Healthy Lifestyle in a Supporting Environment
‘A healthy start for a healthy generation’

Annual Report 2019
Sanne de Vries, PhD
February 2020
ABOUT THE RESEARCH GROUP

The research group Healthy Lifestyle in a Supporting Environment is conducting practice-oriented research to encourage youth to promote a healthy lifestyle with focus on physical activity and healthy dietary behaviours.

Sufficient exercise and a healthy diet are equally important for a good health. This is common knowledge. Yet many children and adolescents in the Netherlands still have an unhealthy lifestyle. This has consequences, both at an individual and at a societal level. But how do you promote these healthy behaviours? Or, more precisely, how can you encourage a good motor skill development and an active lifestyle? And how can you encourage teenagers to make healthier food choices? What can be the role of technology in promoting a healthy lifestyle? These questions are the basis for our research programmes Healthy School of the Future, Gym of the Future and Healthy Neighborhood of the Future.

Since 2019, the research group is part of the centre of expertise Health Innovation (formerly known as the research platform Quality of Life: People and Technology) at The Hague University of Applied Sciences (THUAS).

SOCIETAL CHALLENGES IN THE REGION

- Reducing physical inactivity
- Increasing participation in sports
- Stimulating healthy food choices
- Enhancing the quality of the living environment
Vision

The research group aims to promote a healthy lifestyle among youth aged 2 to 24 years through sustainable behaviour change. This behaviour change is achieved by translating knowledge about physical activity, diet, behaviour change, technology, interaction design and pedagogy into innovative products, programmes and services that consciously and/or subconsciously influence children and young people to lead a healthy lifestyle. These efforts are based on a belief in the power of seduction and implicit learning, alongside persuasion and explicit learning. The innovations are integrally based on the desires, needs and perceptions of the target group and stakeholders. We work in a demand-driven and practice-oriented manner. That is why the research group works closely together with professionals and the degree programmes and answers research questions originating directly from professional practice.

Mission and objectives

Promoting a healthy lifestyle among youth (ages 2 to 24) in The Hague region by:

● Conducting practice-oriented research aimed at developing, evaluating and implementing innovative products, programmes and services in the social, physical and digital environment of young people in order to improve their physical activity and dietary behaviours;
● Conducting practice-oriented research as a component of providing training to the professionals of the future;
● Actively disseminating and applying knowledge from practice-oriented research within professional practice, education and society in general.

Principles of practice-oriented research

● Socially relevant challenge (for more than one person/organization)
● Complex issue or complex target group
● Practice- and result-oriented, iterative and short cyclical structure
● Innovative in design, methods and/or results
● Cooperation in the quadruple helix
Objective

The objective of the research programme Healthy School of the Future is to promote and maintain a healthy lifestyle among young people between the ages of 2 and 24 in The Hague region by developing, evaluating and implementing products and programmes in the school environment focusing on:

- Encouraging physical activity;
- Reducing sedentary behaviour;
- Encouraging healthy food choices.
Healthy by Design

“Healthy by Design fits really well within the Healthy School concept in vocational education”

according to a school director of ROC Mondriaan vocational education

Partners from education, research and practice developed, implemented, and evaluated the Healthy by Design (HbD) intervention. HbD is a peer-delivered school-based health promoting intervention for vocational students. In the development phase, vocational students’ perceptions of a healthy lifestyle were used to inspire the iterative design process of the intervention in co-creation with students, other stakeholders and designers. The intervention programme was implemented for two consecutive school years by vocational students following a Lifestyle, Sport & Exercise program, so called Fit Coaches. The Fit Coaches organized weekly health promoting activities for more than 2,000 students at two locations of ROC Mondriaan. In addition, the Fit Coaches gave personal advice and individual support to students who wanted to start with a healthy lifestyle. The coaches worked under the supervision of a HbD coordinator, who was also a teacher at the same school location. The Fit Coaches also conducted a (social) media campaign on Facebook and Instagram to increase the outreach of HbD and to inform fellow students about a healthy lifestyle. We used a process and effect evaluation to understand the potential outcomes of the HbD intervention. The results of the evaluation study will be available in April 2020.

**Objective**
The development and evaluation of a peer-delivered health promoting intervention – implemented by vocational students – aimed at healthy eating and physical activity behaviours.

**For whom**
Vocational education and vocational students

**By whom**
THUAS (coordinator), Delft University of Technology, ROC Mondriaan, Sportief Advies, Frens Pries Research & Design and GGD Haaglanden.

