Implementation of 'Beweegkriebels' into medical child-care centers: an exploratory study

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Abstract

The child-care setting could play an important role in preventive interventions against overweight and obesity development in young children. 'Beweegkriebels' is an example of a preventive program in child-care in the Netherlands. The primary goal of this program is to increase the possibilities for physical activity of young children and to contribute to pleasure perception in physical activity and playing. The intervention has been primarily developed on the basis of practical considerations. A theoretical background of the working mechanisms of the intervention was lacking. This has lead to the first aim of this research: to provide a theoretical background of the working mechanisms of the intervention 'Beweegkriebels'. The Trans-Contextual Model and the Ecological Model of Physical Activity were used to underpin the program 'Beweegkriebels.

The second aim of this research was to assess how 'Beweegkriebels' could be successfully implemented into medical child-care centers (child-care for children with developmental disabilities). A qualitative exploratory research design was used in order to obtain information from intermediaries in medical child-care centers concerning the program 'Beweegkriebels'. Semi-structured face-to-face interviews were conducted in five medical child-care centers. The interviews were recorded, typed out and analysed using NVivo 2.0.

The interviews showed that all interviewees were aware of the importance of physical activity. It was, however, not common in medical child-care centers to have policies regarding the promotion of physical activity. A workshop or training was indicated as a mean for successful implementation. Time and money were seen as the main barriers to implement 'Beweegkriebels'. An advantage of the program was that it delivered a concrete plan of actions. Important aspects to make the program compatible for medical child-care were that the program needs more structure for these children with developmental disabilities. In the usage of materials; each child needs its own color of material, and in the case of specific places; these have to be visible with colored dots or rings. Furthermore, the activities need to be short and concrete. Finally, the objectives in the manual could be more specified to the development of these children.

The last part of this research provided recommendations for NISB for successfully disseminating and implementing 'Beweegkriebels' in medical child-care centers. These recommendations were based on the results of the qualitative research described above.

Samenvatting

Kinderdagverblijven kunnen een belangrijke rol spelen in preventieve interventies om overgewicht en obesitas bij jonge kinderen te voorkomen. 'Beweegkriebels' is een dergelijk programma in kinderdagverblijven in Nederland. Het doel van het programma is om jonge kinderen meer beweegmogelijkheden te bieden en om ze plezier te laten ervaren tijdens het bewegen en spelen. De interventie is een antwoord op vraag vanuit kinderdagverblijven. Een theoretische onderbouwing van de interventie bestond nog niet. Dit heeft geleid tot het eerste doel van dit onderzoek: de interventie 'Beweegkriebels' voorzien van een theoretische onderbouwing. Het Trans-Contextual Model en het Ecological Model of Physical Activity zijn gebruikt om het programma 'Beweegkriebels' theoretisch te onderbouwen.

Het tweede doel van dit onderzoek was het beoordelen hoe 'Beweegkriebels' succesvol geïmplementeerd kan worden in medische kinderdagverblijven (kinderdagverblijven voor kinderen met een ontwikkelingsstoornis). Een kwalitatieve, explorerende onderzoeksmethode is gebruikt, om informatie over 'Beweegkriebels' te verkrijgen van intermediairen uit medische kinderdagverblijven. Gedeeltelijk gestructureerde, persoonlijke interviews zijn afgenomen op vijf medische kinderdagverblijven. De interviews zijn opgenomen, uitgetypt en vervolgens geanalyseerd met het programma NVivo 2.0.

Uit de interviews kan geconcludeerd worden dat alle geïnterviewden zich bewust waren van het belang van bewegen. Het was niet gebruikelijk om beleid te maken op het gebied van bewegen. Een workshop of training werden gezien als middel voor succesvolle implementatie. Tijd en geld werden genoemd als de belangrijkste barrières om 'Beweegkriebels' te implementeren. Voordelen van het programma zijn dat het een basis biedt voor beweging en het biedt een concreet aanbod aan verschillende beweegactiviteiten. Structuur is nodig om het programma zo goed mogelijk aan te laten sluiten bij medische kinderdagverblijven. Zowel bij het gebruik van materialen; ieder kind heeft behoefte aan een eigen kleur materiaal, als bij het aanduiden van plaatsen van de kinderen; deze dienen zichtbaar te zijn door middel van gekleurde stippen of hoepels. De activiteiten dienen kort en concreet te zijn. Ten slotte zouden de doelen in de handleiding van de training meer toegespitst kunnen worden op de ontwikkeling van de kinderen.

De resultaten van bovenstaand onderzoek waren de basis voor aanbevelingen voor het NISB. Deze aanbevelingen kunnen de basis vormen voor een succesvolle verspreiding en implementatie van 'Beweegkriebels' in medische kinderdagverblijven.

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1. Introduction

This chapter starts with a description of the problem followed by an overview of the intervention 'Beweegkriebels'. In the third paragraph will be explained what medical child-care centers are. The aim of this research will be discussed in the fourth paragraph, followed by the research questions in the fifth paragraph. The last paragraph discusses the theoretical underpinnings of this research.

1.1 Description of the problem

Children naturally enjoy physical activity (Boreham & Riddoch, 2001). They play and are active of their own accord, but nowadays, children are limited in this natural behavior by the environment. The way neighborhoods are designed as well as the influence of the parents and caregivers towards young children tend to decrease their ability to be physically active in an appropriate amount (Giles-Corti, Kelty, Zubrick & Villanueva, 2009). Since the environment is less stimulating for children to be active, there is need for extra focus for this group to stimulate physical activity, because physical inactivity could lead to (childhood) obesity (World Health Organization, 2006).

Childhood obesity is an increasing problem in the world. Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases, musculoskeletal disorders and cancer. Obesity in childhood is related with a higher chance of disability in adulthood and premature death (WHO, 2006). In the Netherlands, obesity and overweight among children are a topic of concern. Between 1980 and 1997, there was an increase from 8.8% to 12.3% in overweight among 4-year-old girls and an increase from 0.8% to 1.7% in obese 4-year-old girls. In 4-year-old boys there was an increase from 5.5% to 9.7% in overweight and an increase from 0.3% to 1.1% in obesity (Hirasing et al., 2001). The obesity prevalence increased between 1997 and 2002 further from 1.7% to 2.3% in 4-year-old girls and from 1.1% to 3.8% in 4-year-old boys (Van den Hurk et al., 2006).

Overweight and obesity could be reduced with interventions at the individual level. People could be stimulated to increase their physical activity, limit their intake of sugars, increase their fruit and vegetable consumption, limit their energy intake from total fats and shift their fat-intake away from saturated fat to unsaturated fat. As a result they could achieve a stable energy balance and a healthy weight (WHO, 2006).

In previous research it has been found that children with developmental disabilities (such as physical limitations, children receiving special education, children with attention deficit disorder, and children with learning disabilities) encounter cognitive, developmental and physical limitations to participate in physical activity (Bandini, Curtin, Hamad, Tybor & Must, 2005; Small & Baur, 2008; Rimmer, Rowland & Yamaki, 2007; Murphy & Carbone, 2008). Therefore, these children run a higher risk of developing obesity in life (Bandini et al., 2005; Murphy & Carbone, 2008). There are several limitations found by King, Law, King, Rosenbaum, Kertoy & Young (2003) for these children to participate in the physical activity required. These limitations included children's functional limitations, high costs and lack of nearby facilities. Thus, this group of children needs particular attention in prevention of obesity and the promotion of physical activity. Determinants with direct influence on physical activity behavior of children with developmental disabilities were the home environment, time impact on the family, and perceived self-competence of the child. Indirect influences (i.e. influences that are mediated by the direct influences described above) included family demographics, preferences of the family and the child and social support (King et al., 2003).

More and more children would go to child-care centers. In Europe, child-care is continuously growing in order to facilitate working parents (Blackburn, 2006). In Europe, a quarter of all children up to three years old attended formal child-care. This percentage increased to 84 percent for children aged three years old up to compulsory school age. In the Netherlands, 45 percent and 89 percent respectively of children in these age groups attended formal child-care (Eurostat, 2008).

Since the prevalence of overweight in childhood is increasing worldwide, and children attend more often and longer periods of time in child-care facilities, there could be perspective for preventive interventions in this setting. Multiple authors (e.g. Story, Kaphingst & French, 2006; Gubbels et al., in press) also mentioned that child-care setting could play an important role in preventive interventions against overweight and obesity development in young children. 'Beweegkriebels' is an example of a preventive program in the child-care setting in the Netherlands.

1.2 'Beweegkriebels'

'Beweegkriebels' is a program developed by Netherlands Institution for Sport and Physical activity (NISB, Nederlands Instituut voor Sport en Bewegen). The intervention has been

primarily developed on the basis of practical considerations. A theoretical background of the working mechanisms of the intervention is currently lacking.

The primary goal of 'Beweegkriebels' is to increase the possibilities for physical activity and an active lifestyle of young children. 'Beweegkriebels' aims to increase pleasure perception to physical activity and playing; prevent overweight and obesity at young age; stimulate a good motor, social, emotional and cognitive development; and stimulate a positive movement attitude formation (Nederlands Instituut voor Sport en Bewegen, 2008).

The program focuses on the integration of physical activity within daily routines and on the natural enjoyment of being physically active as a child, and stimulating this in their environments. The end target group of this program is 0- to 4-year-old children. The intervention consists of three components: increasing expertise of child-care workers, information and promotion towards parents and health care professionals, and support and advice for organizations. For each component there are several ways to reach its objectives.

For *increasing expertise* of child-care workers, there are educational materials available that focus on increasing skills, creativity and insight with regard to being physically active with children 0 to 4 years old. The target groups for this component are child-care workers, but also students with relevant studies and professionals within organizations working with young children. Within 'Beweegkriebels' there are three ways to increase expertise within 'Beweegkriebels': a training to acquire deep insight into the program, a basic workshop as a first introduction to the program, and a training to become a 'Beweegkriebels'- trainer. The first part, the training 'Beweegkriebels', is for everyone working with children 0 to 4 years old. The training teaches and supports the development and performance of challenging, age-appropriate playful physical activities. The practical training focuses on the enjoyment of physical activity, creativity, explanation of physical activities, and the use of simple materials. After the training the participants will have insight in being playfully active with 0- to 4-year-old children and can use their imagination to be original in designing physical activities. The training consists of seven meetings, 2.5 hours each. In the training a manual is used to gain more insight into nine different themes. Examples of these themes are: play perception, being active on music, and play with different materials. The second part, a basic workshop 'Beweegkriebels', is also for everyone who is working with children 0 to 4 years old. This workshop is based on the training. The workshop stimulates to be playfully active with young children in one meeting. In contrast to the training, only one of the nine themes out of the

manual will be discussed. The last part for increasing expertise is a training to become a 'Beweegkriebels'- trainer. In this training, professionals are schooled to become a 'Beweegkriebels' trainer. A trainer can independently disseminate the training 'Beweegkriebels'.

For *information and promotion,* materials have been developed to promote the program and increase awareness of the importance of physical activity in children 0 to 4 years old. The target groups are parents of young children, professionals working with young children, organizations focused on physical activity, and other potential users of the program. The NISB promotes its program using six different information tools. There is a website, www.beweegkriebels.nl, which provides information on how to be physically active with young children. The brochure 'Beweegkriebels' supplies information on the program. The flyer discusses the importance of being physically active with young children and refers to the website. There is a DVD, which shows possible activities to undertake with young children. There is a set of movement-cards that provide the target group hints and ideas on how to be physically active with young children. Finally, there is a theme-case which can be used at parents' evenings or workshops. Parents' evenings can be organized in order to inform parents about the program and the importance of physical activity. This theme-case contains for instance information on how to be physically active with young children, a DVD, and information materials for parents.

For *support and advice,* NISB supports and advices organizations on further development and integration of 'Beweegkriebels' into their organization's policy. The target groups are municipalities, local institutions and umbrella organizations working with young children. NISB provides personal advice and support during the implementation of the program.

1.3 Medical child-care centers

Although the intervention has not been subject to rigorous evaluation, practice-based evidence indicated that the results of 'Beweegkriebels' in child-care were satisfying (NISB, 2010). NISB had specified different target groups, including medical child-care centers, schools for physically handicapped children and schools for multiple-disabled children. This research focused on medical child-care centers. Medical child-care centers differed from each other in their characteristics, but they shared a similarity in that children could only be placed on

medical grounds. The children in medical child-care centers dealt with developmental disabilities. Developmental disabilities could be of any type differentiated in DSM IV, like mental retardation (e.g. Down's Syndrome), pervasive developmental disorder (e.g. autism), ADHD, eating disorders and more (American Psychiatric Association, 2010). Also medical diseases like diabetes mellitus could be reason for placing a child in medical child-care. In each case, the goal was to improve the development of the child. The expertise of a medical child-care center could differ. For instance, one could have the focus on mental retarded children, while another concentrated more on pervasive developmental disorders.

Diverse specialists were working in medical child-care centers. Child-care workers could be found in the daily child-care groups. Physiotherapists, speech therapists, Caesar therapists, play therapists, and music therapists could support them with specialized training or treatment. Furthermore, in some centers, pediatricians, nurses, and psychologists gave medical assistance.

1.4 Aim of the research

A first aim of this study was to provide a theoretical background of the working mechanisms of the intervention 'Beweegkriebels'. A second aim was to assess how 'Beweegkriebels' could be successfully implemented into medical child-care centers. 'Beweegkriebels' in its original form was developed for all children in the age group of 0 to 4 years old. To increase successful implementation and results for children with a physical or mental handicap in medical child-care centers, the program may need some adaptations and/ or changes. This study aimed to give insight into the wishes, needs, and expectations of intermediaries working in medical child-care centers, to allow a successful implementation of the program in this setting.

