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Education and Physical Activity in Childhood: Current Challenges and Perspectives

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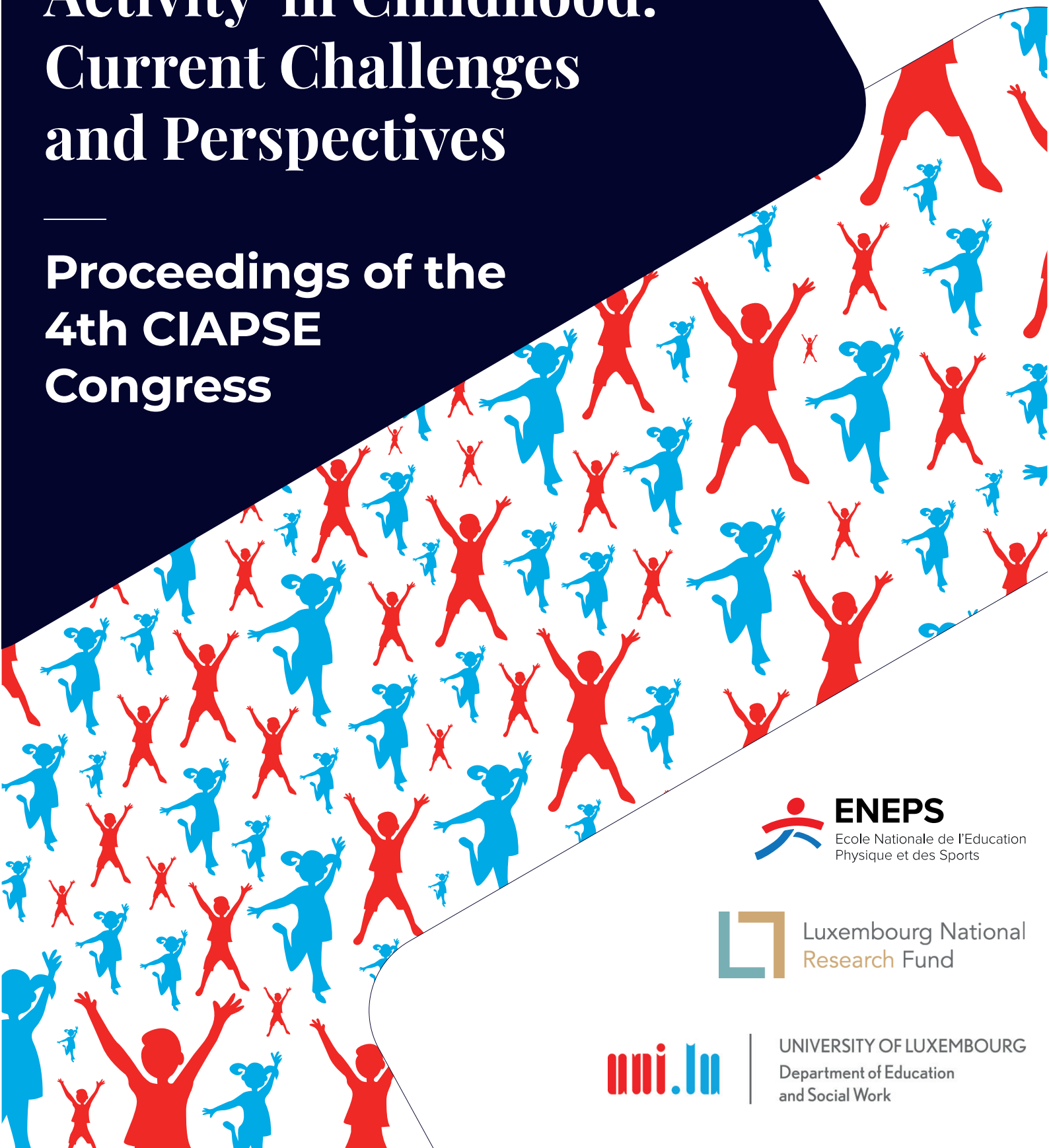

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Department of Education and Social Work

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Small is Beautiful

DANIEL CASAS VALLE (URBAN DYNAMICS, OFFICE: DESIGN-PLANNING-RESEARCH-REFLECTION & RESEARCH CENTER ARCHITECTURE AND URBANISM, FACULTY OF ARCHITECTURE, UNIVERSITY OF PORTO)

Introduction

Initially, a skewed tile can tell us something about a faulty design detail, a failed construction project or simply the absence of any control over a public space. But if we look closer, a skewed tile can open a whole new world of possibilities … specially in the eyes of children. Thru the eyes of children your look on the living environment can change and enlarge. Suddenly you see things that you never saw before. A street as a playground?

Making good playful, attractive, educational and social outdoor space for children is often not an easy task in urban planning. The overloaded and overregulated planning practice – from design guidelines to laws – results often in undesirable spaces, for everybody. Many challenges are ahead of us. With that, it brings also new possibilities.

This presentation aims to open our look a bit, to see things a bit different. Not by introduction another categorization or regulation, but to see where interaction, small frictions and overlapping synergies are possible. It is a look from an urban design point of view on outdoor space of children, designed and not designed.

Promoting Positive Physical Literacy Journeys in Young Children from Disadvantaged Communities: The Influence of Project *SKIP*

JACQUELINE D. GOODWAY (THE OHIO STATE UNIVERSITY)

Introduction

A core component of promoting physical literacy journeys is the competence and confidence to move. For children in early childhood this involves the development of critical fundamental motor skills (FMS) and perceptions of motor competence (PMC). A key model of motor development (Stodden et al., 2008) speaks to the importance of these variables as a foundation for future physical activity and sport. Yet many children do not possess the necessary skills to support physical literacy and are in need of evidence-based motor skill interventions. The *SKIP* motor skill program has been implemented globally in a response to this call and is based on 30 years of evidence. This presentation summarized the development, outcomes, and evolution of *SKIP* across three decades of research drawing lessons for professional practice and policy.

Method

Participants in the studies reviewed consisted of young children from vulnerable communities enrolled in at-risk preschool programs (aged 3-6 years). The two primary outcomes reported are FMS competence measured by the TGMD2 and PMC measured by Harter & Pike's pictorial scale of perceived physical competence subscale.

Results and Discussion

Children from global vulnerable communities report significant developmental delays (DD) in FMS but high PMC. These DD increase the risk of children being pulled into a negative spiral of disengagement and poor physical literacy, although elevated PMC is believed to be a critical resource and protective factor. Early *SKIP* motor skill interventions delivered by experts revealed significant pre-posttest improvements in FMS and PMC (Cohen's d 3.06-3.90). However, a critique of this work was the lack of social validity. Subsequently, Early Childhood Teachers (ECTs) were trained to deliver *SKIP* in ecologically valid environments. In spite of moderate *SKIP* fidelity delivery by ECTs, significant pre-posttest improvements in FMS and PMC were reported for children. However, effect sizes for teacher delivered *SKIP* were smaller than expert *SKIP* (Cohen's d 2.21-2.50). ECTs valued *SKIP* as a mechanism to promote physical literacy for their children and embedded *SKIP* into their daily routines. Despite this, ECTs reported that academic pressures were a major barrier to regular *SKIP* implementation so recent studies integrated: 1) executive function, and 2) early literacy as secondary outcomes. A *SKIP* motor skill intervention integrated with early

language and reading literacy activities revealed significant pre-posttest improvements in lowercase letter recognition and initial sound awareness. Another *SKIP* intervention found significant improvements in executive function from pre-to-posttest. Implications for professional practice, policy and future research were identified.

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Basic Motor Competencies in Physical Education: Rationale, Assessment, and Development

CHRISTIAN HERRMANN (ZURICH UNIVERSITY OF TEACHER EDUCATION)

Discussion

Basic motor competencies are regarded as central learning goals of physical education in European preschool and primary school curricula. They form the basis for participation in the culture of sport and exercise and are the foundation for developing an active lifestyle. Children should achieve these minimum standards in physical education, and a need for support should be identified at an early stage.

The talk demonstrates how the MOBAK test instruments enable curricularly valid and age-specific measurement of the basic motor competencies. Taking existing studies in Europe as a starting point, the talk describes motor capabilities in the competency domains of self-movement and object movement in preschoolers and primary school students and identifies potential determinants and influencing factors. On this basis, recommendations are made on how to systematically promote motor competencies.

More Physical Activity in the School Setting: Why and How?

AMIKA SONJA SINGH (MULIER INSTITUTE, UTRECHT, THE NETHERLANDS) & WESTERN NORWAY UNIVERSITY OF APPLIED SCIENCES, SOGNDAL/BERGEN, NORWAY)

Discussion

Physical activity (PA) is an essential part of a growing up healthy for all children. For decades, schools have been considered as ideal venues to support children to regularly engage in PA. Supporting schools to fulfill their role in promoting PA should therefore be considered a public health priority. In line with this understanding the WHO advocated the investment in the 'creation of active people' and 'active systems' (WHO, 2018). Both strategies have a clear relationship with the promotion of PA in schools: stimulating and facilitating children to engage and enjoy PA in the early years of their lives within the school context is important for a healthy society, both on the long and the short term.

Despite the many well-known benefits of regular PA, like physical and mental health, schools struggle with the structural implementation of PA. During the last years, more attention has been paid to benefits that are closely related to academic performance (Singh et al., 2019), such as better cognitive performance, improved classroom behaviour and school attendance. These benefits have been advocated to schools and teachers who are often struggle with implementing PA in the regular curriculum, mainly due to the time constraints that arise from the pressure to focus on subjects like language or mathematics which are often considered 'core subjects'.

Whole-of-school approaches have been shown to contribute to children's PA levels (WHO, 2018). A whole-school approach to PA covers various domains, i.e., quality physical education, active communing to school, active recess, active classrooms but also takes into account the wider system of which the school is part off (i.e., community) and relevant stakeholders (i.e., parents, policy makers).

In the first part of the lecture an overview of benefits of PA directly or indirectly related to academic performance will be presented; in the second part of the lecture whole school approaches (Daly-Smith et al., 2020; WHO, 2022) and challenges with regard to structural implementation of PA in the school setting will be discussed.

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Basic Motor Competencies in Europe

CHAIR OF THE SYMPOSIUM: ERIN GERLACH (UNIVERSITY OF HAMBURG)

Introduction

Basic motor competencies (BMC) are context-based and functional dispositions which are developed from situation specific demands in Physical Education (PE) and Physical Activity (PA). They are necessary to solve specific problems in PE, are sustainable, learnable and consider existing experiences (Hermann, Gerlach, & Seelig, 2015). Additionally, BMC are a key learning goal of PE and a prerequisite for participation in culture of movement and sport.

In the last decade, various BMC-Projects from different European countries were conducted. The aim of the present symposium is to present the results of those projects with a focus on assessment and monitoring. BMC are used in cross-sectional and increasingly in longitudinal studies, they are used as a tool in monitoring systems and as school feedback instrument as well as in specific intervention programs. Moreover, determinants from PE and PE teachers move into the focus of interest.

Discussion

The first presentation of Bretz et al. deals with the project Development of basic motor competencies in childhood in Switzerland and role of different determining and correlating factors from a nation-wide Swiss Study. The second presentation of Scheuer et al. focuses on the nation-wide monitoring system of BMC in Luxembourg. The third presentation of Wälti, Schole et al. analyses associations between structural factors (teacher qualification, goals, and amount of PE) and BMC. Finally, Ennigkeit et al. present results on the *Schoolkids in Motion* program a city-wide promotion program for disadvantaged kids. All presentations will be finally discussed by Arja Sääkslahti from the University of Jyväskylä.

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Development of Basic Motor Competencies in Childhood

KATHRIN BRETZ, ILARIA FERRARI, ROGER KELLER (ZURICH UNIVERSITY OF TEACHER EDUCATION, SWITZERLAND), JÜRGEN KÜHNIS (SCHWYZ UNIVERSITY OF TEACHER EDUCATION, SWITZERLAND), HARALD SEELIG (DEPARTMENT OF SPORT, EXERCISE AND HEALTH, UNIVERSITY OF BASEL, SWITZERLAND) & CHRISTIAN HERRMANN (ZURICH UNIVERSITY OF TEACHER EDUCATION, SWITZERLAND)

Introduction

Basic motor competencies (BMC) represent a central developmental goal in pre-school age and are considered a prerequisite for participation in the culture of movement and sport. The aim of the monitoring was to identify possible influencing factors on the development of BMC as well as regional differences.

Method

In the monitoring of the BMC, which was funded by Health Promotion Switzerland, the BMC were recorded using the MOBAK-KG instrument (Herrmann et al., 2020). In addition, the children's teachers and parents were surveyed by using questionnaires. In 2020, N=500 children (M age=5.7 years, SD=.57) were examined in the cantons of Nidwalden and Ticino, and in 2021, N=1169 children (M age=5.7 years, SD=.57) were examined in the cantons of German-, Italian- and French-speaking Switzerland.

Results

Differences between the age groups and the genders are evident in the MOBAK performances at both survey times. ANCOVA was used to calculate differences between the language regions, taking age and gender into account. While no differences were found in "Object-movement", children from Italian-speaking Switzerland showed significantly poorer performance in "Self-movement" ($F(2,1135)=5.064$, $p=.006$, $\eta^2=.009$) than children in the German- and French-speaking parts of Switzerland.

Discussion

The presentation will also contain first longitudinal results and give an insight into the Swiss-wide project “Development of basic motor competencies in childhood (EMOKK)".

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Monitoring of Basic Motor Competencies in Luxembourg

CLAUDE SCHEUER & SANDRA HECK, UNIVERSITY OF LUXEMBOURG

Introduction

An objective of physical education (PE) as a school subject is supporting students' positive motor development and physical literacy. Therefore, it is indispensable for them to be in command of the necessary basic motor competencies (in German: Motorische Basiskompetenzen; MOBAK) as the prerequisites to be able to participate in the culture of human movement (Herrmann et al., 2015). For the implementation of the MOBAK approach in Luxembourg (MOBAK-LUX), we developed test instruments for preschoolers and for first, third and fifth graders (e.g., Scheuer, 2016). The main purpose of MOBAK-LUX is the use by teachers for pedagogical diagnosis. The test instruments allow to establish a motor competence profile for each student. In terms of educational monitoring, another goal of MOBAK-LUX is to regularly assess student performance against the background of educational standards set in the PE curricula.

Method

All four test instruments consist of items in the four test dimensions "locomotion", "object control", "moving in water" and "object locomotion". Each test item comprises two levels of difficulty: basic level and advanced level.

Results

The results of the 2020 surveys indicate that a considerable proportion of students in all tested grades showed support needs in at least one of the four areas of competence: 52.0% of preschoolers, 46.7% of the first graders, 29.5% of the third graders and 43.8% of the fifth graders.

Discussion

In recent years, the increasing interest by schools in MOBAK-LUX shows that the implementation of competence-oriented test tasks has found acceptance amongst teachers. Thus, the MOBAK-LUX test instruments should support teachers to identify students with support needs in certain areas of motor competence.

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Can Teacher Qualifications and the Amount of Physical Education Explain Differences in Basic Motor Competencies Among Primary School Children?