**Funding**
The Netherlands Organisation for Health Research and Development (ZonMw)

**Duration**
2016 - 2020

**More information**
Healthy by Design in 150 seconds: [https://www.youtube.com/watch?v=CGOPhu4UrUc](https://www.youtube.com/watch?v=CGOPhu4UrUc)

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Movement-based learning for toddlers

**Objective**
Evaluation of the Springlab activity floor, an interactive projection system that helps pedagogical staff get started with movement-based learning for toddlers through exergames and learning games that are projected on the floor. Exercise, play, discovery, social interaction and learning are combined in an entirely new form of learning experience.

**For whom**
Pedagogical staff and toddlers

**By whom**
Springlab, Humanitas

**Funding**
Springlab, Humanitas

**Duration**
2018 - 2020

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Youth health care guideline on posture and physical activity

**Objective**
Providing advice regarding a new guideline on posture and physical activity for Youth Health Care services (JGZ) based on shortcomings and bottlenecks in the field.

**For whom**
Youth health care service professionals

**By whom**
TNW (coordinator), THUAS, Medisch Spectrum Twente, Knowledge Centre for Sport & Physical Activity, The Dutch Association for Pediatric Physical Therapy, Amsterdam University of Applied Sciences, and others

**Funding**
The Netherlands Organisation for Health Research and Development (ZonMw)

**Duration**
2018 - 2020

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Co-design with kids

**Objective**
The development and evaluation of a toolbox for primary school pupils aimed at promoting the acquisition of 21st-century skills.

**For whom**
Teachers and pupils in primary education

**By whom**
Delft University of Technology (coordinator), THUAS, Inholland University of Applied Sciences, Yalp BV, Jantje Beton, UMC Utrecht, various primary schools in the Delft region.

**Funding**
The Netherlands Initiative for Education Research (NRO)

**Duration**
2015 - 2020
Objective

The objective of the research programme Gym of the Future is to promote physical literacy among youth between the ages of 2 to 18 years old in The Hague region by developing, evaluating and implementing products, knowledge and programmes in and around the physical education setting focusing on:

- Knowledge and understanding to maintain physical activity throughout life;
- Motor competence, including fundamental movement skills;
- Motivation to willingly participate in physical activity independently;
- Confidence in the ability to participate in various contexts of sports.
MQ Scan

The results of the MQ scan provides guidance for differentiating in physical education activities. The motor competence level of children can be taken into account.

according to a physical education teacher

Professionals in physical education (PE) can play an important role in the development of motor competence of children. In this project a motor competence assessment tool is developed and evaluated to assess children’s motor competence in a physical education class (4 – 12 years). More than 50 PE teachers and over 200 students were involved in the design and research process. At the moment, the MQ scan is being used at more than 700 schools in the Netherlands for screening, monitoring, evaluation and benchmarking purposes. Every year, around 80000 children are measured with the MQ Scan.

In a validation study, the MQ scan was correlated with the Körperkoordinationstest für Kinder. The correlation coefficients varied between r=-0.469 and r=-0.776 per age group. These results indicated that the MQ Scan can be used to assess motor competence in a valid way.

The reliability study showed that the test-retest reliability is high (range ICC = 0.800 - 0.881). The internal consistency of the three age-related versions of the MQ Scan was above the acceptable level of Cronbach’s α> 0.70 (range α = 0.700 - 0.764). These results showed that the MQ Scan is a reliable assessment instrument as well.

For boys and girls from 4 to 12 years old, age-specific norm values have been developed for the MQ Scan. These norm values were constructed in a research setting where almost 8000 children were included in the study.

Objectives

Development and evaluation of a feasible motor competence assessment tool (MQ Scan) to assess children’s motor competence within one minute in the physical education setting.

For whom

Children aged 4 to 12 years and Physical Education teachers in primary physical education

By whom

THUAS (coordinator), Stichting Haagse Scholen, Lucas Onderwijs, Stichting Christelijk Onderwijs Haaglanden, Lekker Fit Rotterdam, GGD Haaglanden, Stichting Haagse Jeugd Gezond, VU Amsterdam, Fontys University of Applied Sciences, University of South Australia, ASM BV, 2 Basics BV and Qabana.

Funding

Netherlands Organisation for Scientific Research (NWO) doctoral grant for teachers

Duration

2014-2019

More information

www.mqscan.nl and https://youtu.be/fwAb2Sc8qDK
Exercise can be learned

**OBJECTIVE**
This project evaluates the effectiveness of a 6-months intervention to enhance motor skill development in children.