1.5 Research questions

The research focused on two different aspects. The first aspect was the theoretical background of the intervention 'Beweegkriebels', the second aspect was how to successfully implement this program into medical child-care centers.

The key research question for the theoretical background of the intervention was:

- What are the theoretical underpinnings of the intervention 'Beweegkriebels'?

To provide a well-fitting advice for the implementation of 'Beweegkriebels' into medical child-care settings, the following research questions were key:

- What are the whishes, needs and expectations of intermediaries working in medical child-care centers concerning the implementation of 'Beweegkriebels'?
- Are there reasons for (not) implementing 'Beweegkriebels'?
- Is there need for an extra module/ theme within the 'Beweegkriebels' intervention specifically focusing on physical and or mental handicapped children?
- What are probable advantages and/ or disadvantages of 'Beweegkriebels' if implemented into medical child-care centers?
- How does the program fit in daily practice within medical child-care centers?

1.6 Theoretical framework

In this part, the theories behind this research will be described. These theories are the determinants of innovations (Fleuren, Wiefferink & Paulussen, 2004; 2006), and the diffusion of innovations theory from Rogers (2003). In the last part, a hypothetical research model will be formulated and described.

1.6.1 Determinants of innovation

Implementation of innovations is a process that involves distinct stages (figure 1) (Fleuren & de Jong, 2006; Fleuren et al., 2004; Paulussen, 1994; Rogers, 2003). The first stage is the dissemination phase, in which an innovation will be spread. The second stage is the adoption phase, in which one can decide to adopt or reject an innovation (Paulussen, 1994). The third stage is the implementation stage, in which an innovation is put into practice; the final stage is the continuation stage, in which an implemented innovation is part of daily routine (Fleuren & de Jong, 2006). Several determinants have been identified to affect this process, either positively or negatively. Fleuren et al. (2004; 2006) differentiated four categories of determinants which can affect the transition from one stage to the next: (1) characteristics of the socio-political context, such as willingness to cooperate with the innovation and financial burden of the innovation on the patient; (2) characteristics of the organization, such as decision-making process in the organization and the hierarchical structure; (3) characteristics of the adopting person (user), such as support from colleagues and higher management in implementing the innovation and the extent to which the innovation fits in the perceived task

orientation of the health professional; and (4) characteristics of the innovation, such as the extent to which the procedures/ guidelines of the innovation are clear and extent to which the innovation is appealing to use. The characteristics of the innovation strategy of Logan and Graham (1998) have been incorporated into the model of Fleuren et al. (2004; 2006) to moderate the innovation determinants towards the innovation process. The characteristics of the innovation strategy need to take into account the impeding and facilitating innovation determinants.

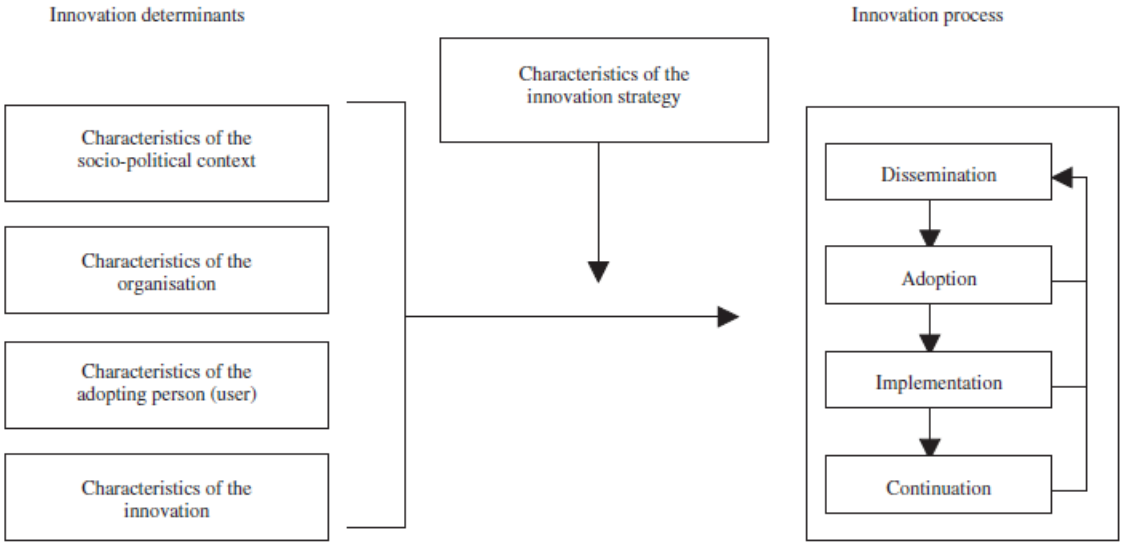

Figure 1. Model of Fleuren, Wiefferink and Paulussen (2004; 2006)

1.6.2 Diffusion of innovations

Different rates of adoption could be explained by the characteristics of innovations, as the level of adoption is influenced by the positive or negative perception of the individuals who need to adopt these innovations. Rogers (2003) identified five perceived attributes of innovations to explain these different rates of adoption: relative advantage, compatibility, complexity, trialability and observability. *Relative advantage* is the degree to which an innovation is perceived as being better than the idea it supersedes. The relative advantage is positively related to the rate of adoption of an innovation. In general, preventive innovations have a slow rate of adoption because the relative advantage will be accomplished on the long term and is for individuals difficult to perceive. *Compatibility* is the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters. The compatibility is positively related to the rate of adoption of an innovation. *Complexity* is the degree to which an innovation is perceived as relatively difficult

to understand and use. Complexity of an innovation is negatively related with the rate of its adoption. *Trialability* is the degree to which an innovation may be experimented with on a limited basis. Trialability is positively related to the rate of adoption of an innovation. *Observability* is the degree to which results of an innovation are visible for others. Observability of an innovation is positively related with its rate of adoption.

1.6.3 Research model

In this research, the key objective was to found out how to successfully implement 'Beweegkriebels' into medical child-care centers. This was explored using the determinants as described by Fleuren et al. (2004; 2006), complemented with the five perceived attributes of an innovation as found by Rogers (2003) (figure 2). After identifying the determinants influencing the implementation of 'Beweegkriebels' into these medical child-care settings, it would be analyzed which characteristics of the diffusion strategy need to be applied for most successful dissemination, adoption and implementation of the program into medical child-care centers.

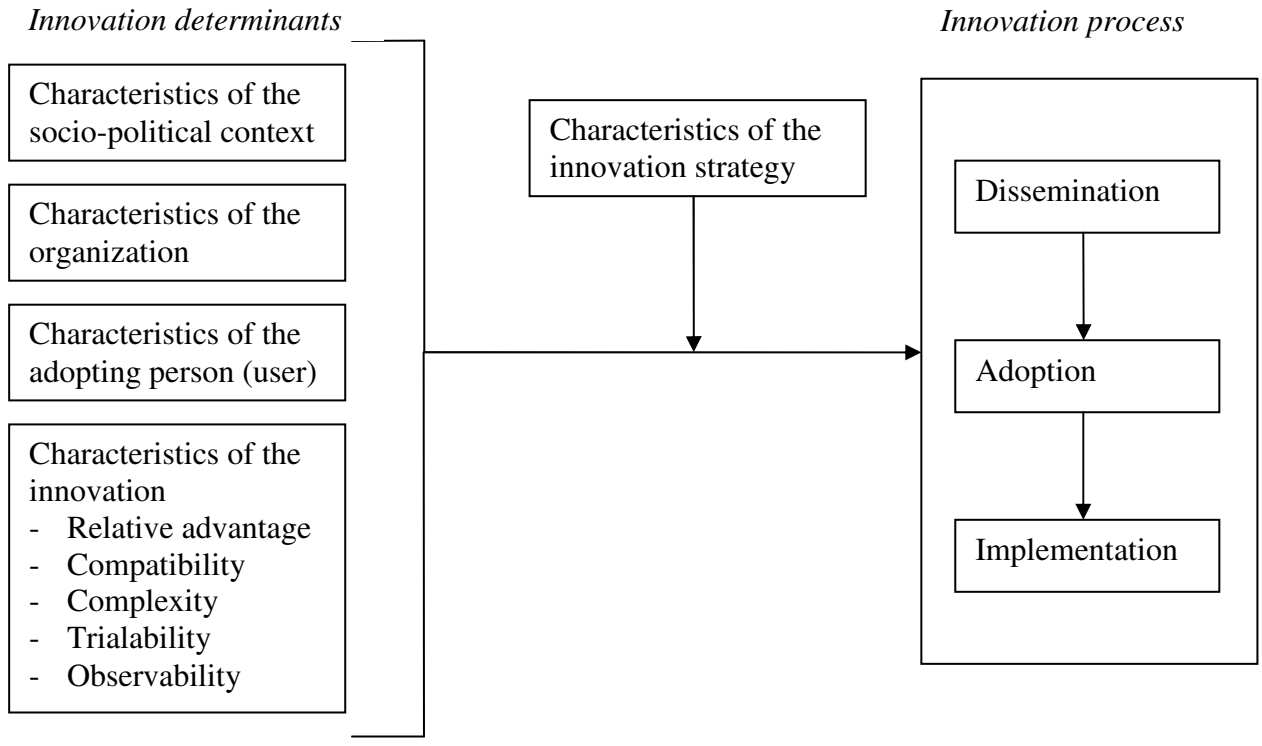

Figure 2. Research model

2. Methods

In this chapter the methods will be described. First the research design will be discussed, followed by the participants and procedure, the research instrument and data collection, and finally the data analysis.

2.1 Research design

'Beweegkriebels' has been developed by NISB in response of a practical need. Several child-care centers were looking for an age-appropriate program to be physically active with children 0 to 4 years old. The program has not been developed with a specific theory in mind, so the first part of this research focused on the theoretical background of 'Beweegkriebels'. To this aim, literature was searched to explore theories, which can theoretically underpin the program.

The second part of this study was focused on medical child-care centers. A qualitative exploratory research design was used to obtain information from intermediaries in medical child-care centers with respect to the program 'Beweegkriebels'. Semi-structured face-to-face interviews were conducted to obtain this information. These interviews were aimed at gaining insight into their view on the need for additional or changed modules within the 'Beweegkriebels' program, which could lead to a well-fitted advice for NISB for implementing the program in medical child-care centers.

2.2 Participants and procedure

For the second part of this research, five medical child-care centers were approached to conduct face-to-face interviews. Within each of the five medical child-care centers, three disciplines were invited to take part in this research. The disciplines, which were involved in the interviews, were physiotherapists, managers and child-care workers. The interviews were planned to take 45 minutes each and they were voice recorded for the analysis.

To select five medical child-care centers, first the Internet was searched to found out where the medical child-care centers were located in the Netherlands. From this search it turned out that there were about 60 medical child-care centers in the Netherlands. It became also clear that most medical child-care centers were part of larger (youth-) health care organizations. Secondly, child-care centers were selected which had a good accessibility for the researcher. Two other selection criteria were that the centers had to be part of different

health care organizations and that the medical child-care centers had to lie scattered over the south of the Netherlands. Fifteen medical child-care centers met the inclusion criteria, of which five were approached for this research. These five centers were contacted by phone, followed by an e-mail with detailed information on the purpose as well as the approach of the study. When the organizations agreed to take part in the research, appointments for the interviews were made. It was up to the organization to propose one manager, one physiotherapist and one child-care worker for the interviews. Furthermore, it was made clear to the organizations that the people participating would have to look into the subject prior to the interview taking place. Therefore, the brochure and flyer of the program 'Beweegkriebels' were sent by post and they were referred to the website www.beweegkriebels.nl.

2.3 Research instrument and data collection

Data was collected through semi-structured face-to-face interviews. These interviews were voice-recorded for the analysis after permission of the interviewee. Each interview was started with a personal introduction of the interviewer and an explanation of the purpose of the interview. Although each participant had received the general information on the program, the introduction still included a full explanation of the program 'Beweegkriebels' to make sure they had the right information and understanding. All program materials were shown and when the participant indicated that they knew enough of the program, the interview was started.

The interview questions were based on the research model explained in paragraph 1.4.3. Each concept of the research model was investigated and would lead to a proximal outcome. Sub questions were made to give insight into each concept. This resulted in six research variables: characteristics of the socio-political context, characteristics of the organization, characteristics of the adopting person (user), characteristics of the innovation, characteristics of the innovation strategy, and the phase of implementation. Additional outcome categories were personal information about the interviewee and information concerning the medical child-care center, which would provide a general overview of the study population. An overview of the interview questions can be found in appendix 1.

2.4 Data analysis

After conducting the interviews, they were analyzed with the assistance of NVivo 2.0. Analysis took place to identify wishes, needs and expectations of intermediaries to implement 'Beweegkriebels' into medical child-care centers. Moreover, potential barriers were identified, as well as the benefits and disadvantages of the program.

First, each recorded interview was transcribed into a written transcript in Microsoft Word. These transcripts were converted from a .doc document into an .rtf document since NVivo could only import rich text formats. After converting all transcripts, they were imported into NVivo. The next step was creating nodes (labels) based on the research model. First the parent nodes were established. The parent nodes were the proximal outcome categories. Second, the child nodes were created. The child nodes were a subdivision of the proximal outcome categories. The result was a tree diagram with parent- and child nodes, which can be found in appendix 2. The next step was reading all transcripts carefully and connecting the answers to the relevant nodes. When more nodes were possible to one answer, all possible nodes were assigned to that answer. Finally, all data was sorted out by node, to ensure that all relevant information for each proximal outcome was easily accessible and the results could be written down.

