

Symposium

TITLE OF SYMPOSIUM: Movement and physical activity in children

Coordinator: Savelsbergh, G.J.P.

e-mail: g.j.p.savelsbergh@vu.nl

Institution: Amsterdam Institute of Sport Science, Faculty of Behavioural and Movement Sciences, Vrije University, Amsterdam, The Netherlands

SYMPOSIUM GENERAL ABSTRACT

The youth today's shows an overall shortage of movement experiences, a lack of general athletic skills and body orientation, which are fundamental to basic movement skills. The current generation of young children is significantly less fit than children from thirty years ago. In modern societies, across the world, a prominent feature is that children get less and less movement experience (Anderson & Twist, 2005; Tremblay & Willms, 2000) and are tending towards greater obesity (de Onis, Blossner, & Borghi, 2010; World Health Organization, 2009). Children who are not physically active will have a greater risk later in life for developing lifestyle diseases such as cardiovascular disease and diabetes. Children who experience a varied pattern of sports and other 'movement activities', on the other hand, tend to attain better academic results at school (Singh, Uijtdewilligen, Twisk, van Mechelen, & Chinapaw, (2012), and are more socially active. Moreover, healthy children are typically more happy children. In the current symposium, several authors will present and discuss possibilities to improve the quality of movement and physical activity in children. The first contribution of Savelsbergh will propose a model for optimizing movement abilities from young children to elite performance or to a healthy life style. The contribution of Gil-Madrona and Honrubia Montesinos focuses on justifying the necessary presence of physical education in Infant Education as well as on showing a pedagogical proposal based on an attractive and entertaining motor intervention for children at this early stage. This theoretical contribution proposes how to work social, emotional and cognitive skills in an integrated way work together by means of physical education. The third presenter, Deconick discusses that the coupling of perception and action is crucial in the movement treatments of children with Developmental Coordination Disorder. The paper is followed by Kok and co workers about the importance of self-controlled feedback in a physical education environment. The last contribution by Valero-García and co authors, show the effect on movement by playful activities like playing with songs, playing without songs and

dance plays in children with Developmental Coordination Disorder. All these presentations contribute to the optimizing movement and physical activities of children by providing theoretical models and practical methods, such as self control feed-back, the coupling of perception-action, and playful treatment from the very young child till elderly.

Key words: Movement; Physical education; treatments; basic movement skills

1. Optimizing talent development through movement education: The Athletic skills model

Geert Savelsbergh

Amsterdam Institute of Sport Science, Faculty of Behavioural and Movement Sciences, Vrije University, Amsterdam, The Netherlands

2. Physical education in Infant Education stage. Theoretical-practical proposal

Gil-Madrona, P., Honrubia Montesinos, C., Lazzara Delgado, M. & Madrid Estes, I.

Department of Didactics of Musical, Arts and Body Expression.

Faculty of Education, Albacete, España

3. Visuo-motor control in individuals with Developmental Coordination Disorder: Why we should improve coupling perception and action.

Deconinck, F.J.A.

Movement and Sports Sciences, Ghent University, Ghent, Belgium

4. Applying self-controlled video feedback in Physical Education

Kok, M., Komen, A.K., van Capelleveen, L. K., van der Kamp, J.

Department of Human Movement Sciences, Faculty of Behavioural and Movement Sciences,

Vrije Universiteit, Amsterdam, The Netherlands, & Research Centre for Exercise, School and

Sport, Windesheim University of Applied Sciences, Zwolle, The Netherlands

5. Developmental coordination disorder: Intervention through music and movement

V. Valero-García, A. Díaz-Pérez, G. Vicente-Nicolás, M. Olmos-Soria

Faculty of Psychology, Universidad de Murcia, Spain

1. Optimizing talent development through movement education: The Athletic skills model

Geert J.P. Savelsbergh

Amsterdam Institute of Sport Science
Faculty of Behavioural and Movement Sciences
Vrije University, Amsterdam, The Netherlands
Email: g.j.p.savelsbergh@vu.nl

Abstract

The Athletic Skills Model (ASM) is based on the approach that body and mind form one unity, as a complex, adaptive system (Wormhoudt, Savelsbergh, et al. 2018). The basics of this model is informed by the combination of theoretical ideas from ecological dynamics, key scientific findings and experiential knowledge from extensive practice in high performance sport.

