ORCE could be a result of the way the data was obtained and processed. All the caregivers of all the daycare centers were asked about their education, instead of only the caregiver of the observed group. Therefore the average education of all the caregivers of a daycare center was linked to the observed groups, instead of only the education of the caregivers that worked in the groups. The fact that no relation was found between 'Years working in this daycare center' and ECERS Total and ORCE could be a result of the question itself. Caregivers were asked to fill in their years of experience in the *current* daycare center. In this way the experiences of the caregivers in other daycare centers were lost.

Despite these limitations, the present study offers valuable insight in the issue of the pedagogical quality of the daycare centers on the Netherlands Antilles.

4.5 Recommendations

To further improve the pedagogical quality of daycare centers on the Netherlands Antilles, some recommendations are presented. First the infrastructure of the buildings of the daycare centers should be improved. Between 2007 and 2010 there was a significant improvement on 'Space and furnishings', but it is still inadequate for the stimulation of the development of the children. If the infrastructure would be further improved the quality will improve on several aspects as well. In the first place the 'Space and furnishing' is one of the quality scales, but second the infrastructure affects the care that caregivers can give. Also the parents find it important to improve the infrastructure of the buildings.

Second, most of the caregivers meet the required education level as stated in the island ordinances at this point, but a lot of directors do not meet the education level that the minimum requirements require (Hellings, 2006). As discussed above this can affect the way they manage the daycare center, but also the way they guide their caregivers. There needs to be more attention towards the education level of the directors. Also there are still caregivers working in daycare

centers who do not meet the required education level according to the minimum requirements (Hellings, 2006), even though the education level of caregivers is a strong predictor of process quality for preschoolers (NICHD Early Child Care Research Network, 2000). And because in a lot of daycare centers there is little or no guidance and feedback for the caregivers, they do not reflect on or further develop their way of working in the daycare center.

Third, smaller groups turn out to be better for the quality of the daycare centers. Therefore there should be more attention towards the group size and preferably change the arrangement of space of the daycare centers, to create smaller groups.

Although the subscale 'Activities' has improved between 2007 and 2010, there are still some daycare centers that do not possess or present enough varied materials. It is important for children to be stimulated by enough different materials so their development can be stimulated on different areas. Also parents find it important for their child that there are enough activities and materials to stimulate the development of their child.

ECD deserves special attention in the implementation of FBE on the Netherlands Antilles, in order to make a smooth transition into formal education possible (Sifma, 2001; Hellings, 2006). At this point the educational aspects of the quality of daycare centers are inadequate and score as one of the lowest points of the quality. To make the transition to FBE smoothly the daycare centers need to give more attention towards the quality of the educational aspects. Also education is the most important aspect in daycare centers named by parents.

The implementation of the High/Scope program has influenced the improvement of quality between 2007 and 2010, but the program is not implemented sufficiently yet. If the program is implemented more sufficient, there could be more improvements in quality. To implement the program in a correct way it is important to give more attention to the preconditions and try to meet up to them as closely as possible (NJI, 2007). For example small-group time and caregiver-child ratio affect each other, as the results showed. Two caregivers per group and a small group size are preconditions of the program, which can improve the small-group time (NJI, 2007; Schweinhart, 2003). Also there should be more feedback to caregivers on the way they are implementing the program.

From the interviews with key persons in ECD on the Netherlands Antilles there can be concluded that on Sint Maarten, Bonaire and Curaçao it is very important to place ECD and daycare under one ministry. That ministry should be responsible for ECD. This is important because at this point ECD often falls under several ministries, for example education and health, and therefore falls between two finance programs. There needs to be a stable budget for the daycare centers to improve and sustain the pedagogical quality, preferably subsidy on a structured

basis. This can only be reached if ECD falls under one ministry that is responsible for their finances. This ministry should also be responsible for the inspection of the daycare centers, which is also a very important aspect in improvement and sustainment of quality. The inspector should have the power to maintain the island ordinance and minimum requirements (Hellings, 2006) and if needed to close a daycare center. When these responsibilities are placed under a ministry, this ministry can be hold accounted for the state of quality of daycare centers.

The island ordinances of the five islands, except for Saba, are in place at this point, but not always up to date and applicable for daycare centers (Eilandgebied St. Eustatius, 2004; Eilandraad van het eilandgebied Curaçao, 1997; Eilandsraad van het eilandgebied Bonaire, 2005; The island territory of Sint Maarten, 2001). It is important that there is a close look at the contents of the ordinances and if necessary they need to be adjusted to the current situation of daycare centers on the Netherlands Antilles.

4.6 Suggestions for further research

The implementation of the High/Scope program is responsible for at least part of the improvement on the quality of the daycare centers on the Netherlands Antilles between 2007 and 2010, although the program is not implemented adequately yet. To further improve the quality of daycare centers, it would be recommendable to evaluate the program on the Netherlands Antilles and the implementation of the program in a structured manner which can help further influence the quality in a positive way.

Second, there needs to be more research towards the transition of daycare centers to be part of FBE. The implementation of FBE is one of the reasons ECD received more attention from the government (Sifma, 2001), but the educational aspects scored one of the lowest quality scores in daycare centers at this time. To further improve the overall quality of daycare centers and improve the transition to FBE, there needs to be more attention and research towards this subject.

Third, there needs to be (longitudinal) research to the development of children on the Netherlands Antilles, to get more insight in the effects of the pedagogical quality of daycare centers on the developmental outcomes of children.

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