3. Results

In this part, the results of the research will be presented. First, the results with respect to the theoretical background of the program 'Beweegkriebels' will be described, followed by the results of the interviews conducted in medical child-care centers.

3.1 Theoretical underpinnings 'Beweegkriebels'

In this part, the theoretical background of the intervention 'Beweegkriebels' will be shortly described. A full (Dutch) overview of the theoretical underpinnings can be found in appendix 1. Two theories will be described, which fit the intervention 'Beweegkriebels'. First the Trans-Contextual model (Hagger & Chatzisarantis, 2007) is linked to 'Beweegkriebels' followed by the EMPA model (Spence & Lee, 2003).

3.1.1 The Trans-Contextual model

The Trans-Contextual model (Figure 3) is derived from three other theories, the Self-Determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000), the Theory of Planned Behavior (Azjen, 1991) and the Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand, 1997). These three theories will first be shortly outlined here.

The Self-Determination Theory identified three types of motivation: intrinsic-, extrinsic-, and a-motivation. Intrinsic motivation can be viewed as 'being active for its own sake'. Extrinsic motivation concerns behavior not motivated by the activity itself, but by the expected outcomes of that particular behavior. A-motivation is the lack of motivation, intrinsic as well as extrinsic motivation (Deci & Ryan, 1991). The Self-Determination Theory assumed that the more intrinsically motivated the behavior a person is engaged in, the more successful and maintained the behavior will be. More extrinsic motivated or low autonomous behavior is less likely to be maintained, especially when external cues change (Deci & Ryan, 1985; Ryan & Deci, 2000).

The Theory of Planned Behavior identified and explained the interpersonal demands of behavior. The theory states that a person's intention is based upon three sets of social cognitive constructs: attitude, subjective norm, and perceived behavioral control. Intention mediates the effect of attitude, subjective norm and perceived behavioral control on actual behavior (Azjen, 1991).

The Hierarchical Model of Intrinsic and Extrinsic Motivation hypothesized that the types of motivation from the self-determination theory could be seen at three levels of generality: global, contextual and specific. It is assumed that there is a cross-contextual interplay between motivations at the contextual level, meaning that a motivation in a specific context could be transferred to another context (for example from child-care to leisure time) (Vallerand, 1997).

The Trans-Contextual Model explains the effect of perceived autonomy support from a physical educator, on autonomous (intrinsic) motivation in a leisure-time activity context. This is mediated through autonomous motivation in the physical education context (Hagger & Chatzisarantis, 2007). This may, in theory, also be the case in 'Beweegkriebels'; in child-care centers children would experience physical activity and support from child-care workers. This could lead to autonomous (intrinsic) motivation for physical activity in the child-care center and that could be transferred to their leisure time. This could influence the physical activity behavior of the child, also later in life, especially when the intervention succeeds in creating or maintaining intrinsic motives for physical activity. 'Beweegkriebels' aims to increase or maintain intrinsic motivation formation through the promotion of children's own choice for the type of activities and the enjoyment of these activities. Further, also alternative sources of perceived autonomy support are included in the trans-contextual model; peers and parents have significant effect on autonomous motivation in leisure-time physical activity (Hagger & Chatzisarantis, 2007). The intervention 'Beweegkriebels' also focuses on parents and how to stimulate their children at home to be more physically active, thereby aiming to facilitate an optimal transfer of motives between the two settings (i.e. child-care and home).

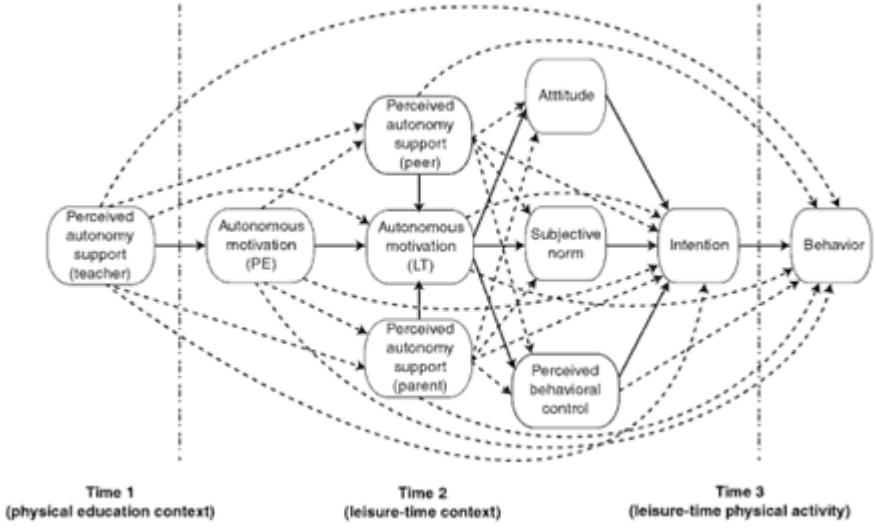

Figure 3. The Trans-Contextual model (Hagger & Chatzisarantis, 2007)

3.1.2 The Ecological Model of Physical Activity (EMPA)

The EMPA model (Figure 4) is an ecological model. Ecological models focus on the (interplay between) environmental factors to explain the related behavior, rather than only including internal or personal influences (McLeroy, Bibeau, Steckler & Glanz, 1988). Wachs (1992) developed the Structural Model of the Environment (SME-model), which aims to understand the role of the environment in children's development. The EMPA-model is a more comprehensive/ extended ecological model than the SME-model, and it is applied specifically to physical activity (Spence & Lee, 2003). This model acknowledges that personal factors (such as biological and genetic as well as psychological factors) play a role in physical activity behavior. Furthermore, the environment is assumed to influence physical activity behavior direct and indirectly. The environment is subdivided into various distinct systems: the micro-, meso-, exo- and macrosystem. The microsystem is the most proximal environment and interacts immediately with the individual. Examples of microsystems are workplace, child-care, school, home, but also parents and direct friends. The mesosystem is the environment in which two or more microsystems interact with each other. For example, the physical activity behavior of a child is influenced by the support given by parents (microsystem 1) as well as by the support provided by child-care workers (microsystem 2). In the exosystem, two or more microsystems interact, but of these at least one does not include the individual directly. An example of this is that the work environment of the parents, e.g. a discussion about the health benefits of physical activity (microsystem 1), influences the way

this subject is brought up by parents in the child-care setting (microsystem 2). The macrosystem is the most distal environment and includes the social- cultural context of the individual, e.g. cultural standards. The program 'Beweegkriebels' focuses mostly on the micro- and mesosystem. Child-care and the home situation are the most important microsystems of the child. Interaction between these two takes place at the mesosystem: what a child experiences in child-care, could be transferred to the home situation and vice versa.

Especially in programs focusing on young children in the age of 0 to 4, the social environment plays an important role. Parents, caregivers and child-care centers are responsible to provide physical activity possibilities and a stimulating physical environment to the child. Furthermore, the biological and genetic factors play a role. With regards to children with physical or mental impairments, these impairments are expected to be direct influences on physical activity behavior.

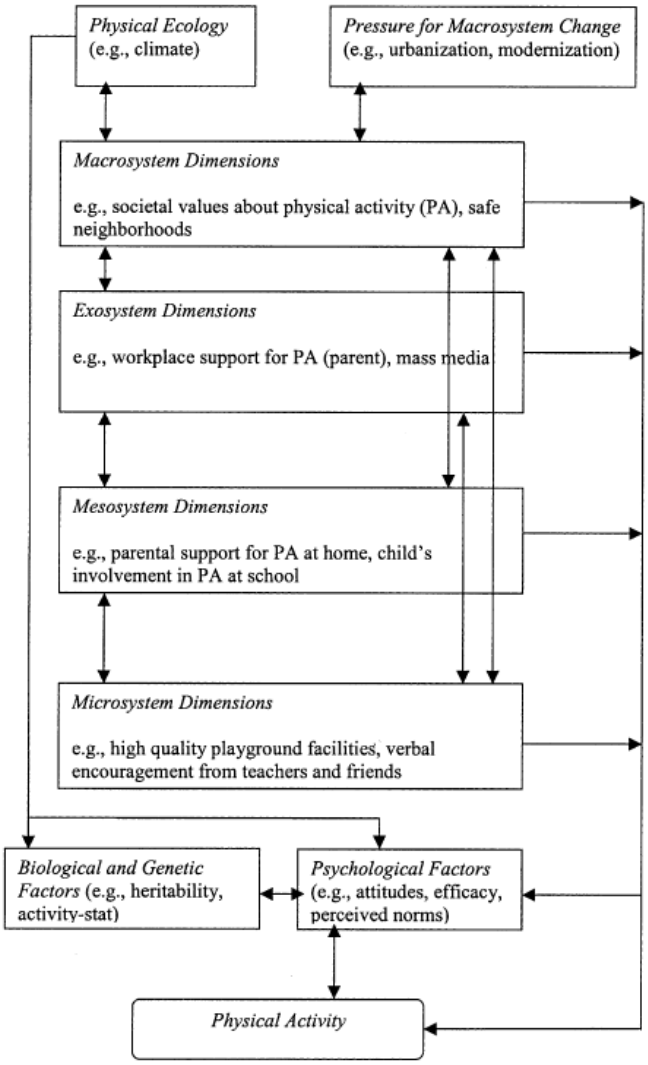

Figure 4. The Ecological Model of Physical Activity (Spence & Lee, 2003)

3.1.3 Integration of the theories

The Trans-Contextual Model and the EMPA model could be integrated to theoretically underpin the 'Beweegkriebels' program. 'Beweegkriebels' aims to increase or maintain intrinsic motivation formation through the promotion of children's own choice for the type of activities and the enjoyment of these activities. Furthermore, the child-care workers could stimulate the young children to be physically active to form intrinsic motivation for being physically active. According to the Trans-Contextual Model, this intrinsic motivation formed within child-care centers could be transferred to the home situation of the child. However, the parents could also stimulate physical activity at home. Both, the parents and the child-care workers, directly interact with the child. Therefore those could be viewed as microsystems of the child. The interaction of both microsystems, for instance during parents' evenings, could be viewed as the mesosystem of the child. Taking it together, these theories could underpin how to achieve the objectives of 'Beweegkriebels': a healthy, active lifestyle of young children; preventing overweight and obesity at young age; a good motor, social, emotional and cognitive development; and development of a positive movement attitude.

3.2 Results interviews

In this part, first the study population will be discussed, followed by the results of the interviews, discussed per factor in the research model.

3.2.1 Study population

For this research, five medical child-care centers were approached to conduct three interviews in each center. In total, twelve interviews were performed: three in the medical child-care center A, two in the medical child-care centers B, D and D, and three interviews in medical child-care center E. Reasons for not taking part in the interviews were illness of the physiotherapist in medical child-care center B, lack of time of the manager in medical child-care center C and lack of time of the physiotherapist in medical child-care center D. Most interviewee's were female (91.7%), only one was male. The average age of the study population was 43.8 (SD 13.1) with a range of 26 – 61 years. The duration that the interviewees worked in the medical child-care center where they were interviewed varied between 4 weeks and 22 years, with an average of 10 years (SD 9.0). An overview of the research population is provided in table 1.

Table 1. Research population

Medical child-care center	Location	N	Disciplines	Age	Duration of work in this child-care center	Gender (Male/ Female)
A	South Noord- Brabant	3	Child-care worker	26	4 years	F
			Manager	27	4 weeks	F
			Physiotherapist	54	21 years	F
B	North Noord- Brabant	2	Child-care worker	39	12 years	F
			Manager	57	5 months	M
C	South Gelderland	2	Child-care worker	31	9 years	F
			Physiotherapist	61	21 years	F
D	West Noord-Brabant	2	Child-care worker	32	9 years	F
			Manager	36	1 year	F
E	South Limburg	3	Child-care worker	58	20 years	F
			Manager	51	1 year	F
			Physiotherapist	53	22 years	F
Total		12				
Mean (SD)				43.75 (13.14)	10.04 (8.95)	

The composition within the different medical child-care centers varied, e.g. the number of groups, the children's age and the developmental disabilities differed per medical child-care center. In the table below, the characteristics of each medical child-care center are summarized.

Table 2. Characteristics of the medical child-care centers

	Medical child-care center A	Medical child-care center B	Medical child-care center C	Medical child-care center D	Medical child-care center E
N groups	4	3	4, including 1 observation-group and 1 school-preparation group	8, including 1 baby-group	7
N children in group	About 8 a group	About 10 children in two groups and 5 in one group	About 8 a group.10 in the school-preparation group	About 10 a group. Max 7 in the baby-group, and max 12 in the oldest group	8 a group
N child-care workers in group	2	2 in the larger groups, 1 in the small group	2	2	2
Children's age	In theory 0-7 years in practice 3-7	2-9 years	1-6 years	0-7 years	0-6 years
Children's function/ disabilities	Behavioral disturbances like autism and ADHD	Behavioral disturbances like autism and ADHD	Mental retarded children with an IQ below 74	Behavioral disturbances like autism and ADHD	Behavioral disturbances like autism and ADHD, children with eating disorders, or medical diseases like diabetes

3.2.2 Characteristics of the socio-political context

The characteristics of the socio-political context were assessed using three concepts. The first concept was the policy on physical activity, the second concept was the prevailing standards

with respect to physical activity and the last concept was the interviewee's standard concerning physical activity.

