

Active living

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Valorization Addendum

The current chapter provides an overview of the societal value of the work presented in this thesis. This societal value will be described in terms of practical relevance of the study results, the target populations for whom these results are of interest, activities, products and innovations that are derived from the Active Living project. Finally, the dissemination of the results of the research and products will be described.

RELEVANCE

To date, over 70 percent of the Dutch children does not fulfill the Dutch guidelines for sufficient physical activity (PA) (Nederlandse Norm Gezond Bewegen; NNGB (Burghard, Knitel, van Oost, Tremblay, & Takken, 2016)). Moreover, children show high levels of sedentary behavior (SB) in their daily patterns, both in school and during leisure time. In this thesis it was shown that primary school children spend over 16 hours per day in SB. Low levels of PA and high levels of SB are global threats to health and contribute to multiple diseases, such as overweight, cardiovascular diseases and mental well-being (Andersen et al., 2006; Ekelund et al., 2012; Kohl et al., 2012). Moreover, activity patterns developed during childhood are likely to track into adulthood (Parsons et al., 1999; Telama, 2009), indicating the urge to develop healthy PA-patterns during childhood. In addition, children raised in low socio-economic status environments tend to be at higher risks to be physically inactive (Gordon-Larsen et al., 2006). As children spend a substantial amount of time during the day at school, the school environment can contribute to the formation of these healthy physical activity patterns. A PA-supporting school environment can stimulate PA as well as reduce time spent in SB. Examples of a PA-supporting school environment are well-designed schoolyards, healthy school policies and a neighborhood design that facilitates active school transportation. In order to stimulate PA and reduce time spent in SB in primary schools located in low SES neighborhoods in the Southern-Limburg region of the Netherlands, the Active Living project was initiated and launched after the summer of 2012. The Active Living project focused on increasing PA and reducing SB in school, during leisure time and during active school transportation by means of changing the physical and social school environment. The studies presented in this thesis provide clear indications and suggestions how the school environment could be better designed to facilitate sustainable improvements in PA and reductions in time spent in SB. Several studies in this thesis indicated the need for tailored environmental interventions that fit to the needs of inhabitants of the neighborhoods rather than a one-size-fits-all approach. Moreover, indications were found for synergetic effects between the physical and social environment. Therefore, it might be concluded that designing the school environment as a whole rather than in a fragmented fashion is likely to be more effective in stimulating children's PA and reducing SB.

TARGET GROUPS

The results presented in the thesis are of interest to multiple target populations. The results are informative to ZonMw (the Dutch Organization for Health Research and Development) and policy makers both on a national and local level. Clear indications were found that an integrative approach in which systems thinking was required led to promising results for PA promotion and SB reduction. Moreover, it was found that end-user's involvement in the development of interventions was important for the design, the implementation, and the sustainability of interventions.

Further, several studies presented indicated some suggestions for urban design, health and other municipal domains to support walking and cycling to school by means of creating or adapting the physical school environment. These suggestions can also be integrated in the work of the Public Health Services and other health promotion organizations. Based on the findings in this work it would be recommendable to consider the school environment as a whole system rather looking at the environment as a collection of single, fragmented pieces. Taking into account the broader perspective, the needs and the opportunities of school environments may lead to more synergetic effects of environmental interventions and sustainable effects on increasing PA and reducing SB. Besides, health promotion organizations may benefit from the finding that increasing active school transportation could be reached by targeting walking and cycling behavior by adults rather than focusing directly on children.

Schools can benefit from the results of the Active Living project by learning what physical and social environmental interventions might work to increase PA and reduce SB. Examples of such interventions are providing challenging play areas at schoolyards (e.g. soccer goals), implementing supportive policies in schools (e.g. extended opening hours of the schoolyard), and teacher-involvement in PA-activities. Results also indicate schools' predominant position in reducing physical inactivity as children spend large periods of time in SB during a school day. Focusing on schools' advantages of active and healthy children may be favorable to support schools to take action. However, the main finding in schools for increasing PA and reducing SB was to 'do it well or don't do it at all'. If schools are willing to take action in reducing PA it is strongly recommended to show high levels of commitment to the topic of PA and SB, in which several activities will be implemented to support children's PA and reducing their SB. A non-committed attitude of school personnel in facing the problem of physical inactivity is not likely to result in behavioral changes and might be even lead to decreased levels of PA over time.