**FOR WHOM**
Children aged 4 to 12 and Physical Education teachers in primary education

**BY WHOM**
HAN University of Applied Sciences (coordinator), THUAS, Qabana, Stichting Haagse Scholen, Knowledge Centre for Sport & Physical Activity, Spartanova, Ghent University, UMCG, VU Amsterdam, University of Groningen, Sportservice Nijmegen

**FUNDING**
Taskforce for Applied Research (SIA RAAK-publiek)

**DURATION**
2018 - 2020

Social exertion interfaces

**OBJECTIVE**
To develop and evaluate spatial augmented reality applications in the (semi-)public space in order to promote social interaction and physical activity among young people.

**FOR WHOM**
Youth aged 4 to 18 years, Physical Education teachers, designers

**BY WHOM**
THUAS (coordinator), Stichting Haagse Scholen, Sika BV, Bosan BV, Court Performance BV, Fun with Balls, Springlab, Leiden University.

**FUNDING**
Netherlands Organisation for Scientific Research (NWO) doctoral grant for teachers

**DURATION**
2017-2024

MultiBALL touchscreen wall

**OBJECTIVE**
To refine and evaluate an interactive touchscreen wall, on which children can use a ball to play different interactive games and complete training modules.

**FOR WHOM**
Principal teachers and Physical Education teachers, trainers, coaches, managers of sports facilities

**WITH WHOM**
Court Performance, Stichting Haagse Scholen, Municipality of The Hague, Triodus

**FUNDING**
Court Performance

**DURATION**
2018-2020
The Eye of the Master

**OBJECTIVE**
Research into the perceptual competence of physical education teachers followed by the development of methods to increase the level of perceptual competence.

**FOR WHOM**
Physical Education teachers and students.

**BY WHOM**
University of Applies Sciences Windesheim (coordinator), THUAS, VU Amsterdam, Amsterdam University of Applies Sciences, Erasmus School of Social and Behavioral Sciences

**FUNDING**
Taskforce for Applied Research (SIA RAAK-pro)

**DURATION**
2019-2023

Disentangling Inclusive Primary Physical Education (DIPPE)

**OBJECTIVE**
To exchange and develop educational modules and materials to support professional Physical Education teachers in providing inclusive physical education.

**FOR WHOM**
Physical education teachers and students (in Europe)

**BY WHOM**
University of Luxembourg (coordinator), THUAS, Dublin City University (Ireland), EUPEA (Switzerland), University of Trnava (Slovakia), University of Edinburgh (Scotland), University of Valladolid (Spain), ITTralee (Ireland), EPPEN (Europe), IPPEA (Ireland), SATPE (United Kingdom)

**FUNDING**
Erasmus+

**DURATION**
2018-2021
Healthy Neighborhood of the Future

Objective
The research programme Healthy Neighborhood of the Future focuses on developing and disseminating (new) knowledge about promoting and maintaining a healthy lifestyle. This will be done by developing, evaluating and implementing products and programs focused on the physical, social or digital environment of neighborhood residents.

Vitale Delta

OBJECTIVE

Vitale Delta is a consortium of Rotterdam University of Applied Sciences, The Hague University of Applied Sciences, Leiden University of Applied Sciences and InHolland University of Applied Sciences. These research partners are committed to the vitality and health of people from young to old. The focus is on strengthening resilience and self-management skills and creating a healthy environment in the urban region of Leiden, The Hague and Rotterdam by conducting practice oriented research. Professors, researchers, professionals and citizens

FOR WHOM

Rotterdam University of Applied Sciences (coordinator), The Hague University of Applied Sciences, Leiden University of Applied Sciences and InHolland University of Applied Sciences and Medical Delta partners.

BY WHOM

Taskforce for Applied Research (SIA SPRONG) 2017 - 2025

FUNDING

DURATION

MORE INFORMATION

www.vitaledelta.nl

Ready to Start

OBJECTIVE

Developing a toolbox for (future) neighborhood sports coaches to promote the physical literacy of young children by developing new knowledge about risk groups, influenceable determinants and effective interventions.

FOR WHOM

Neighborhood sports coaches, policy makers, (physical) education teachers, trainers and coaches

BY WHOM

THUAS (coordinator), Hanze University of Applied Sciences, Fontys University of Applied Sciences, University of Applied Sciences Windesheim, VU Amsterdam, Almere Kenniscentrum Talent, NOC*NSF, Stichting Haagse Scholen, Municipality of The Hague, The Mulier Institute, Knowledge Centre for Sport & Physical Activity, TRIXX, Wij Buurtsportcoaches, KVLO, VSG

FUNDING

DURATION

Taskforce for Applied Research (SIA RAAK-pro) 2019-2023
A healthy lifestyle is important to prevent lifestyle diseases and to maintain vitality. The aim of the MoreHealth project is to investigate how person-oriented mHealth can be used to promote a (better) healthy lifestyle among vulnerable groups: young mothers and Hindustanis. To support the behavioral changes of these groups, mHealth applications (health applications for telephone or tablet) can offer possibilities. However, it is important to align the applications to the target groups.