Policy on physical activity

In all medical child-care centers, the staff was not aware of any policies on physical activity. Two participants saw the advantages of creating a policy on physical activity. One physiotherapist said:

> *'There is no policy. I would like that. When the program is part of the policy, people must follow it. Otherwise it's free of obligations and it's possible that the program will fail'.*

A child-care worker explained the situation of yearly group-strategies. Each year a new strategy is planned for the group they are working in. When there is no policy on physical activity or the program 'Beweegkriebels' it is too free of engagement and it could be decided not to work with it. She said:

> *'I think it's better to make policy on that: we have this program, and we are using it in this way'.*

Another child-care worker did not see the possibility to make policy on physical activity, since this is a special setting. Everything is organized with the parents' need for help in mind and with the assistance of development objectives.

> *'Objectives are set with parents' need for help in mind. When problems in movement or motor skills are diagnosed the focus will be on physical activity. A policy on physical activity does not exist.'*

A last participant, a physiotherapist, mentioned the economic situation as a hindering factor for making policy on physical activity, since she felt that experts on that field would be necessary for a good implementation. She said:

> *'It's more fitting it in your own program. Especially now with the cutbacks they have to make choices. So I think, when they have to choose between a movement expert and more child-care workers, they will definitely choose more child-care workers.'*

Prevailing standards with respect to physical activity

None of the medical child-care settings had policy on physical activity. However, all interviewees recognized the importance of being physically active with children. A manager said:

> *'Movement is a major part of the development of a child. The younger the child, the more important it is to pay attention to physical activity. So therefore, we pay attention to physical activity from the beginning that the children are admitted in this child-care center.'*

And a child-care worker said:

> *'Movement is an important issue in every group. How do they move and how can it be improved? The motor skills are kind of the base to develop other development fields as well. So it's very important.'*

Playing outdoors was a daily activity in every child-care center. In some child-care centers they had some form of physical education lessons. These lessons were group activities in a gym. The child-care workers gave these lessons; there was not a specialist in this field. There was also attention for activities like learning to cycle or walking in the neighborhood. All interviewees indicated to be conscious of the advantages of an early start of physical activity.

Standards concerning physical activity

All interviewee's recognized the importance of stimulating children to be physically active. A child-care worker said:

> *'I stimulate the children a lot, so that they discover as much as possible and try a lot.'*

And a manager said:

> *'I think that, starting with sports at a young age increases the likelihood of being active in later life. In my opinion, you can't start early enough.'*

It was also mentioned by a child-care worker that these children with developmental disabilities had a lot of other activities to do during the day.

> *'Especially these children enjoy gaming and watching television since they encounter no problems then, so it's important to stimulate them to be physically active'*

Parents were not always aware of what their children are able of doing. Furthermore, they put their children in buggies, since that saved time. So it is important that in child-care there is a stimulating aspect, towards the children but also towards the parents. A child-care worker said:

> *'When we walk to the village, about half of the children is not able to do so because their parents always put them in buggies. So the children can walk, but they never practice. When we walk together to the village, the children have to walk also when they are tired. When they walked well, I emphasize that they did a good job. Also the parents are informed afterwards, so they know what their children are able to do.'*

3.2.3 Characteristics of the organization

Regarding the characteristics of the organization, four items were measured. First, the final responsible person was identified for adopting programs like 'Beweegkriebels'. Second, the current attention to physical activity in the medical child-care centers was identified. Third, it was explored how innovative the child-care centers were. Do they often have new programs

or do they continue older programs without renewal? Lastly, means for successful implementation were explored.

Final responsible person

The manager was in all cases the final responsible person for the decision making process to incorporate the program or to refuse it. The expertise of the manager depended on the organizational structure. The manager could be a unit manager who could make decisions for more than one medical child-care center, a treatment coordinator, or the head of the team. Child-care workers did have a large influence on the managers' decision. When child-care workers were positive about the program, managers would decide more quickly to adopt the program. If child-care workers were negative about the program, managers would easier decide to reject the program. Furthermore, the manager had to bear in mind the costs of such a program and the available money for trainings. If this did not fit, then it stopped there.

> *'It feels like we have a vote in that decision making process. But I think it's the manager who has the last word about it.' (Child-care worker)*

Current attention to physical activity

In each participating medical child-care center, there was continuous attention to physical activity. In medical child care center A, they played outside two times a day, in the morning and after lunch. Moreover, every group had some form of physical education lessons for at least 30 minutes per week. Additionally, there was a focus for movement within the group. 'Schrijfdans' (writing dance) was a type of program which was used within the groups. First, letters were written in the air with big movements, after which they practiced it with their hands or with pencil on paper. This stimulated the fine motor skills.

> *'Of course they have physical education, and we have a physiotherapist, so motor skills is subject of conversation.' (Manager)*

In medical child-care center B, they also played outside two times a day. In the past they had a small gym, which was used once a week by every group. Now, they only had their own group-room and an outdoor space. Existing physical activity programs were not known and not used.

> *'We have developed our own system, since we set objectives for the children. A returning objective is awareness of your body. Starting from that objective, we've created activities. These activities are bundled in files, so everybody who is working on that objective can search that file and use it.' (Child-care worker)*

In medical child-care center C, they had a physical education lesson once a week in the school-preparation group. In the other groups, it was less structured. The child-care workers taught the physical education lesson themselves. They used a 'leerlingvolgsysteen' (pupil-follow-system) to monitor progress in the development of the children. The children also played outside daily, and they performed activities when they stood in the daily circle. That could be physical activities, but also songs with movements like: 'hoofd, schouders, knie en teen' (head, shoulders, knee and toe). In this child-care, they worked with the program of 'Veronica Sherborne' (Sherborne, 2010). This is a program focused on mentally retarded children and it pays attention to feel as if one belongs to their own body. The physiotherapist used this program.

In medical child-care center D, the children played outside every day, they had a physical activity lesson once a week, and they used the sensopathic space once a week. The child-care workers taught the physical education lesson themselves. They did not use an existing program, but a physical educator would develop a physical activity program especially for this medical child-care.

> *'We work together with a school. Their physical educator is developing a card-index box for us. The cards contain concrete activities for physical education.' (Child-care worker)*

In medical child-care center E, the children played outside two times a day. Further, the physiotherapist had made a schedule for the three movement spaces: the gym, the music room and the play-palace. Every group made use of each room two times a week for 30 minutes each. In the gym they did not use an existing program, but the physiotherapist had developed a program of four weeks, every week there were other materials to play with. In the play-palace, the children had free play. In the music room, there was not a program as well. However, they had tried to implement the program 'Dansspetters' (Dance spetters) of Maria Speth (Speth, 2006).

'That program ['Dansspetters'] was not therapeutic enough for me to use, so the child-care workers had to continue this program. Then you see them dropping out.' (Physiotherapist)

Innovativeness of the organization

All participated medical child-care centers were open for innovations. Innovations in the form of trainings, final projects, and other programs like 'Tripio', the online configuration of 'Triple P' (Tripio, n.d.). Innovations in the form of movement programs were not well-known. It was mentioned that this is the time of innovations, but sometimes innovations come and go too fast for a good deepening of projects. There was more time needed to implement new programs well.

'The organization itself is in search for innovation and improvement.' (Child-care worker)

Means for successful implementation

Time and money were mentioned time and again as stimulating factors for successful implementation. The majority also thought that a workshop or training was necessary tp implement such a program successfully. Only one child-care worker did not see a workshop or training as an essential part of the implementation. Almost all other participants considered a workshop as satisfying and a training as too much.

'I think a training is too much, because I think we get enough insight in the program with a workshop.' (Child-care worker)

'I particularly have a workshop in mind. The people here are all busy and they don't have the time for a complete training. The pressure of work is high.' (Child-care worker)

Two interviewees, one manager and one physiotherapist thought a training was necessary for successful implementation.

> *'I think for success you need to know exactly what you're talking about; therefore you need to follow the training.' (Manager)*

> *'After following the training, they have so many examples of activities that they don't hesitate to work with it.' (Physiotherapist)*

Another mentioned criterion for successful implementation was the need of enthusiastic people. When people are enthusiastic to work with the program, there is more chance of success.

> *'For successful implementation you need enthusiastic people.' (Child-care worker)*

> *'I think, you get most people enthusiastic about this. Besides, you need internal harmony, which is the first step to take.' (Manager)*

Moreover, for successful implementation, the program needs to be adapted to the population of medical child-care, as well as to the age and development stadium of these children. An evaluation of the whole implementation process was the last mentioned criterion for successful implementation.

> *'You should evaluate this. If you implement such a program, you have to consider after a month or three: what's the use of it? What do we do with it? Is there a difference between groups? That kind of thing' (Manager)*

3.2.4 Characteristics of the adopting person (user)

The interviewees can be seen as the adopting person of the program 'Beweegkriebels'. They were asked if they were familiar with the program beforehand and about their first impression of 'Beweegkriebels'. Additionally, their opinion about physical activity programs was assessed; the shortcomings in the field of physical activity within the medical child-care; the requirements for executing the program; and their motivation to work with this program.

'Beweegkriebels'

None of the participants had heard about the program 'Beweegkriebels' before the current study. Two participants were unsure, but later on realized it was not the same program. Only one colleague of a participant had heard about the program through a friend working in mainstream child-care.

The first impression of all interviewees was positive. Nice, inspiring, conveniently arranged, approachable and in favor of children were mentioned aspects of the program. Additionally, it looked familiar if they took a look at the activities: there were similarities with existing programs but also new nice ideas. One participant said it was interesting that after following the training, you would become competent to create new things.

> *'I think that it can bring a lot of pleasure to children, because I see that the children naturally love to be physically active.' (Child-care worker)*

Opinion on physical activity programs

All participants had a positive view on physical activity programs. Such programs could be useful for child-care workers. It gave them clarity and means. If there was no program, then nothing would happen.

> *'We need to know a bit of all development areas and than it helps when you work with a specific methodology, because you can trust on that methodology to take the right direction.' (Child-care worker)*

One interviewee mentioned that when a program is used for physical activity, this shows a kind of professionalism. You pay attention to it, but additionally you have a methodology behind it. This would also help to communicate it with the parents, if you use such a program. However, it is important that the program is enjoyable for the children.

One manager said that a program could be useful, but also that the child-care workers need to have the basic skills to be active with children when they finished their study:

> *'I think, when people start working here, they already need to have the baggage to be active with these children.'*

Shortcomings in the field of physical activity

Participants experienced little shortcomings in the field of physical activity. One child-care worker said that it is always nice to have something new to work with, but it is not really necessary. Another child-care worker from another medical child-care regretted the loss of the swimming pool within the child-care center, but it was not feasible anymore with respect to the costs. Again another child-care worker regretted the loss of the gym:

> *'We have a lack of space to be physically active. We can go outside, but I think the group-room is too small.'*

In the last two child-care centers the child-care workers mentioned a lack of inspiration and ideas to be physically active. A physiotherapist said:

> *'We are in particular need for a program to be active with the children.'*

Requirements execution 'Beweegkriebels'

'Beweegkriebels' seemed to be a program that can be best executed by child-care workers. The program was too general for physiotherapists or Caesar therapists, but they could stimulate or coordinate the child-care workers in the execution of the program. Further requirements for executing the program were time and money. The training/ workshop and the manual used in the training, confronted the medical child-care centers with costs that are involved in the program. There needs to be enough time to implement the program. Another point with respect to the time was the time needed to continuously maintain the program. Parents could also play a role in the execution of the program.

> *'You can organize a parents' evening to stimulate them to be physically active with their children.' (Physiotherapist)*

Motivation

The majority of the participants was motivated to work with the program. One child-care worker said that she could be enthusiastic as well, but she thought that there were enough possibilities to be physically active with the children without this program.

> *'I am enthusiastic about the program. If there were not many other things ongoing, we could suggest this.' (Manager)*

3.2.5 Characteristics of the innovation

The characteristics of the innovation were assessed by the five concepts of Rogers (2003): relative advantage of the innovation, compatibility, complexity, trialability and observability of the innovation.

Relative advantage

The participants have been asked what the possible advantages and/ or disadvantages of this program could be. The interviewees found that an advantage of the program could be that the child-care workers are more aware of the importance and possibilities of physical activity with young children. Also, the program delivered a concrete plan of actions, with a lot of examples, so you could always choose something. The found that the makes it not always necessary to invent activities yourself, which was perceived as easy.

> *'I think it works stimulating for child-care workers, because you now and then need some input'. (Manager)*

Another benefit of the program was that the imagination of the child-care worker would be stimulated, new ideas would be offered, but the child-care workers could also acquire new ideas themselves. In one child-care center they were looking for a program to use in the physical education lessons, and they thought 'Beweegkriebels' could be a supplement to that. The program could also be very useful for parents, which they felt as a benefit of the program.

> *'I think it fits the medical child-care setting. The funny parts are the pictures in the manual, which makes it livelier.' (Child-care worker)*

Some participants perceived some disadvantages as well. Most frequently mentioned negative aspects were time and money. The program also had an unstructured component, e.g. 'let the children discover new materials themselves'. A child-care worker said that this is very difficult for this type of children, they would lose themself in it; they cannot do something with this type of information. It could also be the case that the program does not fit this population, so then a translation of the program is needed to fit the needs of these children. Two physiotherapists mentioned an overall disadvantage of physical activity programs. Users did not have to follow such a program very strictly, but they had to be creative. Some child-care workers would apply the program correctly, but others cannot think out of the box.