The results from studies may also be relevant for parents. In the future, parents can be encouraged more often to choose a primary school for the children based on activity friendliness of the school environment, which supports the school to consider PA-encouragement as a spearhead in the school policy to attract new pupils. Moreover, parents can learn by the finding that their own walking and cycling behavior is related to their child's use of active school transportation and as a result, their child's daily PA-

levels. By giving the example of using active transportation or by actively accompanying children during their travel, parents may substantially contribute to children's PA.

ACTIVITIES, PRODUCTS AND INNOVATIONS

The Active Living project resulted in a couple of new activities and products, more easily referred to as the Active Living approach. The Active Living approach was characterized by the combination of a top-down and bottom-up approach, also known as mutual adaptation. This approach consisted of the formation of a working group at each participating school to optimize the content and form of the PA-interventions to local needs. Moreover, the approach was chosen to enhance sustainability of interventions by increasing the feeling of autonomy and ownership of the interventions in the working groups. This approach led to a tailored intervention package that shared the scope i.e. increasing PA and reducing SB, but differed in number, content and form across schools. The collaboration between researchers, health promotion organizations, local municipalities, school representatives and parents was supported by this approach and led to a coproduction for the intervention development and implementation. However, this coproduction is a non-traditional approach for experimental studies and could be considered as fairly innovative.

It should be noted that the composition of the working groups and their commitment to the project seem key factors in whether these groups succeed in implementing interventions. These working groups succeeded in implementing numerous PA-interventions in the school environment with a limited budget (2,000 euro at the start of the project). Herewith, these working groups have achieved to establish more playable, PA-supporting school environments. To date, changes in the physical environment do still exist in these school environments. The changes in the physical and social environment were not extremely large by extent and their level of innovativeness was limited, but the changes were easy to implement, fitted to local needs and were low-budgeted, which increases the likelihood of transferability of the interventions to other school environments with similar needs.

In addition, we used an innovative methodological approach that combined objectively assessed location-data (GPS) and PA-data (accelerometer). In collaboration with a world-leading institute in applying this technique (Southern Denmark University, Odense, Denmark), a real-life animation was developed in which time, children's location and activity level information were combined and presented on a map (Geographical Information System, GIS). By creating such an animation, it became visible where, when, and in what PA-intensity children performed PA. This real-life animation is innovative and very informative for health practitioners and policy makers to study human's PA-behavior on a daily basis in relation to the exposed environments. In practice, this tool has shown its usability in explaining and disseminating ideas to policy makers.

DISSEMINATION OF RESULTS AND PRODUCTS

The outcomes of the work presented in this thesis have been disseminated through multiple channels. Firstly, the practical implications and working methods, including the combined bottom-up and top-down approach, has been presented to health promoters and municipal officers by means of multiple oral sessions throughout the Netherlands (e.g. oral presentation during 'Dag van het Sport Onderzoek (DSO), 2016', keynote lecture at the 'Provinciale Inspiratie Sessies ter bevordering van bewegingsonderwijs, 2016'). Moreover, the outcomes were disseminated by factsheets presented by the Regional Public Health Services Zuid Limburg, by a national journal publication and numerous media channels, including radio and TV.

Besides, the dissemination of the results of the Active Living project through media, readings and publications, the working methods, data analyses techniques and practical implications have been adapted in a couple of new (granted) projects. Examples of such projects are: KEIGAAF (Kansen in Eindhoven voor GezinsAAnpak met Fontys), granted by Fonds NutsOhra (FNO); SUPERFIT, granted by Fonds NutsOhra (FNO) and ZonMw; A2Health study, granted by Projectbureau A2 Maastricht together with the Faculty of Health, Medicine and Life Sciences, University Maastricht. Moreover, the Healthy Elementary School of the Future follow the basic assumptions of the Active Living project. From these project, the KEIGAAF project (a collaboration between Maastricht University and Fontys University of Applied Sport Sciences) is the most similar to Active Living. The school-based part of the KEIGAAF project is completely based on the Active Living project, including the Active Living approach to develop and implement interventions. In addition to the Active Living project, an evidence-based parental intervention component (Lifestyle Triple P) will be added to the KEIGAAF project.

Besides dissemination through projects, the outcomes from the Active Living project and the Active Living approach will be used for educational purposes. For instance, the approach will be integrated as part of a module in the new curriculum for the Academy of Physical Education at Fontys University of Applied Sport Sciences.

In addition, it should be noted that although the project assistance for Active Living schools was granted until summer 2014, to date many participating schools continue running their working group at school level. Some of the working groups broadened their focus to nutrition behavior in addition to PA. One school expanded their activities largely and is now one of the four participating schools in the Healthy Elementary School of the Future project.