In 2019, a fourth-years student of Nutrition and Dietetics investigated the usability of such mHealth applications. This was done within a qualitative study with ten Hindustanis as participants. This research has resulted in a publication in the Dutch Journal of Dietitians (2019; 74 (5): 28-29).

The student experienced these conversations as very valuable. “It was both interesting and educational to participate in this project. Through this research I expanded my own knowledge and got to know a target group that was unknown to me. To contribute in a project that may improve their long-term health was extremely satisfying!”

The study participants were motivated to use apps that provide clear added value. Cooking and exercise tips which fit perfectly in the Hindu culture are an example of this. A project group of six third-year Nutrition and Dietetics students developed alternative recipes for five popular Hindustani snacks. The recipes have been adjusted with relatively simple interventions. This resulted in health benefits per snack, the energy content reduced by 20-50%, fat by 63-90%, saturated fat by 18-96%, salt by 20-90% and sugar by 27-72%. The change in taste was positively assessed by the target group. The new recipes are shared with the community. The student looked back at an education period in which Hindu culture and eating habits were the main points. The pleased contribution, enthusiasm and openness during the meetings were much appreciated.
Research group (6.3 fte)

Head of research

Sanne de Vries, PhD
Professor Healthy Lifestyle in a Supporting Environment

Support

Marise Ancher
Senior Management Assistant

Ingrid van Reijsen
Senior Management Assistant

Lecturer-researchers

Madelief Bertens, PhD
(Communication)
(Healthy by Design)

Michel Bosman MOC
(PETE) (MultiBALL touchscreen wall)

Hans van Ekdom, MSc
(PETE) (DIPPE)

Joris Hoeboer, PhD
(PETE) (MQ Scan, Exercise can be learned, Youth health care guideline on posture and physical activity, Ready to Start)

Frank Jacobs, PhD
(PETE) (DIPPE)

Manon Kessels, MSc
(Human Movement Technology) (Movement-based learning for toddlers, MultiBALL touchscreen wall)

Gitte Kloek, PhD
(Nutrition and Dietetics)
(Healthy by Design, BiBoZ)

Pim Koolwijk, MSc
(PETE) (Ready to Start)
RESEARCH GROUP AND PHD CANDIDATES

Doctoral candidates

Within the research group, Danica Mast received an NWO doctoral grant for teachers in 2019 and Pim Koolwijk started his PhD research in conjunction with the Ready to Start project. Joris Hoeboer obtained his PhD degree in 2019 under supervision of Prof. dr. Geert Savelsbergh and dr. Sanne de Vries at the VU Amsterdam on his dissertation entitled “The development of the Athletic Skills Track”.

Lecturer-researchers

Lando Koppes, PhD (Nursing) (Vitale Delta)
Machteld van Lieshout, PhD (Nutrition and Dietetics) (MoreHealth)
Danica Mast, MSc (Communication & Multimedia Design, UXD) (Social exertion Interfaces, Movement-based learning for toddlers, MultiBALL touchscreen wall, Co-design with kids)
Stefanie Salmon, PhD (Nutrition and Dietetics)
Sylvia Schipper, BSc (Industrial Design Engineering) (BiBoZ)
Liset Schrijvers, MSc (Sport Studies) (Ready to Start)
Annemarie de Witte, PhD (PETE) (Exercise can be learned, Ready to Start, The Eye of the Master)
PARTNERS AND NETWORK

Partners in professional practice
Knowledge partners
Educational partners

Partners and network

<table>
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<th>Partners</th>
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<td>Partners in professional practice</td>
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## KNOWLEDGE PARTNERS

- Amsterdam University of Applied Sciences
- Delft University of Technology
- Dublin City University
- Eindhoven University of Technology
- Fontys University of Applied Sciences
- Ghent University
- HAN University of Applied Sciences
- Hanze University of Applied Sciences Groningen
- Hersenstichting
- Inholland University of Applied Sciences
- Kennispraktijk
- Knowledge Centre for Sport & Physical Activity
- Leiden University
- Maastricht University
- Mulier Institute
- Rotterdam University of Applied Sciences

## EDUCATIONAL PARTNERS

### Degree programmes:
- Communication
- Communication & Multimedia Design
- HBO-ICT
- Human Kinetic Technology
- Industrial Design Engineering
- Nursing

### Masters & Professional Courses
- Nutrition and Dietetics
- Physical Education Teacher Education (PETE) Programme
- Sport Studies
- User Experience Design
- Centre of Expertise Health Innovation