'A disadvantage of every program is that some people use it too strictly, whereas I think: there are lots of possibilities! However, I think the program is very useful for parents.' (Physiotherapist)

Compatibility

To check whether this program is compatible with the current situation, the participants had to give their view on this purpose. Is there room for the program, does it fit the current activities, and does the program fit the population of children in medical child-care?

With respect to whether there is room for such program, the interviewees felt there was nearly always time and there were competent employees, but money, as said before, was in most cases a problem. If there was not immediately time for the execution of the program, most participants saw the opportunity to find time for it in the future. One child-care worker said:

'I think there is room for this program, but a comment on that is that we already have a lot of programs and activities. So we are doing a lot already, and we have to do a lot already. But if you look at the program, we can use it.'

Overall, the program fitted the current activities. Many activities were already known and done, but there were also a lot of new ideas. There was a need for new ideas and therefore this program could be used. The sensopathic activities could be worked out deeper, since these had an important place in medical child-care. 'Jan huigen in de ton', 'Annemarie koekoek' and 'hoofd, schouders, knie en teen' were most mentioned as known activities. Most activities fitted the population, but they felt you must keep the activities easy. The majority of the interviewees were capable themselves to make activities fitting to the needs, if they were not fitting beforehand. But it was seen as extra stimulating to use the program, if different levels of difficulty would be supplied.

The structure of the program itself was seen as very clear and useful, since in medical child-care everything was well organized and structured. The program suited their method of working. The structure within the activities could be improved according to the interviewees. The children in medical child-care needed structure and strict rules. A child-care worker gave the example the challenges of placing more children together for an activity.

> *'When you place a lot of children together, there will be a row. They need structure, for example every child his/her own hoop or colored dot.'*

The interviewees mentioned they always need to consider whether a situation could be perceived as threatening for a child. Many children in medical child-care had an impairment to bond with other people. So in that case they needed to offer situations where the child could draw positive experiences from these contacts.

Activities needed to be concrete and visible for these children. Fantasy does not work. For activities it was suggested by participants to use pictograms or pictures to make clear what is going to happen. Additionally, activities needed to be short since the concentration of the children is limited.

The program was also seen as useful for parents. Sometimes there were questions from parents what to do with their children. In most child-care centers they regularly organized parents' evenings. They saw this as a good method for such evenings to involve parents in this subject.

A last mentioned item was that children in medical child-care were nearly always retarded in their development. This program is developed for children 0 to 4 years old, so it was also assessed if this program could fit the population of children in medical child-care from the age of 0 to 7. Most interviewees agreed on the compatibility with respect to the age of the children. Some child-care workers mentioned that they would like different degrees of difficulties to make activities easily fitting for every child.

> *'What always works for this type of children are songs. You have to bear in mind that music is difficult for some children with a sensory integration disorder, so you need to adjust the volume.' (Child-care worker)*

Complexity

It seemed that the activities themselves were not too difficult for this population. The interviewees mentioned that you only need to bear in mind the developmental stage of the child, not their real age.

> *'The easier an activity, the better.' (Child-care worker)*

The program itself was clear and could be easily executed by all child-care workers.

Trialability

Participants had a different view on how the implementation should be done. The majority thought a trial period was necessary. This could be executed in different ways. For example, implementing the program in one group for a period of time and afterwards evaluating the results. Another possibility was first implementing a small part of the program, for example doing it one time in a week, and when experiencing success it could be decided to expand this to do it more frequently.

> *'I think you should try such a program at least a half year to draw conclusions from it.' (Child-care worker)*

There were also some participants who did not see the possibility to fully implement the program. Because of this, they did not see the importance of testing the program in a trial period. One physiotherapist said:

> *'They will only use this program if they need new ideas. I don't think it is necessary to test that.'*

Observability

With respect to the observability of the program, all participants thought it was important to inform parents which programs are used. So in the case of using 'Beweegkriebels', it was important to make clear to parents what the objectives are and how the program works. The way to communicate it towards parents could be different. You could organize a parents' evening, but you could also inform them through an informational letter. In some child-care centers, children brought a notebook every day, so it was also an option to note it down in the notebooks of the children. A last mentioned option to inform parents was during a personal evaluation of the child. An additional benefit of communicating it towards parents was that parents could also be stimulated to work with this program, since it was very manageable and enjoyable for parents.

> *'I think it is important, but that applies to every methodology. It's important for parents to know which methodologies are used. Especially when the methodology can be used in the home environment.' (Child-care worker)*

3.2.6 Characteristics of the innovation strategy

The participants' opinion was asked about all innovation strategies. To be able to answer these questions, it was important that they had really understood the content of the program materials provided. If they did not have enough information on a strategy, that part was skipped in the interview.

Website

The website www.beweegkriebels.nl was easy to use and had a (user-) friendly appearance. The information was clear and well organized. All participants were enthusiastic about the examples of activities on the website.

> *'The examples give the website an extra perspective and make it also useable for parents.' (Physiotherapist)*

Brochure

The brochure was clear and inspiring. According to some participants there could be more examples of activities in the brochure, or a better explanation of the training together with the manual. The costs of the program were also not clear after reading the brochure, which was important for the managers. Positive points of the brochure were the colors and the pictures which were used.

> *'I think the brochure gives enough information to form a picture of the program.' (Child-care worker)*

Workshop/ training

The majority thought that a workshop or training was necessary for the successful implementation of such a program. Only one child-care worker did not see a workshop or training as an essential part of the implementation. Almost all other participants considered a workshop as satisfying and a training as too much. Only two interviewees, one manager and one physiotherapist, thought a training was necessary for successful implementation.

Movement cards

The movement cards were nice and useful according to all interviewees. Maybe the ages on the backside of the cards needed to be adapted for this population. Another suggestion was to make the pictures on the cards useful as pictogram for the children.

> *'I think this could extra support users, if you don't know what to do you can easily pick a card.' (Physiotherapist)*

DVD

None of the participants had watched the DVD, so an opinion with respect to the content could not be formed.

Flyer

The flyer was seen as a nice addition to the brochure. This could easily be used to communicate the program to the parents. Therefore they mentioned that on the flyer it could be explicitly cited that this program is also useable for parents.

Manual

The manual of the training was clear and nice. It was in line with all other materials as to the usage of colors and pictures. The themes were clear and well structured, which they felt as a positive point of the manual. One child-care worker mentioned that the objectives of the activities could be worked out better for this population, including objectives in the sense of development: 'what do the children learn out of the activity?'

> *'I think the manual is self-evident.' (Child-care worker)*

Costs

The costs of the materials were approved as affordable. The costs of the workshop would be acceptable for most participants; however, the training was in most cases perceived as too expensive. Most medical child-care centers needed to cut back in costs and had nothing left to spend. Therefore, the training was assessed as too expensive.

> *'I think it is a lot of money for the manual, but a methodology will always cost money.' (Child-care worker)*

3.2.7 Phase of implementation

None of the medical child-care centers had implemented ‘Beweegkriebels’ already. All interviewees mentioned that they were open for more information about the program and were interested in a pilot to see if the program would fit the child-care center’s requirements.

4. Discussion

In this chapter first the most important results will be discussed and conclusions on the research questions will be formulated. The second paragraph describes recommendations for NISB for adjusting the 'Beweegkriebels' program for implementation in medical child-care. The limitations of this study will be described in the last paragraph.

4.1 Important results and conclusions

First the results of the first research question will be discussed: 'What are the theoretical underpinnings of the intervention 'Beweegkriebels'?'. This is followed by the discussion of the second part of this research with the aim: 'assessing how 'Beweegkriebels' can be successfully implemented in medical child-care centers'. Finally, conclusions on the research questions will be formulated.

4.1.1 Theoretical underpinnings 'Beweegkriebels'

The Trans-Contextual Model and the Ecological Model of Physical Activity were applied to underpin the program 'Beweegkriebels. It should be noticed, that searching theories after designing and implementing a program is not the favorable. According to the Intervention Mapping framework, theory needs to be searched before designing and implementing a program, for developing theory- and evidence-informed health promotion interventions (Bartholomew, Parcel, Kok & Gottlieb, 2006). In the following part, a critical view is taken on the evidence for the applicability of both theories as background for the intervention.

Trans-Contextual Model

That the intrinsic / autonomous motivation, formed within child-care through perceived autonomy support from child-care workers, leads to intrinsic motivation for physical activity in the home situation of young children could only be assumed. The Trans-Contextual Model has only been tested in older children in the context of physical education. Hagger, Chatzisarantis, Culverhouse and Biddle (2003) have tested the hypothesized relationships among the Trans-Contextual Model in 295 British high school pupils. They found that perceived autonomy support in a physical education influenced intrinsic motivation formation in physical education. This intrinsic motivation, formed in physical education has also been found to influence the intrinsic motivation formation in leisure time context. Additionally,

Standage, Duda and Ntoumanis (2003) found in 328 British high school pupils that intrinsic motivation for physical education predicted their intentions for being physically active in their leisure time. There is no experience with the Trans-Contextual Model with respect to young children of 0 to 4 years old and in the context of child-care. In the future, the model should be tested in young children to identify if perceived autonomy support in child-care actually affects the intrinsic motivation for physical activity in medical child-care and in the home situation of the child. This could lead to an evidence-based background of the Trans-Contextual Model for the intervention 'Beweegkriebels'.

Ecological Model of Physical Activity (EMPA)

The EMPA model is a hypothetical model which has never been fully tested. The ecological systems view, however, with its focus on the environment of the child, has been applied frequently to study the development of children in general and physical activity in particular (Bengoechea & Johnson, 2000; Sallis & Owen, 1997; Spence & Lee, 2003; Welk, 1999).

For young children, parents often function as a role model. With respect to other research, it seemed to be that children with physically active parents, would be more physically active themselves, compared with children of non-active parents (Hood et al., 2000; Moore et al., 1991; Sallis et al., 1993). Further, parents could influence the physical activity behavior of their children. By stimulating children to play outside, they would achieve a higher activity level (Boldemann et al., 2006; Klesges, Eck, Hanson, Haddock & Klesges, 1990; Powell, Martin & Chowdhury, 2003; Sallis et al., 1993). According to Gubbels et al. (in press), it seemed that child-care had an influence on the physical activity behavior of young children in the age of two to three years. The physical as well as the social environment within child-care could lead to higher activity levels, where child-care supervisors may fulfill a role in activity stimulation that shares many similarities with the role of the parent in the home setting. Bower, Hales, Tate, Rubin, Benjamin and Ward (2008) and Gubbels et al. (in press) found activity opportunities indoors as well as outdoors to increase the physical activity levels of young children. Both used the Environment and Policy Assessment and Observation Instrument (EPAO; Ward et al., 2008) to assess the physical activity environment.

So in conclusion, the EMPA model as theoretical background for 'Beweegkriebels' had common ground on several perspectives with the literature with respect to environmental

influences on the physical activity behavior of young children. However, this hypothetical model should be further tested in the future, to make it an evidence-based theoretical background for 'Beweegkriebels'.

4.1.2 Implementation of 'Beweegkriebels' into medical child-care centers

With respect to the implementation research for 'Beweegkriebels' into medical child-care centers, a research model was formed. The interview questions were based on this model. In this section, the most important results of the interviews will be discussed, in the same order as the results were presented.

Characteristics of the socio-political context

It could be concluded that there was enough awareness of the importance of physical activity. However, in medical child-care centers it was not common to formulate a policy on physical activity. Without policy, there was no certainty that everybody uses the program or pays attention to physical activity. According to Fleuren et al. (2004) it was an impeding factor when an innovation did not fit the regulations and legislation. For more success when implementing programs such as 'Beweegkriebels', it was important that medical child-care centers formulate a policy on physical activity. NISB should stimulate medical child-care centers to design and roll out a policy on physical activity before implementing 'Beweegkriebels'. However, a specific policy could be made for the execution of the program.

Characteristics of the organization

It was clear in each medical child-care setting that the manager was the final responsible person for making decisions about new programs. Child-care workers and physiotherapists could influence this decision making process with their view on the innovation. Fleuren et al. (2004) found that centralized as well as decentralized decision making facilitated the introduction of an innovation.

Fleuren et al. (2004) found also that support was a facilitating factor for successful introduction of an innovation. The interviews showed that there was a need for a program coordinator to continue it successfully. The physiotherapists could play this role, as they proposed themselves.

Medical child-care centers were mostly innovative in nature, indicated by the findings that the medical child-care centers regularly implemented new programs or methodologies. This could be a stimulating factor for adapting innovations. Van der Weide & Smits (2004) found that an 'innovative atmosphere' in the department was an important factor for adopting an innovation by specialized nurses. This could also be the case for adopting an innovation by managers of medical child-care centers.

A training or workshop was seen by the participants as a mean for a successful implementation, as well as the adjustment of the program to the chances of their children and an evaluation of the implementation process. Time and money needed for the implementation of the program were seen as barriers to implement 'Beweegkriebels'.

Characteristics of the adopting person (user)

'Beweegkriebels' was not known by the participating child-care centers. This could lead to the conclusion that an intensive dissemination process is needed to make medical child-care centers aware of the existence of the program. 'Beweegkriebels' seemed to be a program that could be best executed by child-care workers. However, Fleuren et al. (2004) found that expertise was a facilitating factor for introducing an innovation. The program was found too general in nature by physiotherapists and Caesar therapists. However, child-care workers indicated to have enough knowledge and skills on physical activity to execute the program, especially when they would be trained. Sufficient knowledge and sufficient skills were also found by Fleuren et al. (2004) to facilitate the implementation of an innovation.