MARINA WÄLTI (UNIVERSITIES OF BASEL), LUCAS SCHOLE (UNIVERSITY OF HAMBURG), JEFFREY SALLEN (UNIVERSITY OF POTSDAM), ERIN GERLACH (UNIVERSITY OF HAMBURG), UWE PÜHSE (UNIVERSITIES OF BASEL) & CHRISTIAN HERRMANN (ZURICH UNIVERSITY OF TEACHER EDUCATION)

Introduction

Basic motor competencies (BMC) are a key learning goal of physical education (PE). Research shows that BMC levels between countries differ but associations to individual factors are similar (Wälti et al., 2022). It is yet unknown which factors on class level determine the level of BMC (Helmke, 2021) and if they differ between first/second and third/fourth year of primary school.

Method

We assessed BMC in 6773 6- to 10-year-old children using the MOBAK-1-4 (Herrmann, 2018) and structural factors (PE teacher qualification, amount of PE) in 332 teachers from twelve European countries. We conducted multilevel analyses corrected for children's age, sex, and region of assessment.

Discussion

Variations in PE teacher's qualifications and structural conditions of PE in the assessed countries as well as different associations of those variables with BMC may give rise for discussions at the educational policy level.

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MOBAK Assessment in Primary Schools in Frankfurt, Germany: The Program "Schoolkids in Motion"

CHRISTOPHER HEIM, FABIENNE ENNIGKEIT & JASMIN CZOGALLA (GOETHE UNIVERSITY FRANKFURT AM MAIN)

Introduction

Within the program "Schoolkids in Motion", the city of Frankfurt am Main aims to further enhance cooperation between elementary schools and sports clubs in order to encourage children's lasting club sports activities. The program includes a sports and motor skills test for first graders using – amongst other items – the MOBAK (basic motor competencies) test battery (Herrmann, 2018). Since the program was launched in 2014, approximately 1,200 to 1,600 children from around 30 different elementary schools in Frankfurt have been tested each year.

Method

In the presentation, we will give an overview of the content, implementation and evaluation of this test, as well as the challenges associated with its implementation. The MOBAK tests are conducted by students trained by university staff. All children get a certificate and the children's test results are then used as a door opener to make parents aware of the activities offered by local sports clubs. We will illustrate how the cooperation between the Sportkreis Frankfurt (the umbrella organisation of all sports clubs in Frankfurt), the Goethe University Frankfurt and the developers of the MOBAK test battery leads to synergistic effects for all partners.

Results and Discussion

We will also show how such a regularly conducted test with large samples can form the basis for accompanying scientific research. For example, data from the "Schoolkids in motion" project contributed to the generation of norm values for the MOBAK-1 and MOBAK-3 tests (Herrmann, 2018). Also, our data helped to confirm correlates of basic motor competencies found in previous studies (Herrmann et al., 2019), e.g., effects of sex and BMI. Another example is the association between actual and parent-assessed motor competencies (Ennigkeit et al., 2019). Correlations were low to moderate, indicating that parental report may be considered as a screening instrument, but cannot substitute objective assessment on an individual level.

References

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Basic Motor Competences – Promotion and Intervention Concepts

CHAIR OF THE SYMPOSIUM: SANDRA HECK (UNIVERSITY OF LUXEMBOURG)

Introduction

Basic motor competences equip children with the necessary foundation to actively participate in the diversity of movement culture. In the frame of an increasingly evidence-based educational evaluation format, they mirror a shift to output orientation, to school effectivity research and thereby, regarding physical education, to a competence-oriented approach (Gogoll, 2014; Neumann, 2013).

Whereas it remains important to monitor the status quo of basic motor competences through regular testing (Hermann et al, 2015), their promotion and the conduction of intervention studies supports to ensure the regular implementation of competence-oriented tasks in physical education classes. In this context, the question how teachers who teach physical education at the kindergarten and primary level can be best supported in their competence-oriented lesson planning remains in the core of interest.

Discussion

Therefore, the present symposium aims to give insights into practical ways to promote the development of basic motor competences in learning settings. While Ferrari, Lüthy, Kühnis, Steinmann & Herrmann focus on the promotion of basic motor skills in kindergarten age and Niederkofler on 2nd and 4th grade, the contribution of Heck, Adamakis & Scheuer embraces a concept adaptable for the whole span of kindergarten and primary school age. More concretely, the contributing presenters aim to show that diverse possibilities for the development of basic motor competences in children exist. They can be supported via the creation of learning tasks (cp. the presentations of Ferrari, Lüthy, Kühnis, Steinmann & Herrmann) or be embedded in a wider, competence-oriented, individual, and digital support concept (Heck, Adamakis & Scheuer). A concrete example of a teaching program and its effects on the development of children's basic motor competencies further allows to exemplary prove effectiveness (cp. the presentation of Niederkofler). In the light of the presented contents, all contributions shall finally lead to an in-depth discussion of the sense and meaningfulness of competence-orientation in physical education in general as well as for a particular review of the presented concepts and studies (cp. discussion and questions/answers part by De Martelaer and Heck).

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Learning Tasks for the Promotion of Basic Motor Skills in Kindergarten

ILARIA FERRARI, PASCALE LÜTHY (ZURICH UNIVERSITY OF TEACHER EDUCATION, SWITZERLAND), JÜRGEN KÜHNIS (SCHWYZ UNIVERSITY OF TEACHER EDUCATION, SWITZERLAND), PATRICIA STEINMANN (SWISS FEDERAL INSTITUTE OF SPORT, MAGGLINGEN, SWITZERLAND) & CHRISTIAN HERRMANN (ZURICH UNIVERSITY OF TEACHER EDUCATION, SWITZERLAND)

Introduction

Competence-oriented learning tasks in kindergarten aim at the acquisition of new knowledge and skills, which can be transferred to new situations or to solve new tasks in PE. For the promotion and further development of children motor skills, learning tasks are necessary to support children independent and creative approaches and enable cooperative exchange and reflection (Kühnis et al., 2022). The tasks build on the children knowledge, allow a variety of possible solutions and offer the opportunity for motor and cognitive differentiation.

Method

In this project, which is funded by Health Promotion Switzerland, several competence-oriented learning tasks are developed based on theory in accordance with the sports curriculum (Lehrplan 21, 2017) and tested in different classes. The tasks are allocated in the competence areas "gymnastics", "running-jumping-throwing", "playing", "sliding-rolling-riding" and "dancing".

Results

A common delivery model was developed and the quality criteria of the learning tasks were defined. At least five tasks per competence area were developed and partly tested.

Discussion

The presentation will contain the theoretical background, the quality criterias and some tasks. In the future, the learning tasks will be used in an intervention study to measure a possible influence on the development of the children basic motor skills.

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Basic Motor Competencies in Primary School – A Competence-Oriented, Individualized, and Digital Support Concept

SANDRA HECK, MANOLIS ADAMAKIS & CLAUDE SCHEUER (UNIVERSITY OF LUXEMBOURG)

Introduction

Basic Motor Competencies (BMC) are a prerequisite for every child to participate in the culture of movement, play and sport (Herrmann et al., 2015). Testing these competencies in physical education allows for the creation of a motor competency profile that offers insights into the students' strengths and weaknesses. However, more evidence of BMC improvement in a class or in individual children is needed. In addition, certain strengths and/or weaknesses that have already been identified should be addressed in a more targeted way. Therefore, the BMC Digital Promotion (BMC-EU DigPro) project aims to support teachers who teach physical education at primary level in designing the content and delivery methods of their future lessons.

Method

By placing competence-orientation, individualization, and digitalization in the core of the developed concept, concrete learning tasks are created. The developed learning tasks are organized according to the MOBAK test categories, divided into competence areas (i.e., self-movement, object-movement, object-locomotion and moving in water) and further into related different basic motor qualifications (e.g., balancing). For all learning tasks, variations are provided which are further differentiated into the areas of skills, volition, and knowledge (Gogoll, 2014; Neumann, 2013). Developed tasks will be made available in the form of a freeware mobile application.

Discussion

The application is supposed to foster pupils' development of different directions of competence and to allow teachers to focus their teaching. They will be supported to compile their own competence-oriented lessons and/or lesson series adapted to their choices and based on the individual requirements of their pupils.

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Promotion of Basic Motor Competencies Through Students' Ability, Knowledge, and Willingness. Effects of an 8-Week School-Based Teaching Program in 2nd and 4th Grade.

BENJAMIN NIEDERKOFLER (FREE UNIVERSITY OF BOZEN-BOLZANO)

Introduction

As soon as children want to participate in the culture of movement and sports, they need basic motor competencies (BMC; Herrmann, 2018). This is one of the reasons why the acquisition of BMC in physical education is a core objective in primary school curricula. However, a considerable part of European students does not develop sufficient BMC during primary school years (e.g., Wälti et al., 2022). Interventions that allow conclusions about the design of school-based programs to promote BMC are needed. Therefore, the aim of this study is to examine the effects of an 8-week competence-based teaching program on 2nd, and 4th grade students' BMC. Aligned with German Kompetenz paradigm (Klieme et al., 2008), the program targeted students' self-regulation (willingness) while they motor-actively (ability), and cognitive-reflexively (knowledge) engage with their BMC: first in movement-games and then in movement-tasks at various difficulties with self-assessment forms. It was hypothesized that the program with competence-oriented learning activities would better promote the development of BMC than a regular content-oriented physical education.

Method

Eight 2nd (n_{IG}=71, n_{CG}=56) and eight 4th grade (n_{IG}=65, n_{CG}=51) classes were randomly assigned to an intervention and control group. BMC were tested pre-, post-, and follow-up intervention with the MOBAK-1-2- and MOBAK-3-4-Test (Herrmann, 2018). RM-ANOVAs were conducted for Overall-Competence (OC), Object-Movement (OM), and Self-Movement (SM) in both grades.

Results

Strong time effects and small to moderate time x group interaction effects were revealed for OC, OM, and SM. The interaction effect for OM, however, was observed only in 2nd grade.

Discussion

The results suggest that primary school physical education can promote BMC better with a competence-oriented program than with a content-guided program. Nevertheless, the lack of interaction effect on OM in the 4th grade shows, that these effects are not general.

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MiniMovers - Empowering Parents to Support their Children's Physical Development

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Introduction

Parents are key influencers of children's physical development; however, few interventions target the home environment (Stevenson et al., 2022). Combining motor development theory with creativity expertise, the MiniMovers (MM) APP enables parents to support their children's motor competence (MC) with developmentally appropriate activities and equipment. This pilot study examined the effectiveness of an 8-week MM APP programme on children's MC and family's experiences.

Method

Families participated in an 8-week MM pilot programme. Eight children (pre-test age: 21-79 months, MM level: Mini, Mighty, Mega) performed pre- and posttests evaluating 9 MC tasks (run, underarm (UA) and overarm (OA) throw, catch, kick, long and vertical jump, 1- and 2-legged balance). Kinematic data of the 9 tasks were captured using the Simi Motion system, and kinetic data using an HUR force platform. Pre-and post TGMD peformance criteria and stages for run, jump, catch, throw, and kick were evalauted. Qualitative data consisted of interviews with parents (n=8).

Results

Significant pre-posttest changes ($p<.05$) were found in: run speed, throw distance, jump distance, run TGMD & stage, OA throw TGMD, UA throw TGMD, catch stage, kick TGMD and stage, and long jump TGMD. Qualitative themes were found around: (1) high levels of enjoyment in engaging in the MM activities by both the child and parent; (2) parents noted the increased independence of their child in selecting and organising the activities; and (3) parents reported their knowledge improved and subsequently their ability to identify their child's progress and success in performing the MM tasks.

Discussion

The is paucity of literature around parent's ability to promote their child's MC yet we know that parents are the primary role models and gatekeepers of young children's physical development. This pilot study demonstrates the promise of the MM APP programme to empower parents to support their children's physical development. We recognize the small N of this pilot study but the significant findings across multiple

skills and measures of MC provide a robust measure of the impact of the MM's APP on these participants. Future research needs larger scale research to evaluate the MM's APP as this is an ecologically valid and accessible approach to promoting MC in young children in a family environment.

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Footie Families - Supporting Preschool Children's Physical Development and Family Physical Activity in Community Settings in Wales

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Introduction

Early childhood is a critical window of opportunity to develop physical competence and support physical activity (PA). Parents/carers are principal gatekeepers for children's PA in the early years (Rhodes & Lim, 2018). Much of the early years' literature is focused on motor skill interventions with little literature involving parent engagement in physical development. This study evaluated Footie Families, a family motor skill programme in community settings in Wales to improve preschool children's motor competence and influence family PA habits.

Method

This study uses quantitative methods to assess the impact of an 8-week programme of Footie Families. The Peabody Developmental motor scales 2nd edition (n=22) and the Athletic Skills Track (AST) an age-appropriate obstacle course product motor competence tool (n=32), were used to evaluate motor competence. A co-activity questionnaire accounted for parent-child co-participation in PA measuring frequency of various appropriate activities.

Results

The pre-post design demonstrated significant change over time for children's motor scores and parents reported significantly higher scores on the co-activity questionnaire following the intervention. At pre-test, 64% of children were categorised as below average or poor in their motor development according to the PDMS-2 tool; yet following the programme this decreased to 32% and the remaining 68% were average or above in their motor development.

Discussion

The theoretically underpinned, coach led programme with direct parental involvement contributed to improvements in children's motor competence including three separate categories: stability, locomotor, and object control. The programme also supported parent engagement and co-participation in PA. Parents are key role models for their children, and with parents actively involved, observational learning happens as children mimic parent movement. A limiting factor to this study was lack of a control group and future research could explore the extent to which parent engagement is supportive of the improvements in motor skills.

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Parents' Perspectives of Pre-school Children's Physical Activity Behaviours and the Influence of Introducing Developmentally Appropriate Equipment and Activities into the Home.

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Introduction

Early childhood is a key stage in a child's life to nurture healthy, active behaviours and acquire sufficient motor skills to enhance physical competence and positively influence future physical activity (Agard et al., 2021; Burdette & Whitaker, 2005). Parents are the gatekeepers of a preschooler's PA, acting as primary socialization agents and young children rely on them for PA opportunities.

Method

Interviews (n=24) were recorded in two Phases, with fathers and mothers of at least one preschool child living in the UK. Phase I was on the general topic of preschool PA, Phase II was conducted two weeks after parents received an age-appropriate equipment resource. Data was transcribed, coded, and thematically analysed using qualitative methods, applying McLeroy's socio-ecological model (SEM) to guide interpretation (1988).

Results

Several themes from the model had an impact on preschool PA according to parents, including individual characteristics and position as a sibling at the intrapersonal level, parental behaviours, beliefs, understanding and role modelling at the interpersonal level, home and nursery environments including access, logistics, structure and support and at the community and policy levels, education, communication and most parents acknowledged they knew little about and hadn't considered the topic of preschool PA let alone key motor skills for this age group.

Discussion

Factors influencing preschoolers' active behaviours are multifaceted with parents playing a pivotal role, however a child's temperament, position as a sibling, environment at home and nursery are also crucial constructs within the SEM and warrant further investigation. Parents don't know enough about preschool PA and development to instruct on motor skills or equip, support and structure their home environments appropriately. Targeting and educating both mothers and fathers is relevant as their joint perspectives could inform health promotion strategies.