## PARTNERS IN PROFESSIONAL PRACTICE

- Almere Kenniscentrum Talent
- ASM BV
- Basalt
- 2Basics BV
- Bosan BV
- Court Performance
- European Physical Education Association
- Frens Pries Research&Design
- Gemeente Den Haag
- GGD Haaglanden
- Jantje Beton
- KVLO
- NOC*NSF
- Provincie Zuid Holland
- ROC Mondriaan
- Springlab
- Sportanova
- Sportief Advies Groep
- NPI
- KNGU
- Stichting Haagse Scholen
- Stichting Hindustani
- Triodos Kinderopvang
- TRIXX
- Vereniging Sport en Gemeenten
- Wij Buurtsportcoaches
- Yalp BV
Publications and products

- Scientific publications: 6
- Popular publications in traditional/social media: 51
- Books/reports: 4
- Congress publications: 12
- Products/tools: 3
- Total: 82

Funding (in FTE)

- Total: 6.3
- 1st cashflow: 2.55
- 2nd cashflow: 3.65
- 3rd cashflow: 0.1

60% externally funded

Funding sources:
- NWO 0.80
- SIA (KIEM, SPRONG, RAAK) 1.85
- Erasmus+ 0.20
- ZonMw 0.80
Design lessons for gymnastics in the future

Within the NRO project Co-design with kids, seven design lessons have been developed. With these lessons children practice their creativity, collaboration and communication skills. Step by step primary school children learn to design games, products or programmes for gymnastics in the future. They reflect on the problems experienced by peers in physical education classes, gather wishes and needs, brainstorm on new concepts and test these. The design lessons can be conducted in consultation with the physical education teacher. As a “client”, he or she can guide the children in terms of content, serve as a consultant and provide feedback on the ideas. The problems and solutions formulated by the children provide the physical education teacher with new insight and inspiration. The lessons can be downloaded for free from: https://studiolab.ide.tudelft.nl/studiolab/codesignwithkids/

Teaching cards coordinative abilities

Within the SIA RAAK-public project Exercise can be learned teaching cards have been developed. These teaching cards focus on coordinative abilities and are part of an intervention aimed at improving the motor skills of primary school children.

MQ Scan

The MQ scan is a valid, reliable and feasible instrument to measure the motor skills of children aged 4 to 12 within the context of physical education. The MQ scan is developed by The Hague University of Applied Sciences, ASM BV and VU University Amsterdam and is based on the Athletic Skills Model. There are three tracks available (for grade 1/2, grade 3/4/5 and grade 6/7/8) which can be performed with standard physical education material. The MQ scan consists of a digital environment and an app. It takes 1 minute to complete the MQ scan and register the scores. Based on reference values of +/- 10.000 children, professionals can download in the digital environment a report at child, class and/or school level. Annually, around 80.000 primary school children in the Netherlands are measured at more than 700 schools. The anonymized data can also be used by policymakers, Public Health Service employees and sports executives. More information about the test can be found at: www.mqscan.nl
Students

“By participating in this research I learned more about research, motor skills and what I want to do in the future”

PETE student

1519 students were involved in teaching and research activities of the research group, of whom 90 were working on their thesis.

Education

The research group contributes to the following minors and electives in the form of guest lecturers or client ship:

- Minor Health communication
- Minor Oncology
- Minor Smart Technology and the Future of Health
- Elective Sports & Nutrition
- KB80: Research & Innovation 1

The research group is involved in the development of the Master Healthy Ageing Professional and in the curriculum revision or as "critical friend" of the following degree programmes:

- Communication
- Physical Education Teacher Education (PETE) Programme
- Industrial Design Engineering
- Sport Studies
- Nutrition and Dietetics
Knowledge circulation

Total number of people reached through lectures/workshops/events and other activities:

- Number of students: 1519
- Number of lecturers: 447
- Number of people from professional practice/general public: 758
- Number of researchers: 461

Committees and additional positions: Sanne de Vries

- Leading Lector Centre of Expertise Health Innovation
- Member of Interventions recognition committee, sub-committee 5 Sport and Physical Activity, Knowledge Centre for Sport & Physical Activity
- Member of Professional Advisory Committee for PETE Programme and Master’s of Sports, Fontys University of Applied Sciences, Eindhoven
- Member of working group, Youth Health Care guideline on posture and physical activity
- Member of the Dutch Brain Foundation’s advisory council on Science and Innovation
- Guest editor Special Issue “Quality of Life: The Interplay between Human Behaviour, Technology and the Environment”, International Journal of Environmental Research and Public Health
More information

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