Characteristics of the innovation

A relevant advantage of 'Beweegkriebels' that was perceived by the interviewees was that it provided a basis for being physically active. It delivered a concrete plan of actions. With respect to the compatibility of the program, the unstructured part of the program was seen as a disadvantage. An unstructured program is very difficult for this type of children; they would lose themselves in it. These children were not as curious as other children. Therefore, the program may need an adaptation with respect to the structure of the program. Activities need to be clear with a clear instruction. Instruction in the form of pictograms or pictures may help for these children. Another type of structure is needed within the activities. For example in the usage of materials, these children have the need for their own materials and clearness of what

to do with it. When children have to play with clothes pegs, each child needs to have their own color. Furthermore, when children need to stand in a row, each child needs a colored dot or ring to stay on their place. Lastly, activities needed to be short, since the concentration span of these children was typically low.

With respect to the complexity of the program, the program fitted the age of the population of medical child-care, which is about 0 to 7 years old. To make the program better useable in medical child-care, the ages on the backside of the movement cards needed to be adapted to this type of children.

All participants saw the program as trialable. Not everybody thought a trial period was necessary, but there was the possibility to try this program in different ways, for example by first implementing it in only one group of the medical child-care center. Another suggested way of trying the program was by first implementing a small part of the program.

The program could be easily made observable for parents. This could be achieved by organizing a parents' evening, or by the distribution of an information letter or the 'Beweegkriebels' flyer. An additional possibility to increase the programs' observability, could be hanging posters of 'Beweegkriebels' in the medical child-care centers.

Characteristics of the innovation strategy

Overall, the used materials were clear. The website, brochure and flyer were clear, inspiring and well structured. The information was satisfying, only the costs were missing in the brochure, but these could be found on the website. The movement cards were seen as useful and stimulating, but the ages had to be adapted to this population. Most participants saw the advantage of a workshop, only two interviewees thought a training was necessary. Costs and time were the main reasons for not being interested in the training. If NISB sees the training as necessary for a good implementation process, this needs to be taken into account. Little time available and few financial resources were found by Fleuren et al. (2004) as impeding factors for the introduction of an innovation. The costs of all other materials were seen as affordable. The manual used in the training was in line with all other materials. For medical child-care centers it could be interesting to specify objectives of the activities on the development of the children. Besides the objective of enjoyment, what do the children learn from the activity? This could be of added value to the program for this setting, which may facilitate the introduction of 'Beweegkriebels' (Fleuren et al., 2004).

Phase of implementation

None of the medical child-care centers had already adopted ‘Beweegkriebels’ but they were open for more information or a pilot. Recommendations for successful dissemination and implementation will be given in paragraph 4.2.

4.1.3 Conclusions

To answer the first research question: ‘What are the theoretical underpinnings of the intervention ‘Beweegkriebels’? It can be concluded that the Trans-Contectual Model and the EMPA model are reasonably good theories to underpin ‘Beweegkriebels’. For the second part of this research with the aim: ‘assessing how ‘Beweegkriebels’ could be successfully implemented into medical child-care’, the following can be concluded. Intermediaries working in medical child-care were in need of a program, such as ‘Beweegkriebels’, since child-care workers had a lack of ideas on how to be physically active with their children. The reason not to implement the program already was that ‘Beweegkriebels’ was not known in these medical child-care centers. Moreover, there was a need for an extra module/ theme within ‘Beweegkriebels’ for this setting; although it was not really necessary but it could make the program more compatible for this setting which could lead to a more successful implementation of the program in medical child-care. Recommendations for adaptations will be given in the next paragraph. The biggest advantage of ‘Beweegkriebels’ was that it was a concrete program with a lot of ideas on how to be physically active. Disadvantages of the program were time and money needed for the implementation. The program fitted in the daily structure of the medical child-care centers and it was an addition to their current physical activities, so there is perspective for ‘Beweegkriebels’ in medical child-care.

4.2 Recommendations for NISB

Based on the results from the interviews, several recommendations could be made for NISB for improving the success of disseminating and implementing ’Beweegkriebels’ into medical child-care centers. A first recommendation is to stimulate medical child-care to formulate a policy on physical activity. Especially, it is recommended to underline the importance of installing policy on this program in the case of adapting ‘Beweegkriebels’, to achieve a high level of success in both the implementation and continuation of the program.

A second recommendation is to stimulate medical child-care centers during the adoption phase to appoint one person to be the coordinator of the program. A physiotherapist could be a good coordinator since this is an expert in the field of physical activity. A coordinator improves the level of success in the implementation and maintenance of the program.

The program 'Beweegkriebels' was not known in medical child-care; therefore a third recommendation is to actively disseminate the program in medical child-care centers. Information in the form of the flyer and brochure can be sent to all medical child-care centers in the Netherlands to make the program known in this field.

A fourth recommendation is to design posters of 'Beweegkriebels' to hang in medical child-care centers to make the program observable. This makes the program observable to parents or other potential users when they visit the child-care center, what could lead to a higher rate of implementation in medical child-care centers.

A last recommendation is to adapt the program to the needs of the intermediaries. Suggestions for adaptations are: (1) adapt the free-play activities. For the children in medical child-care this is a very difficult aspect. They do not know what to do with new materials without the supply of ideas. So, when new materials will be used, possible activities need to be given to these children. (2) Activities need to be short and clear. Clearness could be increased through the usage of pictograms or pictures. (3) Structure needs to be created by using specific colors of materials, so each child could use his or her own colored material, to prevent quarrels. Structure has to be created also when children have to stand in a row or at a specific spot; these children need a colored dot or ring to designate his or her place. (4) The ages at the backside of the movement cards need to be adapted to this population, or there has to be a reference which cards could be used in which age group. (5) The costs and time for the training need to be reconsidered, since these were the main barriers for the implementation of the program. (6) A last suggestion for an adaptation is to make the manual more compatible for medical child-care. Medical child-care was mainly focused on the development of the child, so if the objectives of the specific activities in the manual could be extended from only pleasure perception to more developmental objectives, then this makes the program more interesting for medical child-care centers.

4.3 Limitations of this study

In this study, face-to-face interviews were used for gathering information. According to Creswell (2003), this could lead to several limitations. First, information is 'indirectly' provided, since it is filtered though the view of the interviewee. Second, the presence of the researcher may have biased the responses of the interviewees. Yet, regardless of these limitations, interviews gave the opportunity to gain a lot of new information as during the conversation unexpected topics were discussed. This added dimension would not be reached if questionnaires were used.

The medical child-care centers were chosen based on their accessibility. They had to be part of different health-care organizations, which improved the validity of this study, but on the other hand they were all situated in the south of the Netherlands, which could be viewed as a limitation for the external validity of the results. Added to that, only five medical child-care centers were approached, so the results were dependent on these centers; would other medical child-care centers have been consulted this could have lead to other results. Lastly, there was bias in the selection of the interviewees within the medical child-care centers. Each medical child-care center was free to make appointments with the researcher. In most cases, child-care workers with affinity to physical activity were proposed to take part in the interviews, which may have influenced the results positively.

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Appendix 1: Questions interview

Introductie interview:

Dank u, dat u mee wilt werken aan dit interview. Dit interview zal opgenomen worden voor de analyse van mijn onderzoek, de analyse zal geheel anoniem gebeuren, en de opnames worden vertrouwelijk behandeld. Gaat u hiermee akkoord?

Recorder aanzetten.

Voordat we het interview starten zal ik eerst mezelf nog even introduceren.

Ik ben Saskia, en ik ben bezig met mijn afstudeeropdracht aan de universiteit Maastricht waar ik Health education and promotion studeer. Dit onderzoek doe ik in samenwerking met het NISB, zij hebben namelijk het programma 'Beweegkriebels' ontwikkeld. Ik onderzoek nu of dit programma wat goed loopt op reguliere kinderdagverblijven, ook past binnen medische kinderdagverblijven. Een explorerend onderzoek dus.

Voor het interview is het belangrijk dat u een duidelijk beeld heeft van het programma, ik heb u de brochure toegestuurd van 'Beweegkriebels', hopelijk heeft u die gelezen. Ik zal nog even kort uitleggen wat het programma inhoudt zodat duidelijk is waar het over gaat.

'Beweegkriebels' is een programma van het NISB om jonge kinderen meer te laten bewegen en uit te dagen tot bewegen. Dit door middel van eenvoudige materialen en veel creativiteit, zodat het gemakkelijk toegankelijk is. De training 'Beweegkriebels' is er om kennis te krijgen, inspiratie op te doen, creatiever te worden en te durven bewegen met jonge kinderen.

De 5 uitgangspunten van de training zijn plezierbeleving, andersoortig materiaal en creativiteit, combineren van praktijk en theorie, het uitleggen van een spel, en loslaten van een vaste activiteitenstructuur.

Er zijn verschillende mogelijkheden om 'Beweegkriebels' in te passen binnen een kinderdagverblijf, bijvoorbeeld op vaste tijden in de week, of op tijden wanneer het even rustig is met andere zaken. Dit is zelf in te vullen door het kinderdagverblijf. Er is een training van 7 bijeenkomsten (á 2.5 uur) en een workshop van 1 bijeenkomst die gevolgd kan worden om meer inzicht te krijgen in het programma en ermee te leren werken.

Dit programma loopt goed op reguliere kinderdagverblijven, en het doel van dit interview is om te kijken of dit programma ook een goed alternatief is binnen medische kinderdagverblijven. Is er vraag naar een dergelijk programma, is het inzetbaar in zijn huidige

vorm of zijn eventueel aanpassingen nodig, of is het nodig een geheel nieuw programma te ontwikkelen?

Dit is dus een objectief onderzoek, verkoop van het programma is niet het doel, maar uw mening is hier van belang.

Uitleg 'Beweegkriebels' en thema's: 9 thema's

Thema 1: Spelbeleving: 1e kennismaking

Thema 2: Speluitleg: Hoe leg je een spel uit aan jonge kinderen

Thema 3: Geleid en vrij spel: verschil in vrij en geleid spel

Thema 4: Bewegen op muziek: oefenen met beweegliedjes

Thema 5: Kleine spelletjes: spelletjes als tussendoortje

Thema 6: Spelen met 'speelkriebels' voor kleuters: werken met het boek 'Speelkriebels voor kleuters'

Thema 7: Spelen met andersoortig materiaal; spelen is ontdekken: spelen met linten, hoepels, parachute etc.

Thema 8: Spelontwerp/ thematisch werken: beweegactiviteiten aanpassen aan een thema.

Thema 9: Ouderavond bewegen met 0-4 jarigen: opzetten van een ouderavond.

Vragen:

Ik wil graag starten met wat persoonlijke gegevens over u (en het mkd).

Wat is uw leeftijd?

Uw opleiding?

Hoelang werkt u binnen dit mkd?

Algemene informatie van ieder kinderdagverblijf:

Hoeveel kinderen zitten er, verdeeld over hoeveel groepen?

Hoeveel begeleiders per groep?

Wat voor specialisaties zijn er onder de begeleiders?

Algemeen:

- Wordt er aandacht besteed aan bewegen binnen uw medische kinderdagverblijf?
    - Ja: wat en hoe vaak. Waarom wordt er aandacht aan besteedt? Waarmee wordt gewerkt: zelf bedacht of bestaand concept?

    - Nee: wat is de reden waarom hier geen aandacht aan wordt besteedt?
- Had u al eerder gehoord van 'Beweegkriebels'?
    - Ja: Wat heeft u hiermee gedaan?
- Wat is uw eerste indruk van 'Beweegkriebels'?

Kenmerken van de innovatie:

- Wat zijn de voordelen van dit programma voor u?
- Wat zijn de nadelen van dit programma voor u?
- Is er ruimte voor 'Beweegkriebels' binnen uw mkd? (juiste faciliteiten: tijd/ geld/ medewerkers)
- Sluit het programma aan bij de huidige aanpak van bewegen?
- Zijn er onderdelen uit het programma die aangepast moeten worden voor toepassing binnen medische kinderdagverblijven? Wat zijn de mogelijkheden en onmogelijkheden van de kinderen?
- Verwacht u moeilijkheden met de implementatie door de moeilijkheidsgraad van het programma?:
    - Passen de beweegactiviteiten bij de kinderen binnen een MKD?
    - Is het programma zelf gemakkelijk uit te voeren binnen uw kinderdagverblijf?
- Zou u naar buiten toe kunnen uitdragen dat uw MKD 'Beweegkriebels' gebruikt?
- Is het belangrijk voor u, dat het zichtbaar is dat 'Beweegkriebels' bij jullie gebruikt wordt?
- In hoeverre denkt u dat het programma eerst in een proefperiode kan worden ingevoerd voordat u het definitief in het beleid opneemt?

Algemeen:

- We hebben nu een aantal specifieke punten besproken, zijn er naar uw idee nog meer punten die eraan bij kunnen dragen dat u het programma uit gaat voeren of niet? (positief en negatief)

Kenmerken van de sociaal-politieke omgeving:

- Valt dit beweegprogramma binnen het beleid van dit kinderdagverblijf? (is er een beweegbeleid?/ veiligheidsbeleid, dieetbeleid)

- Denkt u dat dit programma past binnen de normen van het kinderdagverblijf? Staat bewegen hoog in het vaandel binnen dit kinderdagverblijf?
- Hoe staat u tegenover het stimuleren van bewegen bij jonge kinderen?