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Child, Family, and Environmental Level Predictors of Physical Activity Parenting: A Three-Year Longitudinal Study

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Introduction

Physical activity parenting (PAP), i.e., behavioural strategies employed by parents to socialise children into a physically active lifestyle, has shown to be across studies a correlate of children's physical activity (PA). We examined predictors of PA related perceptions across children's transitional period from early childhood education and care to primary school.

Method

At age of 3-7 years (T1), child (8), family (7), and environmental (4) level variables were assessed by parental questionnaires and measurements conducted for children. At age of 6-11 years (T2), PAP was assessed by children (N=675; M age=8.76 years) for parental structure, autonomy support, and involvement using a PAP questionnaire for Children (PAP-C) (Laukkanen et al., 2021), and by parents for parental structure using a culturally translated PAP questionnaire. Structural equation modelling was used for statistical analyses (Mplus statistical package).

Results

Child-reported parental structure for PA at T2 was significantly predicted by child's motor skills, temperament, and parental education at T1; autonomy support by motor skills, parental education, and type of residence; and involvement by parental education and exercise frequency. Parent-reported structure at T2 was predicted by child's use of sport facilities, age, outdoor time, temperament, enjoyment of sport, birth order, nuclear family, and parental exercise frequency at T1. The models predicted significantly, and altogether 11% and 34% of the child- and parent-reported PA, respectively.

Discussion

A range of child and family level variables assessed at early childhood predicted children's and parents' perceptions of PAP later in middle childhood. The findings provide understanding on which PA promotion in family context should focus on.

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The Role of Early Childhood's Parental Support and Sport Club Participation to Actual and Perceived Motor Competence of 7–10-Year-Old Children: A Three-Year Longitudinal Study

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Introduction

Children having both high perceived motor competence (PMC) and actual motor competence (AMC) are more likely to be more physically active (De Meester et al., 2016). Also, sport club participation has showed to have an association to better coordination skills (Vandorpe et al., 2012). Therefore, this study examined parental support and sport club participation (SCP) as predictors of children´s ACM and PMC between early and middle childhood.

Method

In the early childhood (T1: M age=5.6 years; range 3-7-years) parental support and SCP were assessed using validated parental questionnaires. In both, early childhood, and around three years later, in the middle childhood (T2: M age=8.7 years), PMC and AMC were assessed using a validated PMSC pictorial scale and motor skill test TGMD-3-test, respectively. Linear regression analyses (SPSS) were performed and adjusted for T2-T1 time difference.

Results

PMC at T2 was significantly predicted by PMC, AMC, and parental support at T1. AMC at T2 was predicted by AMC and PMC at T1. Models explained altogether 22–29% of the AMC and PMC.

Discussion

It was found that greater parental support for physical activity predicts better PMC but not AMC. However, sport club participation in early childhood may not be necessity for development of AMC and PMC. The factors that best predict AMC and PMC requires further research.

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Levels of Physical Activity and Physical Fitness in School Children

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Introduction

The low levels of physical activity (PA) among children are a current issue. This study aimed to measure the physical fitness of children aged 11-12 and their engagement in PA.

Method

A total of 91 students (50 males, 41 females) were measured to obtain their physical fitness through Alpha-Fitness battery, whereas PA levels were obtained through the Spanish version of PAQ-C (Manchola-González et al., 2017). Descriptive statistical analyses were run.

Results

On the one hand, the descriptive results revealed the following mean scores: BMI=19.02±3.45; Handgrip strength=16.45±3.35; Standing long jump=136.32±50,46; 4x10 Shuttle run test=14.20±1.55; 20m shuttle run test=3.1±1.7. On the other hand, the PAC-Q showed a medium PA level (i.e., 3.00±0.67 points out of 5.00).

Discussion

Based on these results, it is recommended to keep or increase such levels within the school context and promote PA through several strategies such as active breaks, since there is some evidence of their positive effects on physical fitness as well as on cognitive performance (Masini et al., 2020).

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Affordances for Motor Games and Play in Outdoor Environments

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Introduction

The natural environment has traditionally been a site for play and physical activity for many children, and children a generation ago had access to wildlands and used them for exploring and master challenging landscapes and unforeseen situations. A recent review study by Johnston et al. (2022) indicated that nature based Early Childhood Education afforded higher intensity of physical activity and challenging play, which may improve motor competence domains. However, the children's environments and facilities for play are changing, and the opportunities for free play in stimulating environments are declining. Therefore, the present study aimed at: (1) Exemplifying facilities for physical activities in different outdoor environments and the impact on motor development in children; (2) Discuss the importance of outdoor environments for motor learning in young children.

Method

The study was based on a Dynamic Approach (Fjørtoft & Larsen, 2022) and the theory of Affordances (Gibson, 1986) together with the perspectives of place responsiveness (Manion & Lynch, 2016).

Results

The didactic approach to motor learning confirmed the context between the natural landscape constituted by topography and vegetation affording physical activity expressed as the basic motor skills like walking, running, climbing, crawling, hanging, throwing etc. These skills were performed through free play and motor games with open-ended tasks, including problem solving and exploring approaches. The actualized affordances for physical activity promoted motor development in the children, leading to improved motor skills and motor abilities like balance, coordination, power, speed, agility, and endurance.

Discussion

The physical and outdoor environment seem to play a vital role in the learning of motor skills in children and more studies are required to describe and document the vital importance of the contexts for motor learning. Strategies for motor play and games in varied outdoor environments should be encouraged and developed to the best of children's fundamental motor development. Previous studies within landscape architecture and planning have documented the value of green

environments for children's play and learning. Hopefully, such perspectives will play a vital role for future playgrounds and affordances for outdoor play.

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Physical Activity Levels in Preschool Children During Winter & Summer

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Introduction

National and international studies indicate that three- to five-year-old children do not reach the moderate-to-vigorous physical activity (MVPA) recommendations of minimum 60 minutes per day. Physical activity (PA) during childhood has a positive effect on cardiometabolic risk and other health markers (WHO, 2020, Poitras et al., 2016), which tracks into adulthood (Lopez et al. 2012). The aim of this study was to measure if there was a different in physical activity levels in preschool children aged three to five years during a period in winter and summer.

Method

Physical activity levels were monitored using the Actigraph GT3X from Monday to Wednesday, between 07.30 am and 4.30 pm. The primary physical activity outcome was time spent at different activity intensities. We defined (MVPA) as all activity above 2000 counts/min.

Results

Sixty-four percent of the children reach the recommendations of MVPA of 60 minutes per day in the winter (n=66), and 50 % in the summer (n=54). The activity level showed differences between the preschools, and the boys spend more minutes in MVPA than the girls do in both periods.

Discussion

The study shows that it can be difficult to achieve adequate physical activity levels in accordance with the recommendations for MVPA. The measurements show that more boys had higher activity level than the girls did. The study shows relatively low activity levels among some children. The reason may be that kindergartens do not have good routines for facilitating enough physical activity. More research should be done on children's activity patterns and activity levels in kindergarten, especially what promotes and prevents activity.

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Seasonal Variations in Physical Activity among Elementary School Children in Arctic Regions

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Introduction

Physical activity (PA) during childhood has a positive effect on cardiometabolic risk and other health markers (Poitras et al., 2016; WHO, 2020), which tracks into adulthood (Lopes et al., 2012). It is recommended that children spend an average of ≥60 min·day-^{1} in moderate-to-vigorous physical activity (MVPA) (WHO, 2020). The aim of this research was to describe PA across Polar Night (PN) compared to the Polar Day (PD) among elementary school children in the Arctic region of Norway. We hypothesized that children's PA is level is larger in the summer than in the winter in the Arctic region of Norway.

Method

Hundred and seventy-eight schoolchildren from 1st, 3rd, 5thand 7th grade (aged 5–12 years) participated in the study. Physical activity was measured for seven consecutive days with an ActiGraph GT3X-BT accelerometer. PA is expressed as total PA (counts per minute (cpm)) and moderate to- vigorous activity (MVPA) (min·day^{-1}).

Results

During PN, 51% of boys and 33% of girls, met the PA recommendations, whereas 36% of boys and 34% of girls met the recommendations during PD. Time spent doing MVPA did not differ between the two seasons (all p≥.073). Children in all grades accumulated more time doing MVPA during weekdays compared with weekend days during PN (p<.04) and PD (p<.001). Overall, the children accumulated 613 (SD=154) cpm during PN, which was lower than during PD (704 (SD=269) cpm; p<.001). However, in stratified analyses on grade and sex, only girls in 1st [137 (SD=111) cpm] and 3rd grade [190 (SD=95) cpm] performed more total PA during PD than PN (both p<.001).

Discussion

A larger proportion of boys than girls met the PA recommendations during PN compared with PD. However, our findings did not show any clear seasonal variation for MVPA or total PA among children in the Arctic region of Norway, except for some differences within sexes in different grades. This study indicates that interventions

aimed at increasing PA should be implemented throughout the year in the Arctic region, both during school hours and leisure time.

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What Happens to Countryside Children's Motor Competence within the Transition from ECEC to School?

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Introduction

Previous studies have reported that motor competence (MC) and physical activity (PA) can differ in children living in the different living environments (e.g., urban or rural areas) (Niemistö et al., 2020; Drenowatz et al., 2020). We studied residential density-based changes in MC and participation in organized sports in Finnish children at early childhood education and care (ECEC) (Skilled Kids: T1; M age=5.53 years; girls n=280; 50%) and three years later at school (Active Family: T2; M age=8.75 years).

Method

In total, 560 children were recruited via cluster-randomised ECEC (n=37) in 2015-2016 (T1) and followed-up in 2018-2020 (T2). Residential densities were determined as metropolitan area, cities, rural areas, and countryside. MC was measured with Test of Gross Motor Development (TGMD-3; Ulrich, 2019) at T1 and with a shortened TGMD-3 at T2. Participation in organized sports was queried via parental questionnaire.

Results

During the ECEC (T1), children living on the countryside had high MC compared to others. With time, all children gained better MC and participated more in organized sports. However, children living on the countryside gained MC and increased participation in organized sports the least, resulting to the weakest MC during the school years (T2).

Discussion

It seems that participation in organised sports is important for developing good MC, especially during the school years. Therefore, equal opportunities for participation in organized sports need to be promoted, especially in the countryside.

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Physical Activity in Girls and Boys during Transition from Kindergarten to 1st Grade: Findings from the Swiss BeKiPri Study.

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Introduction

PA of young children is linked to a higher physical and mental health (Carson et al., 2016). Transition from kindergarten to 1st grade is a critical stage where PA of children declines (Crane et al., 2018). This can be seen especially in girls (Adler & Gramespacher, 2021). Currently, changes of PA within the transition process to primary school are rarely examined. The central question of the BeKiPri study asks for changes in accelerometer-measured PA of children, before, while and after transition from kindergarten to 1st grade. The study also focusses on parental estimations and covariates.

Method

In the longitudinal BeKiPri study with four data collection points, accelerometer data were collected from a 1st cohort of "last year KG children" in spring 2021 (t_1), after their transition to 1st grade in autumn 2021 (t_2), at the end of 1st grade in spring 2022 (t_3) (in autumn 2022: 2nd grade, t_4). Children (n=40; M age=5.6 years at baseline) wore an accelerometer (GENEActive, ActivInsights Ltd., UK) for seven consecutive days (minimum: ten hours/day, dominant wrist). For data concerning internally and externally personal traits, parents and teachers were interviewed. A 2nd cohort was examined in spring 2022 (n=34) and will be tracked (t_4) to verify the results of the 1st cohort. Data was reduced by GNU Octave 6.4. and analyzed by SPSS 26.

Results and discussion

The presentation provides state of the art and first findings of t_1, t_2 and t_3. By this, we look on extent and intensity of activity behavior during transition, especially of girls. Valid data is available from a sub-sample of n=15 children (M age=5.8 years at baseline). We like to discuss researchers' current expectations on PA in children while coping with transition to 1st grade of primary school as well as strategies (for teachers and parents) to support children to cope the transition time in a physically active way.

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Are Children Less Involved in Health-Related Behaviors? Trends in Children's Screen Time and Outdoor Play Between 2014 and 2022 (Including pre-, mid- and post-Covid-19)

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Introduction

Studies show that children's motor skills and physical fitness are declining (Masanovic et al., 2020; Mombarg et al., 2021). These negative developments have been attributed to children spending less time on health-related behaviors. Instead of being physical active and play outdoor, they are spending more time behind a screen. Moreover, Covid-19 seems to have strengthened this negative trend. This study examines trends in children's screen time and outdoor play between 2014-2022. As part of our data collection took place during Covid-19, we also provide insight into differences in health-related behaviors during the pre and post Covid-19 period.

Method

Data was collected via yearly questionnaires among pupils grade 3 to 6 (M age=10.09±1.27 years). A total of 7745 questionnaires spread over 8 years were included. Multivariate Analysis of Covariance (MANCOVA; sex and age as covariate) were performed to examine differences in screen time and outdoor play between the years. Special attention was paid to comparisons between pre (2014-2020), mid (2020-2021) and post Covid-19 (2021-2022).

Results

Mean screen time increased over years from 8.9% of the children who watched a screen ≥3 h/day in 2014 till 28.9% in 2022. Comparing pre-post Covid-19, MANCOVA showed significant less screen time in years before Covid-19 and significant more during Covid-19 (2021) compared with the year after Covid-19 (2022). The amount of children's outdoor play decreased from 40% of the children who played outdoor every day in 2014 till 36.7% in 2022. A significant difference was found between 2017 (pre-Covid-19; more outdoor play) and 2022 (post-Covid-19).

Discussion

Altogether, children increased their amount of screen time and decreased their hours of outdoor play during the past years. Although these trends seem to have peaked during Covid-19, they slowly seem to be returning to pre-Covid levels.

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Physical Activity Intention and Attendance Behaviour in Finnish Youth with Cerebral Palsy - Results from a Physical Activity Intervention: An Application of the Theory of Planned Behaviour

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Introduction

Physical activity is associated with better health in individuals with cerebral palsy (CP) (Wright et al., 2019). Numerous physical activity interventions have been designed to promote physical activity among youth with CP (Stribling et al., 2017). No previous studies have explored the factors contributing to the intention to participate and predicting attendance behaviour for these interventions. Using theory of planned behaviour (TPB) (Azjen, 1991), this study explored the prediction of physical activity intention and attendance behaviour in a physical activity intervention aiming to promote physical activity in a sample of young individuals with CP.

Method

Males with CP aged 9-21y were asked to complete a survey assessing attitude, subjective norms, perceived behavioural control and, intentions towards a physical activity intervention. Participants had no cognitive impairments to understand and follow instructions, were categorized into GMFCS I-III, did not receive any specific lower limbs' medical treatment, or did not participate in a strength training program for lower limbs within six months before the study.

Results

Subjective norms were found to be the only statistically significant predictor of intention, accounting for 83% of variance in intention.

Discussion

The findings of this study support the use of the TPB to understand the factors influencing intention in physical activity interventions for young people with CP.