Kenmerken van de organisatie

- Wie beslist er binnen de organisatie of er een nieuw programma zoals 'Beweegkriebels' ingevoerd wordt?
- Is uw organisatie innovatief? Zijn er vaak nieuwe projecten?
- Wat moet er volgens u gebeuren om dit programma succesvol in te voeren? Tijd, geld, medewerkers, manual, training

Kenmerken van de toekomstige gebruiker

- Wat vindt u van beweegprogramma's?
- In hoeverre vindt u beweegprogramma's leuk en noodzakelijk?
- Wat mist u nog op het gebied van bewegen, specifieke behoeften?
- Denkt u dat u het programma 'Beweegkriebels' zou kunnen uitvoeren?
- Wat is er volgens u voor nodig om het uit te kunnen voeren?
- Denkt u dat anderen binnen het mkd het programma ook zouden kunnen uitvoeren? (Wie dan?)
- Bent u gemotiveerd om dit programma uit te voeren?

Kenmerken van de innovatiestrategie

- Wat vindt u van de website? (voldoende informatie) www.beweegkriebels.nl
- Wat vindt u van de brochure? (voldoende informatie) (en de beweegtips brochure?)
- Wat vindt u van een eenmalige workshop?
- Wat vindt u van een training met 7 bijeenkomsten van 2,5 uur?
- Wat vindt u van de beweegkaarten, zou u deze gebruiken?
- Wat vindt u van een DVD met verschillende beweegmogelijkheden, zou u hier interesse in hebben?
- Wat vindt u van de flyer?
- Wat vindt u van de handleiding die gebruikt wordt bij de training?

- Wat vindt u van de kosten? (map: 60 euro, beweegkaarten per doosje: 3.95 euro, themakoffer voor ouderavond: 102 euro, DVD: 15 euro, Training van 7 bijeenkomsten met 10 tot 15 deelnemers: 2240 euro. Workshop 320 euro)
- Heeft u nog andere ideeën om het programma te ondersteunen?

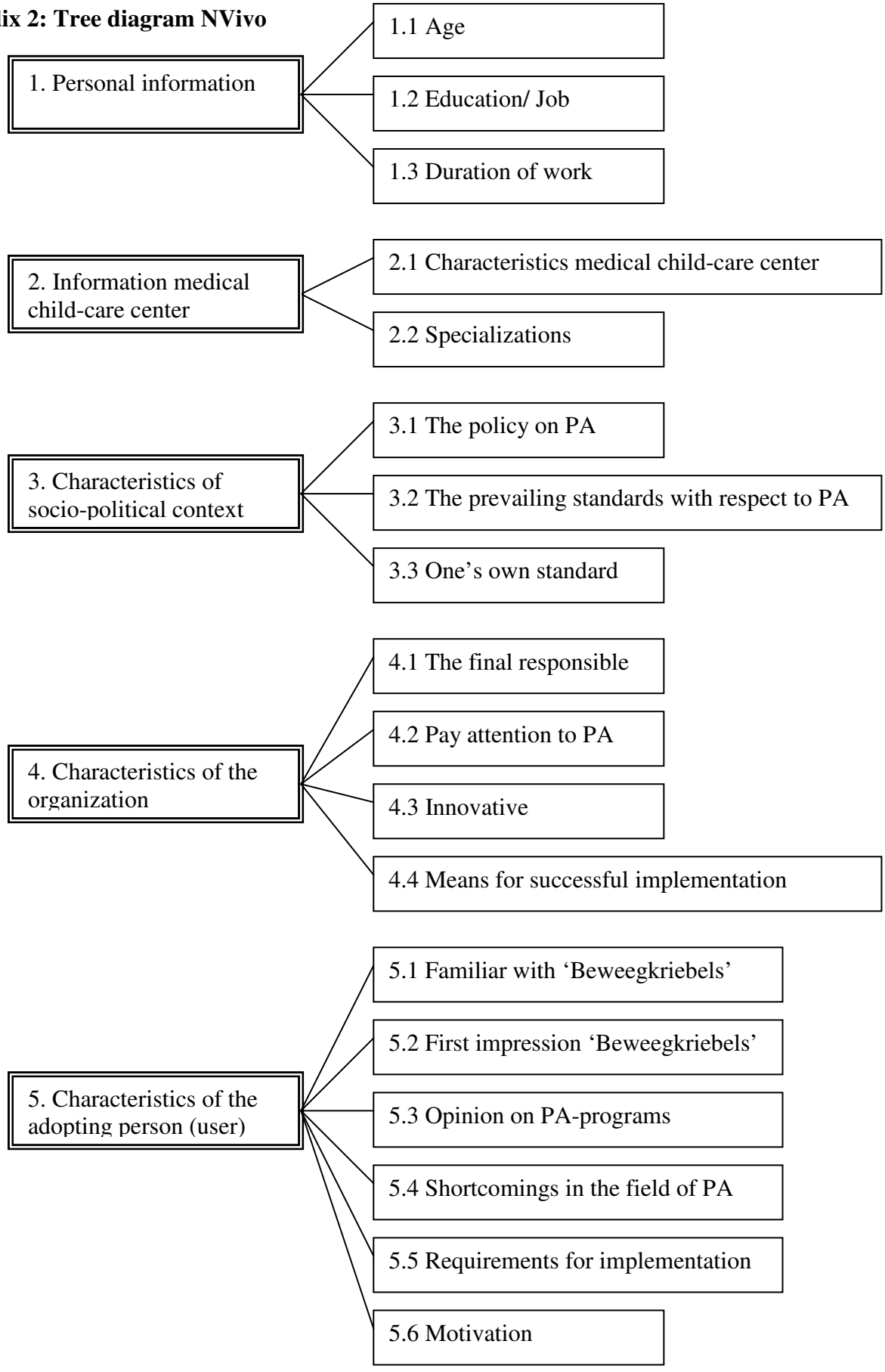
Fase van implementatie:

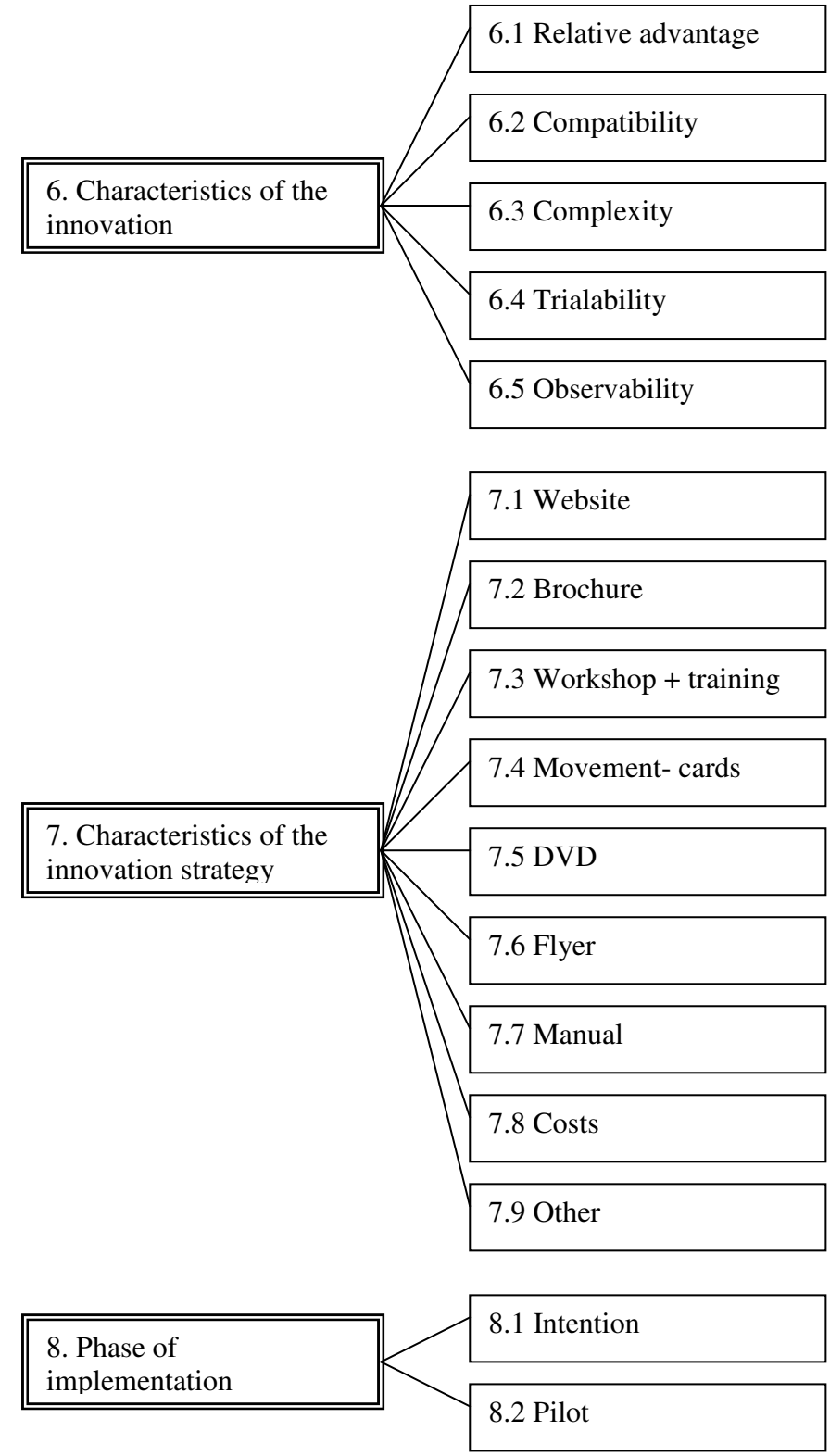
- Intentie: We hebben nu alle punten van het programma besproken. Als dit programma nu geschikt blijkt voor medische kinderdagverblijven, zou u er dan meer informatie over opvragen?
- Bent u geïnteresseerd om deel te nemen aan een vervolg/ pilot?
- Mocht u nog vragen hebben naar aanleiding van dit onderzoek dan kunt u altijd contact opnemen met mij, Yrsa of Paul van het NISB.

Heeft u interesse in het uiteindelijke verslag wat ik hiervan ga maken? Dan zou ik het u via email kunnen sturen.
E-mailadres:

Enorm bedankt voor uw medewerking!

Appendix 2: Tree diagram NVivo




6. Characteristics of the innovation
6.1 Relative advantage
6.2 Compatibility
6.3 Complexity
6.4 Trialability
6.5 Observability
7. Characteristics of the innovation strategy
7.1 Website
7.2 Brochure
7.3 Workshop + training
7.4 Movement- cards
7.5 DVD
7.6 Flyer
7.7 Manual
7.8 Costs
7.9 Other
8. Phase of implementation
8.1 Intention
8.2 Pilot
Parent node
Child node

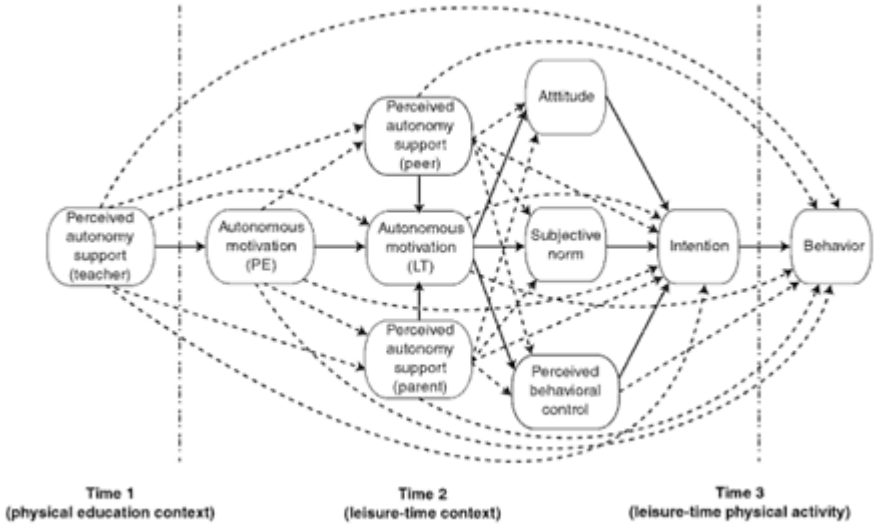
Appendix 3: Theoretical background 'Beweegkriebels'

Theoretische onderbouwing 'Beweegkriebels'

Een tweetal theoretische invalshoeken kunnen 'Beweegkriebels' ondersteunen, namelijk het Trans-Contextual Model (Hagger & Chatzisarantis, 2007) en het Ecological Model of Physical Activity (EMPA) (Spence & Lee, 2003). In de eerste paragraaf zal het Trans-Contextual Model beschreven worden. In de tweede paragraaf zal het programma 'Beweegkriebels' aan dit model gekoppeld worden. In paragraaf drie wordt het EMPA model beschreven en in de vierde paragraaf wordt 'Beweegkriebels' gekoppeld aan dit model.

1. Het Trans-Contextual model (Hagger & Chatzisarantis, 2007)

Het Trans-Contextual Model (figuur 1) is afgeleid uit drie theorieën. De Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000), de Theory of Planned Behavior (Azjen, 1991) en het Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand, 1997).