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Moderate and Vigorous Physical Activity in Organized versus Traditional Recess in Elementary Schools

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Introduction

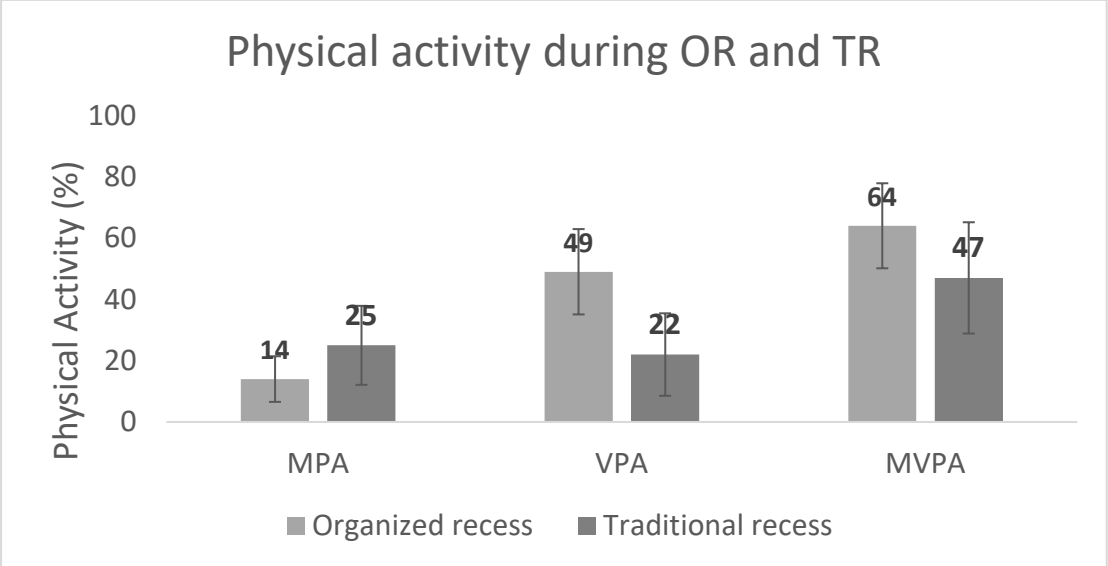
The WHO states that children should engage in at least 60 minutes of moderate-to-vigorous physical activity (MVPA) on a daily basis (WHO, 2020). School based interventions, like the CSPAP-model, are used to enable all children to achieve this guideline. The purpose of this study is to investigate physical activity (MPA, VPA & MVPA) in organized (which is connected to physical education) versus traditional recess.

Method

In seven elementary schools MVPA in organized parkour recess (10 sessions) and traditional recess (14 sessions) were collected through systematic observation. For organized recess (148 children; 61 girls; 7-9 years) data was collected through video coding, while during traditional recess 59 children (27 girls) were coded live.

Results

MVPA during organized recess was significantly higher (64%) than during traditional recess (47%; p<.001). MPA was significantly lower (14%) during organized recess compared to traditional recess (25%; p<.001), while VPA was significantly higher (49% vs 22%; p<.001).



Discussion

Organized recess is a great opportunity for children to engage in MVPA, with a special focus on vigorous physical activity which leads to different health outcomes compared to moderate physical activity.

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Longitudinal Relationship Between (un)Structured Activities and Overall Physical Activity in 3–10 Years Finnish Children

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Introduction

Time spent outdoor was associated with higher physical activity (PA) and lower sedentary time in children (Larouche et al., 2019). The aim was to find out how outdoor time and participation in sports are associated with overall physical activity in early childhood (T1) and in school age (T2).

Method

The participants (N=516) were Finnish, 3-8 years old at T1 (M age=5.58 years), and 7-11 years old at T2 (M age=8.81 years). Participation in sports and outdoor time were queried via parental questionnaire at T1. PA was measured with accelerometer at T2. Different groups were compared using one-way ANOVA in SPSS.

Results

We found that generally light PA and MVPA at T2 did not significantly differ according to participation in sport at T1, but time spent sedentary differed ($p=0.029$). However, the outdoor time (T1) was positively associated with PA (T2). Children gained more MVPA ($p<0.001$) and had less sedentary time ($p=0.011$) at T2 when they spent more time outdoors (T1). Some gender and age group differences emerged.

Discussion

To conclude, it seems that especially time spent outdoors during the early years enhances Finnish children's overall (MV)PA later.

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Identifying Motor Competence of 4-6-Years Old Children Using Product- and Process-Oriented Assessment Tools: Research Gains having Both

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Introduction

Findings of motor competence (MC) vary according to assessment tool used (Logan et al., 2018). Therefore, the aim of this study was to explore differences and correlations of two motor skills (static balance, horizontal jump) assessed with product- and process-oriented measures.

Method

Participants (N=677; M age=5.59 years) were 4-6-years old children (girls n=372; 55%) who participated in JOYPAM-research in 2020-2021. The gender differences were tested by t-test and chi squared tests, respectively. The associations of process- and product-oriented measures were quantified by Pearson's product moment correlation coefficients for each age-gender class. The differences of associations between age-gender classes were tested based on Fisher's z transformed correlations.

Results

Results showed that in static balance, all skill components did significantly explain the result in product assessment regardless of child's gender or age. In horizontal jump, two skill components did not significantly explain the length of the jump, however, gender differences occurred; girls were better in skill components (process), but boys jumped further (product). All the correlations between the process and product measures, regardless of the age, were stronger in boys than in girls.

Discussion

In the future, it is suggested to use both product- and process-oriented assessment tools to give more precise information about children's MC. When only one aspect of MC is measured, there is a risk of drawing too strong conclusions of differences in MC, especially regarding to gender.

References

Logan, S., Ross, S., Chee, K., Stodden, D., & Robinson, L. (2018). Fundamental motor skills: A systematic review of terminology. Journal of Sports Sciences, 36(7), 781–796.

Development of Adolescents' Moderate-to-Vigorous Physical Activity and Cardiorespiratory Fitness in Motor Competence Profiles over Four Years.

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Introduction

Today majority of adolescents do not meet the current physical activity (PA) recommendations and thus do not have adequate levels of cardiorespiratory fitness, which contributes to their cardiometabolic health (Lang et al., 2018). Motor competence is the foundation for physically active lifestyle, but not all children reach the same level of motor competence (Coppens et al., 2019). Thus, this study aimed to identify subgroups of children based on their motor competence and to study developmental trajectories of PA and cardiorespiratory fitness in each subgroup over four years.

Method

In this follow-up study (N=1147; M age at baseline=11.27±0.32) the measurements of motor competence, device-measured moderate-to-vigorous PA (MVPA) and cardiorespiratory fitness were collected annually over five consecutive years. Latent profile analysis was used to identify motor competence profiles and latent growth curve modeling to study developmental trajectories of MVPA and cardiorespiratory fitness in each profile over four years.

Results

Three different motor competence profiles were identified: low, moderate, and high. The high-profile had the highest level of MVPA, but it also showed a significant decrease in MVPA over time. All profiles showed a significant increase in cardiorespiratory fitness over time. However, the rate of change was largest in the high-profile.

Discussion

This study highlights the role of motor competence on the level of MVPA and on the development of cardiorespiratory fitness. Although previous studies have shown that children with poor motor competence or low fitness are unlikely to reach their peers

with age, this study reveals increasing polarization of cardiorespiratory fitness in adolescents with different levels of motor competence.

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Locomotor and Object Control Skills during Early Years Predict Moderate to Vigorous Physical Activity in 7–11-Year-Old Girls and Boys in Different Ways: A 3-Year Longitudinal Study

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Introduction

Evidence of the longitudinal relationship between motor competence and physical activity is deficient in childhood (Barnett et al., 2021). We studied how motor competence (MC), perceived motor competence (PMC), and body mass index (BMI) at 4-7 years of age (T1) predict moderate to vigorous physical activity (MVPA) in Finnish girls (n=229) and boys (n=213) three years later at 7-11 years of age (T2).

Method

MC was assessed with the Test of Gross Motor Development 3rd edition (TGMD-3) and PMC was based on the pictorial scale of Perceived Movement Skill Competence (PMSC). BMI-for-age was used. MVPA was determined using accelerometers and appropriate cut-off points. Age and time between measurements (T1–T2) were used as covariates in the linear regression analysis.

Results

The statistically significant results showed that locomotor skills in girls and object control skills in boys at T1 were associated with MVPA at T2. Age was inversely associated with MVPA in both genders and T1–T2 only in girls. The models explained altogether 12.3% and 8.5% of the variability in MVPA in girls and boys, respectively.

Discussion

MVPA declines in children with age (Farooq et al., 2020). The results of this study indicate that sufficient motor skills may slow down the decline of MVPA with age.

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Physical Literacy in Portugal: Pedagogical and Scientific Path(s)

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Introduction

Worldwide the prevalence of physical inactivity levels is high among youth. Physical literacy (PL) is being recognized in the physical education (PE), sports, and public health agendas for influencing policies and practices changes to promote healthy lifestyles. This work aims to identify the pedagogical and scientific path(s) of PL in Portugal, namely at Faculty of Human Kinetics – University of Lisbon (FMH-UL).

Method

By considering diverse sources of knowledge and information (e.g., scientific papers, communications, didactic materials, books, projects, courses, seminars, …) the authors examined the work developed at FMH-UL through an inductive analysis.

Results

FMH have participated in projects leading to the deepening of the concept, development of self-assessment tools, training, and dissemination materials. PhD studies are being developed with relevant results for the promotion of PL in PE and aquatic contexts. Several scientific papers (Martins, 2021; Mota, 2022; Onofre, 2017) have been published, and a book was developed. Knowledge transfer through initial, postgraduate, advanced, and continuous teacher training have occurred.

Discussion

In recent years several actions have been implemented to promote the development of PL, innovation and the transformation of pedagogical and research practices related to the promotion of PA throughout life. This work can contribute to increasing the effectiveness of promoting active lifestyles.

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Cultural Adaptation of the "Physical Literacy in Children Questionnaire" (PL-C Quest) for the Greek Population: First Steps

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Introduction

Assessment is vital to understand physical literacy (PL) intervention efficacy. The PL-C Quest assesses children's perceived PL through 30 pictorial items classified into four subscales (Barnett et al., 2022a,b). The aim of this study was to adapt the PL-C Quest for Greek children (4-8 years) and gather preliminary psychometric evidence.

Method

An expert panel translated the PL-C Quest into Greek (PL-C-Quest-Gr) and its face validity was tested with 25 teachers and 15 children. The PL-C-Quest-Gr was administered to 125 children (M age=6.33±1.30 years), with 74 assessed twice at one week interval. To examine its internal consistency, the Cronbach's α statistic was calculated.

Results

The Internal consistency of the PL-C-Quest-Gr was supported by the high Cronbach's α value (.80) and the significant correlations between items and total score (r=.24-.59). ICC values for the total and subscale scores provided adequate test-retest reliability evidence (Table 1).

Table 1. *ICC values for total and subscale scores*

Scores	ICC values
Total scale	.83
Physical subscale	.76
Psychological subscale	.73
Social subscale	.66
Cognitive subscale	.70

Discussion

The PL-C-Quest-Gr seems to be a valid and reliable tool to assess the perceived PL of young Greek children. However, further research is needed to examine its construct validity in this population.

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Physical Literacy Development in Elementary School: Construction of an Assessment Tool

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Introduction

Every year, in the Province of Luxembourg, approximately 200 schools, spread over the entire territory of the Province, participate in an assessment fitness campaign. 5,000 pupils aged 10 to 11 years perform a battery of eight fitness tests. This campaign includes different actors like members of the Sports Commission, employees of the Sports Department and physical education (PE) teachers. However, this campaign is only focused on fitness assessment. In recent approaches for assessing factors that lead to a physically active life and sports practice, the concept of physical literacy appears to be a relevant approach (Edwards et al., 2017; Jean De Dieu & Zhou, 2021). Recently, the Wallonia-Brussels Federation introduced the concept of physical literacy in its new curricula and proposed a field called health and security management (IFC, 2022) Currently, the level of physical literacy for pupils aged 10 to 11 years, within the province of Luxembourg is not known and has never been measured. Starting from the fitness tests, this project proposes to build a physical literacy assessment tool, by studying the motor, socio-environmental, cognitive, and psycho-affective competences. This tool will be constructed following expectations and needs of PE teachers and experts.

Discussion

This section describes the first steps of the project. Data of fitness tests between 2004 and 2021 will be analysed. A survey will be conducted to ask PE teachers about the role of the campaign, its strengths, its weaknesses, their implications as PE teachers. Then, exploring teachers' perspectives and perceptions of pupils' physical literacy assessment is a necessary step for ensuring their positioning, interpretations, and the appropriate transfer from research into educational practice. An online questionnaire will be sent to all PE teachers participating in the campaign. Then, interviews will be conducted with a subsample. This mixed-methods research design will be used to obtain quantitative and qualitative results.

Based on these results, a consensus of adaptations will be proposed to experts for reflexions. This stage will allow the emergence of the conditions, contents, and modalities for the implementation of an assessment adapted and accepted by both, experts and PE teachers.

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Connection Between Basic Motor Competencies and Health-Related Quality of Life in Childhood

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Introduction

In the first years of school, children acquire basic motor competencies (BMC). BMC are seen as a central developmental goal in childhood and a prerequisite for participation in the culture of movement and sport. Moreover, BMC are connected with health-related factors, e.g., health related quality of life (HRQoL). The aim of the study is to investigate the relationship between BMC and HRQoL.

Method

The BMC were measured by using the MOBAK-instruments (Herrmann, 2018; Herrmann et al., 2020) in preschool (N=1163; M age=5.7 years, SD=.57) and 1st and 2nd year of primary school (N=880; M age=6.4 years, SD=.58). Moreover, the HRQoL (Ravens-Sieberer, 2016) was assessed by the parents.

Results

The results indicate no connection between BMC and HRQoL in preschool, whereas significant correlations were found in primary school ($r=.16$, $p<.001$). The connection was stronger among girls.

Discussion

The results indicate differences in the relationship between the age groups. Further studies should consider other factors, such as socio-economic status.

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Listening and Responding to Children's Voices in Primary Physical Education

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Introduction

Including children's voices in decision-making is a fundamental educational right. Yet children most often have little substantive say regarding their learning (Parr & Hare, 2020). This is especially true regarding what and how they experience primary physical education (PE) (Iannucci & Parker, 2021) and all-too-often children are left out of decisions about their PE participation. Our research question asked 'How can teachers listen and respond to children's voices in primary physical education?

Method

Within a professional learning community eight primary teachers implemented student voice strategies over a six-month period. Data sources included recordings of collective meetings, and mid-point and final individual interviews with teachers.

Results

That while a learning process for both teachers and children, the findings indicate the value of giving children authentic opportunities to influence their experiences in PE. Including children's voices in PE enhanced all children's enjoyment of and involvement in PE and teachers' commitment to student voice pedagogy was affirmed by children's engagement. The virtual professional development (PD) was valuable and there was a desire for more local contact.

Discussion

The participants in this project were committed to PE and disposed to their own learning. They not only implemented what was shared in the PD sessions but went beyond to develop bespoke strategies for the implementation of voice. Letting students' have voice was unpredictable and at times risky, but they were comfortable enough to let it happen. Resultantly it changed the face of PE to something transformative and meaningful (Fletcher & Ní Chróinín, 2022).

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Storytelling in Movement, Free Play and Traditional Motor Education Contribute Equally to the Development of Preschoolers' Motor Skills

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Introduction

Generalist teachers often struggle to practice motor education with preschool children. Some difficulties may arise from lack of knowledge of appropriate methods and techniques. How much different methods of motor education influence the development of motor skills and executive functions of preschoolers?

Method

Eighty-seven 5-year-old children followed a motor training of 10 sessions, 60 minutes each, once a week. 35 children followed the "Storytelling in Motion" method, 22 "free play" and 29 traditional motor education. Standardized tests were administered before and after the training using: TMC (Leverson et al., 2012), MABC 2 (Henderson et al., 2007), test of physical fitness (Fjørtoft et al., 2011), and day/night test (Gerstadt, 1994).

Results

The results show that the different methods used do not differ from each other, in the development of 5 years old children's motor skills and executive functions.

Discussion

The results show that with the group of preschoolers examined different methods of physical education promoted the development of motor skills. The results can be very useful for preschool teachers, as they invite regular physical activity, using different methodologies.

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Validation of a Tool for Individual Aquatic Risk Management among Children of 6-12 Years (IARM-C)

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Introduction

For an optimal and save participation in aquatic recreation, there is a need to communicate about realistic perceptions of potential dangers. The aim of this study was to validate a tool for Individual Aquatic Risk Management for Children (IARM-C) useful in both research and practice regarding water safety for elementary school children and their families.

Method

The tool was developed and validated in three subsequent phases: (1) selection of relevant aquatic situations with possible risks for children resulting in 10 aquatic situations that were drawn; (2) a pilot study with 22 children to test content (face) validity; and (3) a cross-sectional study with 70 children (6-12 years; 35 girls and 35 boys; M age=8.9±2.0 years) recruited via convenience sampling in different (swimming) schools to test their risk perception, assessment and decision making in these 10 situations. For each of these 10 situations data collection was organised in a one-on-one interview to assist the child in completing the questionnaire.

Results

Six of the 10 pictures resulted in a correct risk perception for >80% of the children. In the open water aquatic risk situations, three pictures scored low: warning flag at sea, dangerous objects, and sandbank in the sea. The IARM-C tool, showing pictures of aquatic risk situations followed by three categories of questions, is a useful instrument for further research and education purposes.

Discussion

This tool is a crucial step forward to ensure lifelong water competent participants in water recreation, starting with educating children and their close social network.

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Reliability of the PSPWC and Relationship with Actual Water Competence

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Introduction

The pictorial scale of perceived water competence (PSPWC) has been recently developed (Morgado et al., 2020). First psychometric studies confirmed good face and construct validity (DePasquale et al., 2021; D'hondt et al., 2021). Reliability and relationship with actual water competence needed to be investigated. It was aim of the present study.

Method

For this research we applied the PSPWC to 124 children aged from 5 to 8. One week after 55 of them repeated the procedure for reliability study while 69 achieved all aquatic tests in a pool in order to investigate relationship between perceived and actual water competence.

Results

The results showed a good reliability of the scale, both at the global level and for each situation. There was no significant difference between the two sessions and the correlation coefficient was high (r=0.80). Relationship between perceived and actual water competence was r=0.65. Overestimation of aquatic competence was low but significant and specific to four situations.

Discussion

These encouraging results contribute to the ongoing validation of the PSPWC. Further researches are needed to confirm the relevance of the PSPWC in all sociodemographic populations.

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The Influence of Motor Competence and Psychosocial Capacities on the Learning of New Challenging Motor Tasks in PE Classes

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Introduction

In primary school one of teachers' most important tasks is to develop children's motor competence. Most PE teachers work in a serial of 3-4 lessons to help children learn and improve (new) motor tasks. The main aim of our study was to determine whether children are able to learn and improve their proficiency in new challenging motor tasks in 3 regular PE lessons, and whether the improvements are associated with children's gross motor competence (GMC) and psychosocial (PS) capacities.

Method

A total of 60 Spanish children aged 8-10 years participated in the study. The KTK3+ and the Scale of Identification of Sport Potential (SISP) adapted to Spanish context were used. The 4-weeks-intervention program consisted of three new activities for children: slackline, juggling and barrel walking. In the first and last class children's GMC was assessed. Repeated MANOVA measures was used to determine children's improvement and whether the improvement was associated with children's GMC and PS proficiency.

Results

On average children improved on each of the three motor tasks. However, the results of the repeated MANOVA showed that GMC and PC was not associated with the improvement in the three motor tasks.

Discussion

In contrast with our results, previous studies showed that GMC and SP are associated with the improvement in motor competence. It is interesting to determine whether children's GMC and PS have long-term effects on motor competence. The intervention program, therefore, must be extended and more longitudinal research is warranted.

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Start(V)aardig: Developing and Testing an 18-week Motor Skill School Intervention for 4-6-Year-Old Children

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Introduction

Decreased levels of fundamental motor skills (FMS) have been observed in young children in several Western countries in the last ten years (Barnett et al., 2016). This is worrisome because FMS are essential for motivation, participation in Physical Education (PE) and lifelong physical activity. It is necessary to develop interventions focusing on young children, because early delays in motor development will lead to lower motor skill proficiency later in life (Clarke & Metcalfe, 2002). Schools have been recognized as an important context for interventions because all children can be reached. As part of the research project 'Start(V)aardig', an 18-week school intervention was developed to stimulate the development of FMS. This study aimed to measure if this intervention led to improvement in FMS in 4-6-year-old children.

Method

In this project, 44 children (M age=4.97±.57 years) from two primary schools in the Netherlands participated. During a pretest, posttest and retention test, motor skills were assessed via the Atletic Skill Track (AST) and the Test of Gross Motor Development (TGMD). Children's body height and weight were measured in gym clothes, without wearing shoes. Repeated measures ANOVA's was used to determine differences between test moments.

Results

There were significant main effects of test moments for the AST [$F(2,68)=14.250$, $p<.001$] and the TGMD [$F(2,136)=8.082$, $p<.001$]. Within the TGMD, object control skills [$F(2,68)=38.928$, $p<.001$] and locomotor skills [$F(2,68)=3.243$, $p<.05$] both showed significant improvements.

Discussion

The first results show that an intervention based on FMS improves the motor skills of 4-6-year-old children. Further statistical analyzes still need to be performed to check the precise development of the individual FMS. Also, the control group didn't have enough participants to compare the results of the intervention group against the control group.

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The Effect of Children's Skill Level on Skill trials in Parkour Physical Education Unit

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Introduction

Physical education is believed to contribute to the development of children's health and active lifestyle in a long term (Hardman et al., 2014). Measuring skill trials can precisely analyze to what extent children learned skills in physical education classes. This study was to investigate the effect of children's skill level on parkour skill trials in physical education

Method

Seven 2nd grade elementary classes comprising 144 children (54 girls) from different schools received a 10-lesson parkour physical education unit. Skill level was decided by their physical education teachers in term of their previous teaching experience on these children. Children's amount of skill trials per minute and successful skill trials were assessed in physical education using systematic observation.

Results

High-skilled children performed more skill trials/minute than low-skilled children in physical education (4.12 vs 3.47; p=.014). Additionally, Higher-skilled children performed significantly more successful parkour skill trials than lower-skilled children (48% vs 40%; p=.013).

Discussion

Higher-skilled children performed more (successful) skill trials compared to lower-skilled children during physical education classes. Future work should investigate how to improve low-skilled children's skill trials in physical education.

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Connecting Recess with Physical Education: The Effect of Prompting on Elementary School Children's Physical Activity and Skill Trials

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Introduction

Regular moderate-to-vigorous physical activity (MVPA) is important in developing a healthy lifestyle. However, in Belgium, only 7% of the six- to nine-year-old children meet the recommendation of 60 min of MVPA per day (Wijtzes et al., 2016). School interventions connecting physical education lessons to organized recess have shown to be succesful (Coolkens et al., 2018; Cheng et al., 2021). The purpose of this study was to investigate the effect of different prompts on children's MVPA and skill trials during organized recess. It is hypotesized that a prompt with a token will lead to more MVPA and skill trials/minute.

Method (if applicable)

14 elementary school children (8 girls, 7-9 years) participated in ten 20-minute organized parkour recess sessions offered during a parkour unit in physical education. Four conditions were implemented in random order during each parkour recess: (A) parkour skills in dyads; (B) supervised free play with encouragement; (C) receiving a token for each 10 parkour skills performed; and (D) asking children to demonstrate what they learned in physical education. MVPA and skill trials were collected through systematic observation.

Results (if applicable)

MVPA and skill trials/minute were significantly ($p<.001$) higher in condition C (75%; 3.37) versus A (63%; 2.24), B (59%; 2.01) & D (66%; 2.53). Overall, there was a significant difference between girls (64%; 2.22) and boys (69%; 2.74) concerning MVPA ($p=.002$) and skill trials/min ($p<.001$). In three conditions (A, B & D) there were no significant differences based on sex for MVPA, however in condition C boys (80%) generated more MVPA than girls (71%; $p<.001$). For skill trials/minute significant differences were found in condition B, C and D with achieving higher values than girls in all those conditions.

Table 1. Moderate-to-Vigorous Physical Activity (MVPA) and Skill Trials per Minute as a Function of Prompts in Organized Parkour Recess

	A Parkour skills in dyad	B Supervised	C Token	D Previously learned
MVPA (%)	63[a]	59[b]	75[a,b,c]	66[c]
Skill trials/min	2.24[d]	2.01[e]	3.37[d,e,f]	2.53[f]

Note: Values sharing the same letter in superscript differ significantly at p<.001.

Discussion

Children generated high MVPA values (66%) during organized recess, which is in line with previous studies of Coolkens et al. (2018; 76%) and Cheng et al. (2021; 68%). Organized recess is a great opportunity for children to engage in MVPA and to apply skills learned during physical education, especially when prompted to achieve a goal.

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The QualiTePE Framework Concept: A Cross-Cultural Study to Build Consensus on Quality in Physical Education Teaching

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Introduction

Teaching quality is seen as a central determinant of successful learning in school. Accordingly, determining characteristics of good PE teaching and systematically analysing their importance for successful learning has thus far-reaching significance for PE (Herrmann & Gerlach, 2020). Up until now, there is no general consensus in Europe on what constitutes good PE teaching. The aim of the first study of the Erasmus+ funded QualiTePE project is to reach a common understanding of high-quality PE teaching and to develop the so-called QualiTePE framework concept in order to promote European standardisation and to make the evaluation of quality and a verifiable improvement possible.

Method

A qualitative analysis and synthesis of national reports and a three-round Delphi study (Bailey et al., 2021; Häder, 2014) involving ten European national expert teams have been conducted to articulate shared expert opinions on central dimensions and sub-dimensions of quality in teaching PE.

Results & Discussion

The presentation will provide insight into the synthesis of the national reports and the process as well as into the preliminary findings of the Delphi study. Based on the findings, methodological and practical implications will be discussed.

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The Impact of the Professional Development of SKIP-Cymru (Successful Kinaesthetic Instruction for Preschoolers-Wales) for Early Childhood Teachers on Children's Motor Competence

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Introduction

Early childhood is a crucial time for children for developing their physical competence and laying the foundations for physical literacy (Whitehead, 2010). The holistic embodied approach of physical literacy resonates with the early childhood curriculum in Wales for 3- to 7-year-olds. One of the areas of learning is physical development, which states that through movement children will develop a range of fundamental motor skills (FMS). However, research suggests that children are not developing all aspects of their FMS due to teachers limited knowledge and expertise in this area (Wainwright et al., 2018). As a result of these concerns a programme of professional development was developed for teachers called SKIP- Cymru to prepare them to deliver motor skill programming. This study looked at the impact on children's motor competence following a 10-week SKIP-Cymru programme, which was delivered by the teacher and supported by the mentor following a 1-day training.

Method

Children were pre and post tested for TGMD-2 (N=90) and MABC-2 (N=88). Following 1-day SKIP- Cymru training, the SKIP- Cymru teachers (n=3) delivered a 10- week intervention (30-45 minutes x 2 week) supported by a mentor with their children while the comparison teachers (n=2) carried on with 'business as usual' curriculum.

Results

A 2 Time x 2 Group x 2 Gender ANCOVA (age, class as covariates) with repeated measures found that the SKIP-Cymru group was significantly better than the Comparison group from pre-test to post-test for overall FMS ($p<.01$), Object Control Skills ($p<.001$), total MABC-2 total ($p<.05$) and Aim and Catch ($p<.05$). There were no group differences for Locomotor Skills, but there was a main effect for Time ($p<.05$) indicating that both groups improved over time.

Discussion

SKIP Cymru was effective in improving children's motor competence. More concerningly children displayed extremely low levels of motor competence. This trajectory is unlikely to change unless evidence-based programmes like SKIP-Cymru

are provided and teacher knowledge addressed as a compulsory part of initial teacher training/ professional development.

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Examining the Fidelity of Implementation of SKIP-Cymru (Successful Kinesthetic Instruction for Preschoolers-Wales) by Early Childhood Teachers in Wales

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Introduction

Ensuring fidelity of implementation (FoI) is a critical indicator of quality intervention programs. Yet the motor skill intervention literature is weak in this area. Additionally, much of the motor skill intervention litertature lacks social validity, often with motor development experts delivering programs. SKIP-Cymru was developed to address this issue training early childhood teachers to deliver the SKIP motor skill program. Teacher professional development of SKIP-Cymru was established to address gaps in teacher's knowledge and skills in physical development. Thus this study examined the extent to which teachers could implement a 10-week SKIP-Cymru program with fidelity with ongoing mentoring following a 1-day training.

Method

Participants: Five early childhood teachers and two mentors participated in the study. A mixed methods design was utilized. Teachers delivered SKIP-Cymru motor skill sessions and were evaluated on three occasions using a Fidelity of Implementation (FoI) check list. Mentors assisted teachers in delivering SKIP Cymru 1/week. Qualitative methods included teacher indivdual interviews (3 times each), focus group interviews (2 times) and field notes of motor skill sessions. Descriptive statistics of fidelity data were calculated and themes were developed from the qualitative data using Braun & Clark's (2006, 2012) six phase approach.

Results

The dose of SKIP Cymru delivery ranged from 15-18 sessions. Data from the FoI reported teacher's fidelity ranged between 45% and 82% (M=68%). The overall qualitative theme revealed: "Teachers valued the SKIP Cymru professional development but inconsistencies in mentoring, challenges in the local context and teacher's prior experiences and knowledge resulted in variations in FoI." Four subthemes were developed: (1) Prior to SKIP teachers lacked understanding of motor development and physical literacy to deliver physical competence programming; (2) A balance of theory, research and practical experiences during the professional development day was critical for teachers understanding and application of knowledge to deliver SKIP Cymru; (3) FoI was inconsistent due to the barriers and challenges the teachers faced in delivering SKIP Cymru; and (4) Mentoring of SKIP

Cymru was inconsistently provided resulting in smaller effect sizes than prior SKIP studies.

Discussion

Overall teachers could implement SKIP-Cymru with some fidelity. However, it was clear more extensive and in-depth training of teachers is necessary to bring about greater impact of the SKIP-Cymru program on child outcomes and support teacher's perceived competence, confidence and skills to deliver SKIP-Cymru. Future research should examine more in-depth models of professional development and the factors influencing FOI.