Figuur 1. Het Trans-Contextual model (Hagger & Chatzisarantis, 2007)

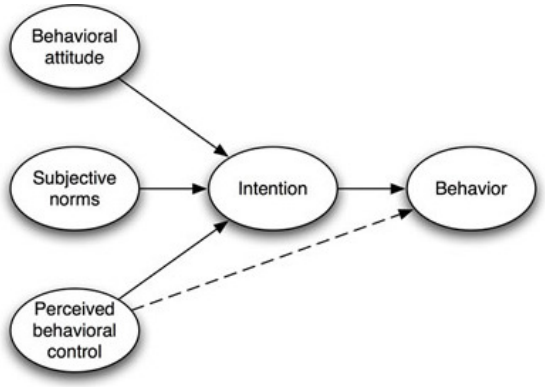
De *Self-Determination Theory* staat centraal in het Trans-Contextual Model. Volgens de Self-Determination Theory kan motivatie grofweg in drie categorieën worden ingedeeld: instrinsieke motivatie, extrinsieke motivatie en non-motivatie. Bij intrinsieke motivatie zijn plezier, genot en vermaak de belangrijkste beweegredenen, het gaat hierbij om de activiteit zelf. Bij extrinsieke motivatie zijn de uitkomsten van de activiteit de belangrijkste beweegredenen (bijvoorbeeld gewichtsverlies of bewegen omdat een ander het opdraagt). Bij

non-motivatie is er sprake van een gebrek aan motivatie, intrinsiek noch extrinsiek (Deci & Ryan, 1991).

De psychologische behoeften autonomie (autonomy), het gevoel van bekwaamheid (competence), en verbondenheid (relatedness) zijn de basis voor de Self-Determination Theory. Met autonomie wordt bedoeld dat men invloed heeft op het uit te voeren gedrag. Met het gevoel van bekwaamheid doelt men op het feit dat iemand zich bekwaam voelt een bepaald gedrag uit te voeren. Met verbondenheid wordt bedoeld dat iemand zich geaccepteerd voelt door anderen en er effectieve interactie is met anderen bij uitvoering van het gedrag. Hoe meer autonomie iemand heeft in zijn gedrag, hoe meer hij/zij het gevoel heeft bekwaam te zijn in het bepaalde gedrag en hoe meer iemand verbonden is met de activiteit in de sociale context, hoe meer intrinsiek een gedrag is (Deci & Ryan 2000).

Hoe meer een gedrag intrinsiek gemotiveerd / autonoom is, hoe succesvoller men in het gedrag is en hoe groter de kans dat het gedrag gehandhaafd blijft. Echter, hoe meer een gedrag extrinsiek gemotiveerd is, hoe lager de kans dat een gedrag op de lange termijn gehandhaafd blijft (Ryan, Frederick, Lepes, Rubio & Sheldon, 1997).

De *Theory of Planned Behavior* (figuur 2) beschrijft de persoonlijke voorwaarden van specifieke bewuste gedragingen. Een intentie wordt gevormd uit drie verschillende determinanten, namelijk attitude (houding ten aanzien van een bepaald gedrag), subjective norm (de norm vanuit de sociale omgeving) en perceived behavioral control (waargenomen capaciteit en controle van een bepaald gedrag). Hoe positiever deze determinanten zijn, hoe groter de intentie van een persoon is om een bepaald gedrag tot uiting te brengen. De intentie is een mediator van attitude, subjective norm en perceived behavioral control naar gedrag. Dit betekent dat deze determinanten niet direct invloed hebben op het gedrag, maar dat intentie de primaire determinerende rol speelt in dit proces. Alleen perceived behavioral control kan, buiten de intentie om, een directe invloed hebben op het uit te oefenen gedrag (Azjen, 1991).



Figuur 2. Theory of Planned Behavior (Azjen, 1991)

Het *Hierarchical Model of Intrisic and Extrinsic Motivation* neemt de hypothese aan dat de twee vormen van motivatie (intrinsiek en extrinsiek) op drie niveaus bekeken kunnen worden: globaal, contextueel en specifiek. Motivatie op globaal niveau betekent dat men autonoom gemotiveerd is voor een bepaald gedrag en men verwacht dat dit effect heeft op gedrag in verschillende contexten. Motivatie op contextueel niveau wijst op autonome motivatie voor verschillende gedragingen binnen een bepaalde context, bijvoorbeeld binnen gymlessen op school. Motivatie op specifiek situationeel niveau wijst op motivatie voor specifieke periodes voor een bepaald gedrag. Deze motivatie kan niet worden overgedragen op ander gedrag of op een andere context. In dit model wordt aangenomen dat motivatie van globaal naar specifiek niveau verloopt. Motivatie op globaal niveau is het meest stabiel, omdat hier de omgeving weinig invloed heeft. Motivatie op contextueel niveau is iets minder stabiel, en motivatie op situationeel niveau is het meest instabiel, omdat hier de omgeving de meeste invloed uitoefent (Vallerand, 1997).

In het Trans-Contextual Model (figuur 1), worden de hierboven beschreven theorieën geïntegreerd tot één model. Het gedrag wat men wil verklaren en voorspellen is het beweeggedrag. De context voor bewegen in dit model neemt gymlessen als uitgangspunt, maar kan evenwel prima worden vertaald naar de uitvoering van het 'Beweegkriebels' programma binnen kinderdagverblijfsetting.
De aanname van een transcontextuele relatie tussen motivatie in verschillende contexten zou betekenen dat autonome motivatie voor bewegen op het kinderdagverblijf zou kunnen leiden tot autonome motivatie voor bewegen in de thuissituatie. Dit is terug te vinden in het eerste deel van het Trans-Contextual Model, waar waargenomen autonome steun van de gymdocent

leidt tot autonome motivatie in de vrije tijd/ thuissituatie, gemedieerd door autonome motivatie in gymlessen. Waargenomen autonome steun van leidsters op het kinderdagverblijf zou dus de autonome motivatie van kinderen binnen bewegingsactiviteiten op het kinderdagverblijf kunnen beïnvloeden, maar ook de autonome motivatie voor bewegen in de thuissituatie. Attitude, subjective norm en perceived behavior control, mediëren de motivatie, extrinsiek en intrinsiek, van de Self-Determination Theory naar intentie en het gewenste gedrag. Perceived autonomy support from parents and peers (waargenomen autonome steun van ouders en groepsgenoten) heeft direct invloed op de autonome motivatie in de vrije tijd/ thuissituatie en hierdoor ook indirect effect op de intentievorming en het gewenste gedrag.

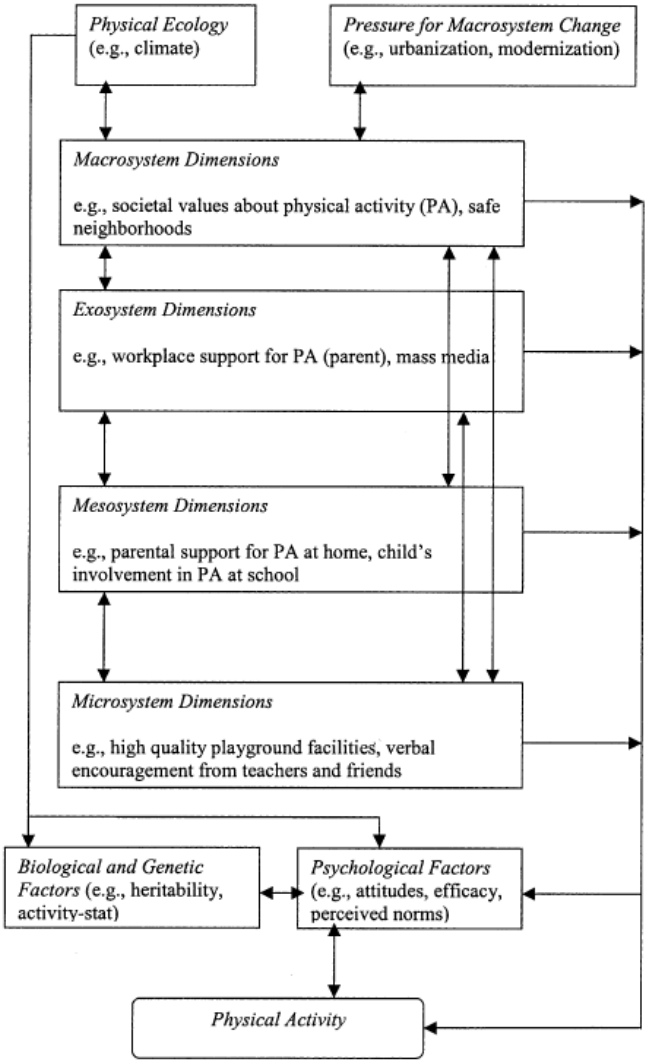
2. 'Beweegkriebels' en het Trans-Contextual Model

Wat men met 'Beweegkriebels' wil bereiken is dat kinderen plezier krijgen in bewegen. 'Beweegkriebels' zorgt ervoor dat jonge kinderen plezier krijgen of houden in bewegen, door creatief te werk te gaan. Begeleiders van kinderdagverblijven worden getraind om 'Beweegkriebels' toe te passen. Door de kinderen te stimuleren in het bewegen, vormen deze jonge kinderen al een autonome/ intrinsieke motivatie om actief te zijn in de context van het kinderdagverblijf. Zoals het Trans-Contextual Model stelt, zorgt dit ervoor dat kinderen ook een autonome/ intrinsieke motivatie ontwikkelen om actief te zijn in de thuissituatie. Ouders en vriendjes van de kinderen spelen hierbij ook een rol. 'Beweegkriebels' richt zich dan ook op ouders. Vooral de ouders bewust maken van het belang van bewegen voor jonge kinderen staat voorop, evenals het leren creatief te zijn met gebruik van eenvoudige materialen om kinderen meer te laten bewegen. 'Beweegkriebels' kan er op deze manier dus voor zorgen dat kinderen de intrinsieke motivatie voor het beweeggedrag ook in de toekomst blijven handhaven.

3. Het Ecological Model of Physical Activity (EMPA) (Spence & Lee, 2003)

Het EMPA model (figuur 3) is een ecologisch model. Een ecologisch model richt zich op omgevingsfactoren, ook wel extra-individuele factoren genoemd, om een bepaald gedrag te verklaren, naast de persoonlijke/ intra-individuele factoren van een individu (McLeroy, Bibeau, Steckler & Glanz, 1988). Een ecologisch model veronderstelt dat de extra-individuele factoren samen met de intra-individuele factoren een synergetische werking hebben op het gedrag (Susser & Susser, 1996; Sallis & Owen, 1997).

Het EMPA model stelt dat biologische en genetische factoren indirect invloed hebben op beweeggedrag, en dat psychologische factoren direct invloed uitoefenen op beweeggedrag. Daarnaast heeft de omgeving direct en indirect invloed op het beweeggedrag. De omgeving wordt in dit model onderverdeeld in 4 categorieën, namelijk het micro-, meso-, exo- en macrosysteem. Het microsysteem is de meest proximale omgeving en betreft de omgeving in directe relatie met een individu. Hier vindt dus ook directe interactie plaats. Voorbeelden van microsystemen zijn werk, kinderdagverblijf, school, huis, maar ook ouders en directe vrienden. Het mesosyteem is de omgeving waarin twee of meer microsystemen met elkaar in contact staan en zo het beweeggedrag beïnvloeden. Een voorbeeld hierbij kan zijn dat het beweeggedrag van een kind beïnvloedt wordt door zowel steun van de ouders in de thuissituatie (microsysteem 1) als steun voor bewegen op het kinderdagverblijf (microsysteem 2). Onder het exosysteem verstaat men de omgeving waarin twee of meer microsystemen met elkaar in verband staan, maar waarvan er minstens één niet direct in contact staat met het individu. Een voorbeeld hierbij is dat de werkomgeving van ouders, bijvoorbeeld door een discussie over de gezondheidsvoordelen van bewegen (microsysteem 1), invloed heeft op de manier waarop dit onderwerp door de ouders ter sprake wordt gebracht op het kinderdagverblijf (microsysteem 2). Het macrosysteem is de meest distale omgeving en staat hiermee het verste weg van het individu. Onder het macrosysteem verstaat men de sociaal-culturele context waarin een individu zich bevindt. Voorbeelden zijn de sociale gemeenschap en culturele normen. Deze 4 categorieën van de sociale omgeving staan allemaal in contact met elkaar. Een verandering in één van de systemen heeft invloed op de andere systemen. Bovendien is het belangrijk dat de meest distale omgeving (het macrosysteem) ook de meest brede invloed heeft. Veranderingen in het macrosysteem zullen meerdere individuen beïnvloeden, veranderingen in het microsysteem heeft slechts invloed op één individu (Spence & Lee, 2003).



Figuur 3. Het Ecological Model of Physical Activity (Spence & Lee, 2003)

4. 'Beweegkriebels' en EMPA

'Beweegkriebels' is een programma gericht op jonge kinderen van 0 tot 4 jaar. In deze leeftijdscategorie speelt de omgeving een grote rol bij de ontwikkeling van beweeggedrag. De omgeving van het kind kan worden ingedeeld in verschillende systemen waarbij 'Beweegkriebels' vooral ingrijpt op het micro- en mesosysteem. Omdat het programma zich richt op ouders en leidsters van het kinderdagverblijf, richt het zich op de twee primaire micro-omgevingen van een kind. De interactie tussen deze twee microsystemen vindt plaats in het mesosysteem: wat een kind meekrijgt op het kinderdagverblijf, zal het kind ook meenemen naar de thuissituatie, en andersom. Hierbij spelen processen van motivatie een rol zoals deze hierboven beschreven zijn in het kader van het Trans-Contextual Model. Verder

heeft ‘Beweegkriebels’ ook invloed op de psychologische factoren, doordat het vooral gericht is op plezier in bewegen en ervaringsleren. Door ervaring leert een kind zich te ontwikkelen op het gebied van bewegen en krijgt het meer zelfvertrouwen. Het kind zal een positievere attitude vormen ten opzichte van bewegen, wanneer het een positieve ervaring heeft met bewegen. Dit komt overeen met de mediërende rol van de factoren uit de Theorie of Planned Behavior, zoals beschreven in paragraaf 1.