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Practitioners Experiences of Accredited Training to Support SKIP-Cymru (Successful Kinaesthetic Instruction for Preschoolers-Wales) in Schools in Wales

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Introduction

Early childhood is a window of opportunity for developing physical competence to support physical literacy. Research into the implementation of SKIP-Cymru in Wales identified significant impact on pupils' physical competence (Wainwright et al., 2019). Goodway et al. (2021) reported inconsistency in fidelity of implementation, leading to the development of in-depth accredited training to support SKIP-Cymru. This study explored teachers' experiences of the accredited professional development for SKIP-Cymru.

Method

This qualitative study analysed reflective journals from teachers (n=40) focus groups with teachers and teaching assistants (n=6) and semi-structured interviews with pre-school staff, teachers and teaching assistants (n=8). Focus groups and interviews were recorded and transcribed. Using NVIVO software reflective journal, focus group and interview data was analysed and coded to identify themes.

Results

This research is part of a longitudinal study of multiple iterations of the SKIP-Cymru training. Thematic analysis of these initial phase findings indicates several themes emerging: (1) Staff valued the increased knowledge and skills to analyse children's movement and support pupil progress; (2) Staff report changes in their practice which they felt impacted pupils' skills, confidence, self-esteem, engagement and independence in the physical domains; and (3) Staff valued the practical aspect of the training which gave meaning to the theoretical elements of the training.

Discussion

The need to support children's physical development is increasingly well documented and this training is an ecologically valid means of embedding long term changes of practice into early childhood settings. However, staff also highlighted parents need more information about the importance of movement in early childhood. Barriers remain in relation to class sizes and available spaces in some settings.

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Developing and Enacting a Socially Just Teaching Personal and Social Responsibility (TSPR) Approach in Physical Education Teacher Education

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Introduction

There has been vast research in the critical pedagogy and pedagogy for social justice space calling on theorists to 'translate their visions into practice' (Gore, 1998, p. 274). There remains, however, little direction for enactment of social justice practises in physical education teacher education (PETE) contexts. In an attempt to address this challenge and 'translate our vision into practice', we developed a socially-just TPSR approach. This approach builds on the TPSR model in part by re-conceptualizing TPSR through a social justice lens. This research examines the enactment of such an approach in (primary) PETE Outdoor and Adventure Activities. Guided by asking 'What is worth doing?' and 'Is it working?' we have explored, re-conceptualised, re-imagined, and enacted the TPSR model as an approach to teach about, through, and for social justice

Method

The research was conducted using collaborative self-study methodology (Fletcher et al., 2016). Two teacher educators enacting the approach with their 2 critical friends, and 3 pre-service teachers engaged in the data collection. The data collected included 4 critical friend meetings, written reflections, course artefacts, a teacher educator focus group, and two pre-service teacher interviews. Analysis was undertaken using live coding, which is done through watching and listening to recordings, to capture emotions in the coding process. As a result of the data analysis, 3 categories were developed.

Results and Discussion

The findings demonstrate the importance of context and relationship building, the complexity of developing pedagogies of social justice, and the possibilities of using a re-imagined TPSR approach to capture social justice pedagogies. The first category focused on the teaching and learning of the approach; the second focused on a pedagogy of vulnerability; and the third was the complexity of enacting the SJ TPSR approach.

Conclusion

We strongly advocate the need to work with and learn from the students in what social justice topics are prevalent in their lives and the socially just TPSR approach should reflect these needs (Landi et al., 2016). This socially just TPSR approach allows for this input so that the approach is designed around the students (and their culture, needs, and situations). Honouring Hellison's forty years of (re)developing the theory of TPSR based on what is learned in practice, we suggest this socially-just TPSR approach may open possibilities and potentialities in which educators (i.e., teacher educators, in-service teachers, and pre-service teachers) can learn to teach about, through and for social justice (pedagogies).

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Movement, Play and Sport in German All-Day Schools

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Introduction

The actual percentage of schools with all-day offers (71%) and the number of participating students (48%) show the importance of all-day schools in Germany (KMK, 2021). It can be assumed that the number of students and schools will continue to expand, due to the coming legal entitlement of all-day care in primary schools (GaFöG, 2021). This development results in challenges for schools, parents, students and for student's physical activity (PA). However, these developments have various potential to integrate PA in schools with the help of Movement, Play and Sport (MPS) offers. MPS can help to counteract inactivity and lead children to lifelong PA. To improve MPS offers it is necessary to investigate in further research. Experts are calling for the compilation of previous research into a systematic overview to ensure more targeted future research (Naul & Neuber, 2021). To meet this demand a Scoping Review with the research question "What is the current state of research in the field of Movement, Play and Sport in German all-day schools and which research perspectives can be identified?" has been carried out.

Method

For the Scoping Review, a literature search was run in three databases (Springer Link, BiSp-Surf and FIS-Bildung) with the aid of a defined search term. Following the PRISMA guidelines, relevant studies are included meeting the inclusion criteria. The studies will be analyzed and categorized by using primarily qualitative methods.

Results

Initially 40 publications are included in the Scoping Review. A first analysis concludes that studies in the past focused on topics like activity times, concepts, students, cooperation, and resources (material, personnel, spatial). Further evaluation is in progress.

Discussion

The importance of all- day schools in Germany and associated the relevance of MPS offers is increasing. Future research should be in line with previous studies to ensure more targeted and purposeful research.

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Qualification of All-day Staff in German Primary Schools

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Introduction

The world of life and movement of German pupils shifts into the school setting. This gets reinforced by the coming legal entitlement to all-day care for primary children (GaFöG, 2021). Movement activities are one of the most common and popular offers in all-day schools. Due to the importance of movement for healthy development and to meet the demands of the school, the mediated movement should fulfill high, not only quantitative, but also qualitative standards. To achieve sustainable changes and improvements, the implementing staff must be appropriately qualified. Currently the level of qualification, regarding movement, in all-day settings varies widely (Naul & Neuber, 2015). This project investigates if a qualification of the all-day stuff can incorporate movement holistically and help to achieve the aims of sports in school. Presently, the conception of the qualification is in progress.

Method

In a participatory approach, the qualification for the all-day staff gets developed and evaluated. Currently the focus is on the conception of the qualification. Therefore, an analysis of the current situation and the needs of the all-day staff will first be carried out. Questionnaires and interviews are used. In addition to the literature, this forms the basis on which the qualification is developed. Subsequently, the qualification will be evaluated in a longitudinal intervention study in a control group design.

Results

Currently, the analysis of the current situation and the needs of the all-day staff as well as the systematic research on already existing qualifications is being carried out. Further results will follow.

Discussion

The relevance of movement in German all-day schools is increasing. It is important that the staff mediating the movement is appropriately qualified. A qualification, developed in a participative approach, seems to be a good method to meet the current situation and the demands of the school.

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Active Breaks as a Strategy to Improve Levels of Concentration and Attention in Early Childhood Education

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Introduction

The IDEFICS report noted that only 6% of boys and 7% of girls aged 2-5 years engage in PA once a week. With the purpose of increasing the levels of PA in the school context, active breaks started in the middle of the school day (Pastor-Vicedo & González-Fernández, 2021). The objective has been to know if an active break program can improve the PA levels and attention and concentration of Childhood Education students.

Method

A total of 25 students (15 girls and 10 boys) participated. To conduct the active breaks the App GoNoodle was used. The intervention program lasted 6 weeks. To measure the attention, the CUMANIN was used. To measure the concentration, an observational record sheet was used.

Results

The results obtained showed a significant improvement in the concentration and attention variables of the subjects when they participated in the active breaks, and this improvement was increased when previously enjoying the recess time.

Discussion

These results coincide with studies that ensure that to do PA has positive effects on concentration and attention (de Greeff et al., 2018), and to increasing PA levels. Therefore, active breaks are a good way to increase PA levels to reach the international recommendations established by the WHO for the childhood period, and to improve attention and concentration of our students, which can influence on the improvement of their academic performance.

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Sedentary Patterns and Sit-to-Stand Transitions in Open Learning Spaces and Conventional Classrooms among Primary School Students

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Introduction

Schools have begun to incorporate open classroom designs (OLS) to facilitate more student-centered pedagogy (Carson et al., 2016)). Affordances provided by OLS may reduce sedentary behavior of students (Kariippanon et al., 2021), which the present study aimed to investigate.

Method

Three-way ANOVA was used to examine interaction and main effects of classroom type, gender, and grade on accelerometry assessed sedentary bout durations (SB) and sit-to-stand transitions (STS) among in 191 3rd and 5th grade students recruited from one school with OLS and two schools with conventional classrooms (CC) in cross-sectional design.

Results

	F(7,183)						
Sedentary Behavior variable	Gender	Grade	Classroom	Gender x Grade	Gender x Classroom	Grade x Classroom	Gender x Grade x Classroom
1–4 min SB	2.244	0.723	54.380***	2.643	5.940*	1.062	0.160
5–9 min SB	0.171	1.442	0.957	0.069	0.525	0.232	0.009
>10 min SB [a,b]	3.566	9.000**	22.686***	4.612*	0.032	0.227	0.216
STS[b]	0.144	3.289	5.174*	0.567	0.526	1.572	0.549

*p<.05, **p<.01, ***p<.001, [a] log(x+1) transformation was utilized. [b] Huber-White's robust standard errors (HC3) were used

Table describes interaction and main effects of three-way ANOVA. Students in OLS had more 1-to-4-minute SB (M difference 1.8 bouts/h; p<.001), less >10-minute SB (median .20 vs .48 bouts/h; p=.004) and more STS (mean difference .9 STS/h; p=.009) than students in CC.

Discussion

OLS may improve students' sedentary profiles towards shorter SB and facilitate STS, which may translate into beneficial health impacts over a longer period (Saltmarsh et al., 2015).

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Physical Activity in Active School Settings: Twelve-and Fourteen-Year-Old School Children Differentially Benefit from Gesture- and Picture-Enriched Vocabulary Training

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Introduction

Both children and adults have been shown to benefit from the integration of multisensory and sensorimotor enrichment into pedagogy (Andrä et al., 2020; Mathias et al., 2022). For example, integrating pictures or gestures into foreign language (L2) vocabulary learning can improve learning outcomes relative to unisensory learning. However, whereas adults seem to benefit to a greater extent from sensorimotor enrichment such as the performance of gestures in contrast to multisensory enrichment with pictures (e.g., Mayer et al., 2015), this is not the case in elementary school children (Andrä et al., 2020). Our study compared multisensory- and sensorimotorenriched learning in an intermediate age group that falls between the age groups tested in previous studies (elementary school children and young adults), in an attempt to determine the developmental time-point at which children's responses to enrichment mature from a child-like pattern into an adult-like pattern.

Method

Seventy-five German school children (grade 6: 39 children; M age=12.8±.4 years - grade 8: 36 children; M age=14.8±.4 years) learned 24 Spanish vocabulary words in 5 lessons over 10 days. In a *non-enriched* (auditory-only) learning condition, they listened to the Spanish words and their German translations and then spoke the words. In a *picture-enriched* (multisensory) condition, the children additionally saw a picture that was congruent with each word's meaning and in a *gesture-enriched* (sensorimotor) learning condition, they additionally saw and imitated a congruent gesture. The children completed verbal free recall, Spanish-German translation, and German-Spanish translation tests 2 days, 2 months, and 6 months after learning.

Results

Children in both grade levels benefitted from gesture-enriched learning relative to non-enriched learning (grade 6: β=1.56, t=6.05, p<.001, d=1.39 - grade 8: β=1.87, t=6.99, p<.001, d=1.60). This was also the case for the picture enrichment condition (grade 6: β=1.47, t=5.70, p<.001, d=1.36 - grade 8: β=.92, t=3.42, p=.008, d=.82). However, gesture enrichment enhanced learning outcomes even more than picture

enrichment for the eighth graders (β=.95, t=3.56, p=.005, d=.85), which was not the case for the sixth graders (β=.09, t=.35, p=.99, d=.08).

Discussion

We found that both picture and gesture enrichment interventions were beneficial relative to non-enriched (auditory-only) learning for 12-year-olds (sixth graders) and 14-year-olds (eighth graders). Interestingly, however, gesture-enriched learning was even more beneficial than picture-enriched learning for the eighth graders, while the sixth graders benefitted equivalently from learning enriched with pictures and gestures. This finding suggests that the effectiveness of gesture and picture enrichment techniques differs between younger and older L2 learners. Sensorimotor forms of enrichment may be more beneficial to older children for L2 vocabulary learning than audiovisual enrichment.

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Affordances of School Ground Environments for Physical Activity: A Case Study on 10- and 12-Year-Old Children in a Norwegian Primary School

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Introduction

Several studies have focused on how school ground environments can stimulate physical activity (PA) in children indicating that children accumulate more PA when playing outdoors than indoors. School ground environments may afford opportunities for PA, and the contextual diversity of schoolyards and natural environments appear to be crucial for promoting PA. This study aimed at investigating the contributions of two school ground environments, a constructed schoolyard and a natural forest, to moderate to vigorous physical activity (MVPA) among Norwegian schoolchildren.

Method

This was a descriptive case study with a quasi-experimental design, no control group. School children in grade 5, ~10 years old (n=27; 16 boys and 11 girls) and grade 7, ~12 years old (n=28; 15 boys and 13 girls) were selected for the study. The school ground constituted a constructed schoolyard and a natural forest and were mapped using a standard registration form for field observations. Physical activity was monitored for 60-min in both environments by Accelerometers, ActiGraph GT1M. Independent sample t-test analyses was conducted to determine differences in MVPA levels on the two school ground environments across gender and grade. Paired sample t-tests were carried out to assess differences in gender and grade with respect to MVPA levels in the two school ground environments.

Results

This study described two school ground environments that provided large and multifunctional spaces. The constructed schoolyard afforded a space of 44m^2 per child and had access to sports and game courts and various types of equipment for PA. The natural forest provided a space of 50.6m^2 per child with a varied landscape affording a wide range of PA. On average, the children engaged in MVPA in 50% of the 60-min period when playing in the natural and constructed play settings. The two different environments, thus, contributed equally to the daily MVPA of the school children with minor grade and gender differences.

Discussion

Our study showed that both the natural forest and the multifunctional constructed schoolyard that ensured acceptable play space and challenging environments for PA in the school children. This means that school ground environments can have a

significant impact on children's PA and can effectively enable MVPA at recommended daily levels. The aspect of affordances should be more emphasized in future planning and renovation of school grounds. The findings can inform policies and programs aiming at promoting recommended levels of PA among children using school outdoor environments.

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Influence of Parental Perceptions on Permission for Children to Play Outdoors

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Introduction

Outdoor play is associated with many health, well-being and developmental benefits for children (Johnston et al., 2022). During early childhood, outdoor play opportunities are dependent on parental supervision. Parents' perceptions are likely to influence what the child is permitted to do. To better understand the involved mechanisms in the parents' decision making about their children outdoor play, an online photo-based questionnaire was developed and administered.

Method

The questionnaire was addressed to parents of children aged from 1.5 to 6 years. The tool investigated perceptions and parental decisions in 10 outdoor play situations.

Results

Results showed that most of the 417 parents who filled the questionnaire have a very positive attitude towards outdoor play but each context has specific particularities. Linear regression revealed that the perceptions of benefits and dangers were significant determinants for the permission to play outdoors, while this was not the case for the perception of children's competence. Perceived benefits appeared to have twice more influence than perceived dangers. Parent's experience of outdoor play as a child appeared to be a significant determinant of their perceptions as adult.

Discussion

The results show that parental children experience are important determinants for adult's perceptions and pointed out intergenerational concerns, as outdoor play is declining. One practical consequence is that if we want to support children's outdoor play, communication has to focus more on associated benefits. The present study opens up new scientific perspectives and confirm that children's outdoor play should be supported as an important educational approach.

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The Forgotten Age Group: The Need for Targeted Physical Activity and Healthy Lifestyle Promotion for Older Adolescents

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Introduction

Globally, limited research has examined healthy lifestyle promotion for older adolescents (16–18 years), yet habitual healthy lifestyles can be developed at this time. Most initiatives have been aimed at adults or younger children and research has highlighted England to be up to ten tears behind other countries in prioritising health education (Berkman et al., 2010). This research aims to examine older adolescents' knowledge and understanding of healthy lifestyle [nutrition and physical activity (PA)] recommendations and compare these to their self-reported PA, active transportation, active leisure and food intake. It will also ask their experiences of how healthy lifestyles are promoted to them.

Method

Ninety-three participants (39M; 54F) (M age=16.9, SD=.40 years), from 3 low socio-economic English high schools completed an online questionnaire on their self-reported: (1) daily physical activity (PA); (2) active transportation (AT); (3) active leisure time (AL); (4) food intake; (5) experiences of healthy lifestyles promotion; and (6) perceived healthiness. Questions were merged from both the validated Global Physical Activity Questionnaire (GPAQ) (WHO, 2004) and the Short Form Food Frequency Questionnaire (SFFFQ) (Cleghorn & Cade, 2017). To examine perceived healthiness, participants rated their overall health on a 5-point scale over the past 12 months. Daily PA, active transport, active leisure and how participants felt healthy lifestyles were promoted to them, were asked via open-ended questions. The SFFFQ was used to generate a food group score [via the Diet and Nutrition Tool for Evaluation (Cleghorn & Cade, 2017)], which were then added together to create an overall diet quality score (DQS).

Data analysis was undertaken within SPSS 24.0 (IBM Corp, Armok, NY, USA). A multi-variance of statistical analysis (MANOVA) assessed group differences across multiple dependent variables of the food group scores and overall DQS. GPAQ questions were analysed individually according to demographics: sex, and perceived healthiness. Univariate analysis of variance (ANOVA) was then undertaken for each question to assess the group differences per element of PA. Thematic analysis was used to analyse all open-ended questions. Statistical significance was set at <.05.

Results

Only 60% reached PA recommended guidelines. Yet, 92% (n=86) used active travel for a least 10 mins continuously; of these, 86% (n=80) undertook this at least 5 days per week. Over half (51%, n=47) undertook MVPA as active leisure. However, 66% (n=61) spent ≥5 hours sedentary and only 17% (n=16) met recommended nutritional guidelines for health. Males who rated themselves as having poor health had eaten the recommended intakes of fat (1.00±.00), compared to females who rated themselves as having poor health but ate more than the recommended intakes of fat (2.60±.89). Nearly all participants (90%, n=80) did not report school as a place that promoted healthy lifestyles.

Discussion

As a public health measure and an educational policy matter, it is recommended schools implement more targeted PA and healthy eating initiatives for older adolescents. Further research is also needed to examine male older adolescents' health literacy to get a deeper insight into their understanding and application of information relating to their health.

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Let's Ride: Evaluating a Cycle Training Program on Children and Adolescents' Attitudes and Use of Bicycle Helmets

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Introduction

Cycling has well-established positive direct effects on health (Oja et al., 2011), however cycling related head injuries can be fatal. For protection, bicycle helmet use is associated with reduced odds of head injury, serious head injury, facial injury and fatal head injury (Olivier & Creighton, 2017). The purpose of the present study was to evaluate whether a cycle training program was effective in increasing attitudes towards bicycle helmet use, and actual helmet use in children and adolescents.

Method

Participants were 34 children and adolescents (11.09±2.14 years; 61.8% males). The cycle training program *Let's Ride*, which is an urban cycling and traffic education intervention consisted of 4 2-hour sessions. A previously developed 15-item attitudes towards bicycle helmet use questionnaire, consisting of 4 factors (Safe behavior, Protection, Comfort, Social influence) (Adamakis & Papanikolaou, 2017), was completed by all participants pre- and post-intervention. Parametric and non-parametric tests were used to examine attitudes and actual adoption change in bicycle helmet use.

Results

Participants had significantly higher attitudes towards Safe behavior ($t=2.53$, $p=.016$) after the implementation of the program. Differences in the 3 remaining factors were not statistically significant ($p>.05$). Bicycle helmet ownership (pre- 70.6%; post- 85.3%), actual helmet use during last time cycling (pre- 61.8%; post- 70.6%), and intention to use helmet the next time cycling (pre- 67.6%; post- 76.5%) increased, however these changes were not statistically significant ($p>.05$).

Discussion

The present study showed that the *Let's Ride* cycle training program of is a feasible approach to increase children and adolescents' attitudes and actual use of bicycle helmet. More specifically, significantly higher post-test attitude scores were observed for Safe behavior, indicating that participants realized the importance of wearing a helmet while cycling for increased safety. Also, more participants owned a bicycle helmet at the end of the program and this increase was further evident in the actual helmet's use during the last time they had cycled.

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Young Children's Actual and Perceived Physical Activity Levels within the Primary School Setting

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Introduction

Limited research has longitudinally examined children's physical activity during school hours over a school year. Most children's physical activity research focuses over a short time frame of approximately 7 days. This study investigated physical activity levels over a whole academic year, with a pilot familiarity study (Sept – Dec) to develop habitual wearing techniques, followed then by a longitudinal focus (Jan – July). The study is novel as it examined both the children's actual physical activity (APA) as well as listening to the children's voice, through questioning the children about their perceived physical activity (PPA) during school hours. This study aimed to examine and compare children's PPA and their APA levels.

Method

Ten children from an infant class (5M, 5F; M age=6.6 years) and 10 from a junior class (5M, 5F; M age=9.5 years) in an English primary school participated. APA was recorded for 36 whole school days (371 min per day) via accelerometry. Eighteen school days included Physical Education (PE) and 18 did not. PPA was measured via an adapted version of of the PA Questionnaire for Children (PAQ-C) (Kowalski et al., 2004) with the support of an interactive handset. PPA was examined by asking participants about their 'general MVPA levels during the school year' in the adapted PAQ-C. In order to compare with PPA, APA was analysed and presented for light physical activity (LPA) (≥2 METs and <3 METs) and MVPA (≥3 METs) across each part of the school day. A repeated-measures three-factor analysis of variance (ANOVA) analysed the effects of factors including: type of day (PE days/non-PE days), part of the school day (curriculum time/morning recess/lunch time/afternoon recess), sex (boys/girls) and class group (infants/juniors). A two-factor univariate ANOVA (sex and class group) was undertaken for the PE lesson part of the day, as the type of day could not be compared due to there being no equivalent time within non-PE days. Total LPA and MVPA minutes were converted to percentage number of minutes and inputted into excel before analysis in SPSS 22.0 (IBM Corp, Armok, NY, USA) in order for direct comparisons to be made between infants and juniors, as their school days differed. Statistical significance was set at <.05 ± one standard deviation.

Results

Among all participants, only junior boys met moderate to vigorous physical activity (MVPA) recommendations (60±13 min), which were on PE days. All infants and juniors

undertook more MVPA on PE days (53±19 min) compared to non-PE days (43±15 min) ($F=92.32$, $p<.05$). Infants underestimated and juniors overestimated their APA levels.

Discussion

It is important to note that children only spend half their waking hours in school, therefore it is very encouraging that junior boys are able to meet recommended MVPA recommendations during school hours, especially as previous data (Dale et al., 2002) has reported few opportunities to be active during school. Children do though, lack the ability to accurately perceive their APA. For children to better understand the health benefits of varying intensities of PA, educators need more support to teach and embed PA, and its varying intensities, into the school day.

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Acute Effect of Physical Education on Attentional Processes in Adolescents from South Tirol

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Introduction

Attention is a key cognitive ability often divided into two main types: local, processing stimuli of smaller dimensions; and global, associated with larger stimuli (Valdés-Sosa et al., 2020). Physical activity (PA) has a positive impact on youth's cognitive abilities (Páez-Maldonado et al., 2020), yet little is known on its effect on global and local attention. The aim of this study was to assess acute changes in attention after a physical education (PE) lesson in a sample of adolescents.

Method

A sample of 51 students (18 girls) aged 14-19 years carried out a computerized version of the Navon task (global/local attention) before and after one PE class, during which they wore accelerometers (PA time/intensity).

Results

PA during PE was significantly correlated with response accuracy (RA; p=.012) and response speed (RS; p=.002). Light activity/sedentary time held a significantly negative relationship with RA (p=.010) and positive with RS (p=.002), whilst RS was faster after moderate PA (p=.020). The most active students had higher RA (p=.021) and faster RS (p=.019) than the least active ones.

Discussion

Our outcomes suggest a strong link between attention and PA (Gallotta et al., 2014). The PA-attention mechanism may be due to the fact that PA involves inherent cognitive activity; that complex movements stress cognitive abilities, thus activating the required brain regions; and that a series of physiological changes occur in the brain during PA. Previous studies suggest that the effect of PA on global/local attention may depend on individual characteristics (Valdés-Sosa et al., 2020). In general, the lack of literature in this area suggests more research is needed to clarify these outcomes.

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Behavioural Correlates of Physical Literacy in Childhood

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Introduction

Physical literacy (PL) is described as the attributes (motivation, confidence, physical competence, knowledge) related to healthy active living (Whitehead, 2019). To support children's PL, it is important to reinforce behaviours that may relate to it. Thus, the aim of this study was to identify behavioural correlates of PL in childhood.

Method

The PL level of 340 children (M age=10.2±1.2 years) was assessed by the Greek adaptation (Dania et al., 2020) of the CAPL-2. Children's daily physical activity (PA) was measured by pedometers, while information about their sport participation was gathered by self-reports. A sequential multiple regression, controlling for sex, age, body mass index (BMI), was performed to test whether children's weekend PA, frequency of sport participation, years of sport participation, number of sports they engage in, could predict their PL.

Results

The model significantly predicted PL ($F[7,332]=107.6$, $p=.001$), explaining 69.4% of its variance. Apart from sex, all covariates and predictors were significant ($p<.05$), with the weekend PA and frequency of sport participation recording the highest standardized beta values (Table 1).

Table 1. Standardized beta coefficients

Covariates/Predictors	**β**	**t**	**p**
Sex	-.019	-.598	.550
Age	.194	5.650	<.001
BMI	-.209	-6.519	<.001
Weekend PA	.407	12.657	<.001
Frequency of sport participation	.344	7.328	<.001
Years of sport participation	.283	7.837	<.001
Number of sports a child engages in	.161	3.653	<.001

Discussion

Enhancing children's active behaviours, such as participation in sport and weekend PA, is imperative for developing competent, motivated, and knowledgeable movers.

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Health Knowledge and Understanding in Elementary School Pupils: Qualitative Analysis of Scenarios

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Introduction

The Pact for an Education of Excellence (PEE) is a large-scale education reform in the Wallonia-Brussels Federation. New competency frameworks have been developed, and consequently preschool and elementary curricula are being drafted. Physical education course will become physical and health education course (PHE). Currently, health knowledge, experiences, and commitment to physical activity (PA) in Belgian children remain unknown. In a systematic review, Babic et al. (2014) showed a significant association between physical activity and physical self-perceptions in children. For children, pictorial scales are widely used to evaluate their perceived physical competences (Barnett et al., 2016). Self-efficacy and enjoyment considered as important determinants of physical activity and healthy behaviours in children could also be measured by pictorial scales (Morano et al., 2019). The aim of that study is to develop a pictorial tool including scenarios based on the content of the new curricula to assess self-perceptions related to PHE.

Discussion

The project is still in development. This section describes the different steps for scenarios content development and validation. First, members of the consortium for physical activity, well-being, and health; working for the PEE analysed knowledge and know-how set out in the curricula, for pupils aged 5-7 years. Then, two lead members of this consortium wrote questions about curricula contents, that could be pictorially represented. After a consensus between consortium members, a main unisex character was selected. In the current step of this project, pictorial situations, drawn by an illustrator are sent them to experts for comments. Semi-directed interviews are conducting among experts to assess scenarios contents and concordance between scenarios and questions asked to pupils. Feedback will be discussed between the two lead members. Adaptations will be required to the illustrator. For the next step, new approved scenarios will be proposed to the children. A one-on-one interview format will be performed for assessing children understanding of questions and scenarios (face validity).

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Values of Motor Competence Pre and Post Lockdown due to COVID-19 in Chilean Schoolchildren

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Introduction

The lockdowns due to COVID-19 have produced several negative effects on motor competence in schoolchildren (Pombo et al., 2021; Wessely et al., 2022), which may compromise the adoption of active and healthy lifestyles. Therefore, the aim of this work is to compare the level of motor competence of Chilean schoolchildren in 5th and 6th grade based on data from the pre-lockdown cohort (2018-2019) and the post-lockdown cohort (2022).

Method

Data from 1,179 schoolchildren in 5th and 6th grade were analyzed (46.8% girls; M age=11.11 SD=0.66), 588 corresponding to data collected in 2018-2019 (Cohort A: 52.2% girls; M age=11.15 SD=0.62), and 591 to data collected in 2022 (Cohort B: 47.8% girls; M age=11.07 SD=0.69). The MOBAK-5-6 test was used for the evaluation of motor competence.

Results

The analysis revealed that the level of motor competence has a significant negative trend regarding the post-lockdown cohort. Cohort A presented a motor competence in object control of M=2.96 (SD=1.98), a value that decreases in cohort B to M=2.57 (SD=1.98), with significant differences (p=.001; d=0.19). Regarding the motor competence in self-movement, cohort A presented a value of M=2.49 (SD=1.99), while cohort B M=1.96 (SD=1.86), with both groups differing significantly (p<.001; d=0.27).

Discussion

The results confirm a decreased motor competence in Chilean schoolchildren after two years without face-to-face classes, which is consistent with both follow-up studies (Pombo et al., 2021) and cohort studies (Wessely et al., 2022). Considering that Chilean schoolchildren already had a high prevalence of overweight and poor motor performance before the outbreak of the pandemic, these results affirm the urgent need to take measures to counteract this problem exacerbated by the Covid-19 pandemic.

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Basic Motor Competencies in 6- to 8-Year-Old Children from Slovakia

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Introduction

The concept of motor abilities and skills is currently receiving special attention in health, sport and educational sciences. Quality pedagogical diagnostics should be the basis for the verification of the teacher's didactic approaches and strategies on the one hand and part of the pupil's learning content on the other hand. This pilot study used the MOBAK-1 to investigate motor competence levels and gender differences in Slovak primary school-aged children.

Method

We analyzed data of 285 (48.1% girls) first and second graders with a mean age of 6.91 years. Motor competence testing was conducted using MOBAK-1 test battery (Herrmann, 2018), assessing 4 self-movement skills and 4 object movement skills. Differences between groups (age and sex) were evaluated using independent samples t-test.

Results

We found that boys scored significantly higher than girls in object movement skills, while girls scored significantly higher in self-movement skills. Older girls and boys achieved better results than younger children in both investigated motor domains.

Discussion

Early and erudite diagnostics of motor competencies in primary school-aged children would make it possible to implement more effective stimulation and ensure their developmental stability, especially in pupils with motor deficits, delayed motor development, excessive body weight, or special educational needs in this sensitive period. The study is supported by the Grant Scientific Project of the Slovak Republic no. 1/0162/22 with the title: Learners' motor competences in the context of primary education - determinants and possibilities of stimulation.

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Development and Validation of a Tool for Measuring Motor Skills Intended for Children Aged 3 to 7 Years Applicable in a French-Speaking Belgian School Context

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Introduction

Many instruments allow motor skills measurement in young children but they consist inclosed environment and each skill is assessed separately (Stratton et al., 2017). The choice of one instrument compared to another is based on context-dependent criteria. The use of a motor skills assessment tool is a compromise between reliability of this tool and its operationalization on the field. Motor skills assessment is necessary to allow researchers and practitioners to situate children in their motor skills development, identify gaps, and determine the effectiveness of motor skills intervention. This project proposes the design and experimentation of 4 motor tests organized in semi-directed circuits with a sequencing of several situations. In this circuit, children must take decisions and choose their level of progression. The content of this circuit is linked with the new physical education and health curriculum of the Wallonia-Brussels Federation. Items selected in this circuit are also mentioned in a recent systematic review on motor competences assessment (Hulteen et al., 2020).

Method

The 4 tests were tested with 90 children from kindergarten and grade 1 (elementary school). After a first pilot study, the circuits were adapted. A user guide and an evaluation grid were written for the examiners. Data collected were the timing, the levels reached in the sequences of acquisition for the fundamental movements and the errors made by the children during the test. Three questions were asked to the evaluator: (1) Should instructions be reminded to the child? YES-NO; (2) Was it necessary to encourage the child to continue the test? YES-NO; (3) On a scale of 1 to 5, estimate the degree of confidence with which the child performed the test. Inter-rater reproducibility was performed to analyze the user manual clarity. An observation grid has been designed to detect errors and misunderstandings. The same process was carried out for the evaluation grid. Intra-evaluator reproducibility was carried out for the evaluation grid. The same children were tested by the same assessors 45 minutes intervals. The results concerning the timing and errors made were compared. The sensitivity of the tests was verified to determine if the comparison of performance according to age is possible.

Results

Only one of the four tests showed psychometric properties. For this test, the validity tests show an inter-evaluator reproducibility for the understanding of the user manual and the evaluation grid. The test-retest indicates the need for familiarization with the course before evaluation. The performance of children improves with age, a significant difference between the age groups 2-3, 4-5 and 6-7 years could be established.

Discussion

For a large-scale use, these instruments for measuring motor skills should be further optimized and tested again. More validation studies are needed to improve their psychometric quality, especially if they are used in educational settings.

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The Adjustments Involved in The Construction and Implementation of a Cooperative Engineering for The Teaching and Learning of Handball in Elementary Schools

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Introduction

The French Ministry of Education encourages school teachers and college teachers to work together to ensure continuity of teaching between elementary school and college. This leads researchers and teachers to set up *cooperative engineering* (Collectif Didactique pour Enseigner [CDpE], 2023, forthcoming). The aim is both to improve practices and to develop research on cooperation. This study is conducted in the field of physical education (PE) didactics within the *joint action theory in didactics* (JATD – Sensevy, 2011). It focuses on the interactions between a PE teacher (P), who is also a researcher, a school teacher (P') and his ten-year-old pupils, at the beginning of a cooperative engineering process concerning the teaching of handball in primary school.

Method

The engineering method is based on several elements: (1) co-design of six consecutive handball lessons with a class of 24 pupils; (2) alternate teaching between P and P'; (3) video recordings of the lessons; (4) interviews and engineering dialogues around these videos; (5) analysis of the corpus of data using JATD tools and descriptors.

Results

The main results reveal how the *practical epistemologies* (Sensevy, 2011) of teachers and pupils adjust jointly through the device. The *defining rules* (Hintikka, 1994) of the handball game are gradually integrated with *rules of action* and *strategic rules* (ibid.) which allows to identify how to succeed. For example, the pupils integrate the decisional alternative "advancing across the field by dribbling *or* passing", thanks to situations designed by P and P'. P' integrates P's contributions to the teaching of handball. P learns to adapt the contents to the characteristics of the pupils with the help of P'.

Discussion

This study shows how teachers and pupils adjust their (inter)actions, building together a *common culture of cooperation in a knowledge practice* (CDpE, 2023, forthcoming).

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Age and Sex Differences in Basic Motor Competencies of Slovak Primary School-Aged Children

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Introduction

At present, there is a global appeal towards increasing the quality of Physical Education as a key factor in the formation of lifelong motor competencies and a positive trajectory of the child's lifestyle. This study responds to the scientific research demand for the expertise of educational practice in the stimulation of motor competences, as well as the need to establish the diagnostics of these competences in the conditions of school practice. MOBAK test is one of the current and modern motor diagnostic approaches in the European context. It enables, within the framework of Primary Physical Education, to identify the profile of the pupil's motor competence validly and reliably or to identify his/her motor deficits in relation to the formulated curriculum. The purpose of this pilot study was to assess basic motor competencies of Slovak primary school-aged children relative to age and sex.

Method

Data were collected in 229 children (113 boys, 49.3 %) with a M age of 9.65 years. Motor competence testing was conducted using MOBAK-3 test battery (Herrmann, 2018), assessing 4 self-movement skills and 4 object movement skills. Differences between groups (age and sex) were evaluated using independent samples t-test.

Results

Research results provide evidence that older children presented higher scores than younger girls and boys in both investigated motor domains. Boys achieved better results in object movement skills, whereas girls achieved higher level of self-movement skills.

Discussion

Our research findings reinforce the need to consider gender differences in Primary Physical Education. Early diagnostics and subsequent interventions, aimed at improving motor competence, are warranted in primary school-aged children as greater proficiency is related to greater physical activity participation and numerous health benefits. The study is supported by the Grant Scientific Project of the Slovak Republic no. 1/0162/22 with the title: Learners' motor competences in the context of primary education - determinants and possibilities of stimulation.

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Making a Wave of Difference in Water Awareness and Competence through Primary Physical Education Teacher Education

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Introduction

The current study aims to pilot the merit of having PE primary physical education specialists contribute to generalist primary teacher education via the creation and sharing of accessible progression spirals across an environmental progression of space instead of designated activity (Table 1). The final water-based progression blends fundamental movement with core aquatic skills as mediated by respective students across a Kolb reflective learning cycle (1984) and informed by curricular guidelines toward a new PETE national water competence teaching assistant accreditation (DfE, 2013, Swim England, 2021, RLPE-AfPE, 2022). Programme wise, how might primary student teachers benefit from a PE Primary specialist-generalist peer supported teaching and learning addition to the PE PCK experience set? Motorically and competence wise, what are the reported potential and perceived student benefits to this PETE journey?

Classroom physical activity tasks and challenges	Indoors, beyond the classroom-the school gym	Outdoors, controlled space-the playground	Outdoors-green space (more open park space)	Outdoors-blue space; (by a body of water)	In/outdoors-controlled water-based swim permitted space (swimming pool)
In-small space	In-large space	Out-Grey-small to larger	Out-Green-large	Out-Blue-supervised small to larger	In/Out-Water-supervised spaces (pool side and in pool)

Method

Physical education specialist student teachers (12) were taught how to plan and teach using the environmentally coded space set. This they modelled and shared with all other generalists; undergraduate and postgraduate generalist students through our RLPE accessible online padlet series. The progression spiral approach aligns with that of Bruner (1966) and extend from reflective PETE bespoke practices (Graham et al., 2020).

Results

The full set has been successfully piloted by PE specialists with Year 2, undergraduate and graduate primary student teachers. Table 1. Depicts the Environmentally led and peer supported PETE progression which will be implemented in full this coming academic year.

Discussion

Aspirationally, we will be better placed to refine and improve the approach, and in so doing, address research questions following this coming academic year.

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Movement and Physical Activity, Perceived as Messy Moments, or Important Learning Situations in The Preschool Day? A Study Among Educators in Early Childhood Education and Care (ECEC)

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Introduction

About 86% of children aged 1-6 years, are enrolled in early childhood education and care (ECEC) in Sweden. They spend in average 31 hours per week in ECEC (Skolverket, 2022). High expectations are placed on educators to deliver adequate education to support children's development in all domains (Copple & Bredekamp, 2009), also in movement and physical activity. The aim of the study was to examine educators' perceptions and experiences of teaching movement and physical activity in ECEC.

Method

Focus group interviews during 18 months with 88 educators in five preschools were performed. The educators planned and performed movement and physical activity sessions with the children and filmed sequences from the sessions. Selected filmed sequences were the starting point for the discussions in the focus groups.

Results

The findings revealed that the educators perceived movement and physical activity as important but also difficult to teach, and to a high degree as messy moments. The movement sessions were thus scarce, and the educators relied on children's free play for their physical development. The educators perceived their competence to teach movement and physical activity as low. Additionally, to be a leader of mobile children was perceived overwhelming and often out of control.

Discussion

The study highlighted the need for ECEC educators' increased competence to teach movement and physical activity. They are predominantly generalists and recognize barriers to teaching in domains such as movement and physical activity (Marinsek & Kovac, 2019). The status of education of movement and physical activity in early childhood teacher education (ECTE) needs to be improved.

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The Development of an Intergenerational Movement Program for Grandchildren and Their Grandparents Using Co-Creation

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Introduction

Many children and older adults fail to meet the WHO guidelines of physical activity (PA). In recent years, increased attention has been devoted to intergenerational PA programs because they may have several benefits for children and older adults, not only on a physical level, but they can also learn skills from each other, there is a reduction of ageism and a better well-being. An intergenerational PA program focusing on grandchildren and grandparents in a 'standard' family setting and the combination of PA and cognitive functions in such a program is innovative. The aim of this study is to develop an effective, attractive and feasible movement program to promote PA and improve cognitive functions in both grandchildren and their grandparents.

Method

The Behaviour Change Wheel (BCW), as the theoretical framework, will be used in combination with a co-creation approach. Two co-creation trajectories will be organised to develop the program (n=12 dyads per trajectory), followed by a pilot study to refine and evaluate the program (n=2x12 dyads) and an RCT with two intervention groups and one control group (n=18 dyads per group), consisting of a pre-test (at baseline), post-test (after 24 weeks) and follow-up (after 36 weeks) to measure the outcomes of PA, cognitive functions, psychosocial well-being and the quality of the family relationship in grandchildren and grandparents. The outcomes will be measured using accelerometery for PA, Cambridge Neuropsychological Test Automated Battery (CANTAB) testing for cognitive functions and questionnaires for psychosocial well-being and quality of the family relationship.

Results

Co-development with end-users and stakeholders during both co-creation trajectories is expected to result in an effective, attractive and feasible program. Co-PA is expected to improve PA, cognitive functions, psychosocial well-being, quality of the family relationship and motivation to be physically active in grandchildren and -parents.

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Physical Activity of Girls Who Participate in Organized Sports

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Introduction

Girls' physical activity (PA) levels are usually lower than recommended (World Health Organization, 2020). However, sport participation may contribute to the achievement of minimum daily PA (Kokko et al., 2019). Therefore, this study examined self-reported and objectively measured PA of girls engaged in organized sports.

Method

Sixty 8-12-year-old girls (M age=9.87±1.03 years) from Athens, participating in Volleyball (n=23), Tennis (n=15), and Gymnastics (n=22) took part in voluntarily. Their PA was assessed with a) OMRON pedometers, which were worn on the right hip for seven consecutive days, excluding bedtime and water activities and b) Physical Activity Questionnaire for Older Children (PAQ-C; Kowalski et al., 2004). Potential PA differences between the three groups were examined using ANOVAs.

Results

Statistically significant differences were revealed in self-reported PA (F=6.54, p=.003), with girls participating in Gymnastics presenting the highest scores, but not in objectively measured PA (F=.10, p=.91). Nevertheless, participants' daily PA was sufficient (11,491±2,903 steps) and above the guideline of 11,000 steps/day.

Discussion

Girls' engagement in sports appears to be an effective means for achieving adequate PA levels (Kokko et al., 2019), regardless of the sport type, which seems to play a less important role.

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Changes in Compliance with 24-Hour Movement Behaviour Guidelines in Preschool Children of Low and High Socioeconomic Status: The Toybox-Study

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Introduction

In 2019, the World Health Organisation published integrated 24-hour movement behaviour guidelines for preschoolers (3-4 years), with recommendations for sleep, physical activity (PA), and screen time (ST). Although several studies already investigated compliance with these guidelines among preschoolers, only a few looked at differences in compliance between preschoolers of low and high socioeconomic status. Therefore, this study aimed to examine changes in adherence to the integrated 24-hour movement behaviour guidelines by socioeconomic status.

Method

This prospective study included 633 preschoolers (M age=4.77) from 5 different European countries. Physical activity (PA) was objectively assessed using pedometers at baseline and after one year. Parental questionnaires provided screen time (ST)/day, sleep duration/night and SES (low≤14 years of education, high>14 years of education). A multilevel repeated measures analysis was conducted.

Results

Sleep duration compliance significantly decreased from baseline to follow up on weekdays (β=-0.189, p<.001), weekend days (β=0.142, p=.003), and for a total week (β=0.18, p<.001,). A significant decrease in compliance was also found for the combination of sleep and ST guidelines (β=-0.095, p=.045) on weekdays, and for the

combination of sleep and PA guidelines on weekend days (β=-0.142, p<.001). No significant interaction effect of SES was found (p>.05).

Discussion

We can conclude that the evolution in compliance over time did not depend on preschoolers' SES and that fewer preschoolers met the guidelines for sleep as they got older.

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Qualitative Analysis of Children's Motor, Social and Nature-Related Behaviour During Outdoor Physical Activities

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Introduction

The natural outdoor environment is very interesting for children's motor development because it is varied and stimulating (Fjørtoft, 2001). Furthermore, outdoor educational activities foster children's empathy towards nature (Nichol, 2008), contributing to education for sustainable development. The aim of this study is to identify and categorise, on the basis of an exploratory approach, the motor and social behaviours of pre-school children during physical education sessions carried out in natural outdoor settings.

Method

Children aged from 4 to 5 participated in an outdoor physical activity animated by an expert physical education teacher. The activity was carried out in two different environments (neutral forest area and forest area with modules) and accordingly to two pedagogical approaches (free play approach and structured approach). Three children were fully video recorded with a portable GoPro, a focal and a group camera. An inductive qualitative approach was conducted in order to identify relevant physical, social, and nature-oriented behaviors.

Results

The exploratory analysis enabled us to obtain an initial relevant categorisation of the children's behaviour. Eight headings were highlighted: intensity, type of physical activity, initiator, incentive, group composition, role within the group, observed social behaviour, and nature component. Relevant grids from the literature we selected and compared with our observations in order to highlight the main behaviours.

Discussion

Our results confirm that outdoor is a very interesting educational context for children. Further researches are needed to investigate how environment and pedagogical approach may be critical variables in preschool children physical education.

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