The ASM programme introduces the following development framework: first the child needs to become a versatile 'good mover', and subsequently, s/he will develop into an athlete; as an athlete the child will specialize in one sport and will finally develop into the absolute specialist within this sport. So, the key of ASM is: first become an athlete, only then specialize as an athlete. A recent study of Gulbin, Weissensteiner, Oldenziel and Gagne (2013) could be seen as support for this trajectory. These researchers examined the pathway trajectories and transition experienced of 256 elite athletes across 27 different sports. One of the cornerstones of early specialization is the assumption of a linear trajectory from junior to elite. They found three main pathways, that are pure ascent, mixed ascent and mixed descent, account for 16.4%, 26.2%, 57.4%, respectively. These pathways are further subdivided into eight sub-categories, which were a mix of linear, crossover and concurrent profiles. Gulbin and co workers report that only in 7 % of cases a developmental linear pathway was observed for the transition from junior to senior. Thus, the majority of athletes followed of some reason a different non-linear trajectory. Transitions in these more mixed trajectories are aligned with ideas from the ASM (and theoretical frameworks like ecological dynamics, see Phillips et al., 2010) suggesting how it could make a significant contribution to increase the pool of talented athletes.

The ASM programme seeks to create a stable basis for performance by developing a 'physical' intelligence on which, amongst other forms of intelligence, a sporting career can be developed. Based on the models of Bloom (1985), Côté et al. (1999, 2011, 2015), Balyi et al (2004) and Ford et al. (2009) five stages have been defined in the ASM: the stages of Basic,

Advanced, Transition, Performance and Elite Athletic Skills. The programme aims for fitter, adaptable, more rounded, individuals who will establish a longer professional career as an athlete, because they have less chance of getting injured and have more performance-related growth opportunities, which can enhance their personal development and general health and wellbeing. Fun and variation are elementary and beneficial for human health and well-being development. The ASM programme takes care of this key idea by introducing new forms of learning in addition to using well-known motor learning methods, which promote variation between sports, as well as within a specific sport. Within the ASM programme the various forms of learning, like implicit (Masters, 2000), analogy, errorless (Savelsbergh et al., 2012), differential learning (Schollhorn (2006, Savelsbergh et al., 2010), and of course, nonlinear pedagogy, are linked to the different stages by using a concentric approach.

Keywords: Basic movement skills; implicit learning; non-linear development

2. Physical education in Infant Education stage. Theoretical-practical proposal

Gil-Madrona, P.

*Department of Didactics of Musical, Arts and Body Expression. Faculty of Education,
Albacete, España*

Pedro.Gil@uclm.es

Honrubia Montesinos, C.

*Department of Didactics of Musical, Arts and Body Expression. Faculty of Education ,
Albacete, Spain.*

Lazzara Delgado, M.

*Department of Didactics of Musical, Arts and Body Expression. Faculty of Education,
Albacete, España*

Madrid Estesó, I.

*Department of Didactics of Musical, Arts and Body Expression. Faculty of Education,
Albacete, España*

Abstract.

In the stage of Infant Education children find in their own body and movement the main way of getting in touch with the reality which surrounds them and, thereby, acquiring knowledge about the environment where they are growing up and developing. Undoubtedly, the progressive discovery of the body itself as a source of feelings and sensations, exploring the different possibilities of action and body functions, will constitute the necessary experiences upon which children's thought is being built. Besides, affective relationships established in situations of psychomotor education, and particularly through game, will be essential for children's emotional development.

In this sense, this proposal is focused on justifying the necessary presence of physical education in Infant Education as well as on showing a pedagogical proposal based on an attractive and entertaining motor intervention for children at this stage. This mentioned proposal contains concepts and assumptions about the motor development such as the different motor skills and how to work them, the body scheme and the concepts of time and space and an explanation how to work them in Infant Education, the importance of perceptions and sensations in this educational stage and from a practical point of view, it offers a teaching proposal to improve them. As well, it does not only work the motor skills but also it explains how to work social, emotional and cognitive skills in an integrated way because the physical education in Infant Education is the best way to achieve this. Moreover, this practical proposal highlights the importance of motor games and the different kind of games, which can be used in Infant Education. By this way, we can make use of the games as a tool to improve the teaching- learning process and to make the learning visible. Furthermore, it offers different methodological strategies to improve the motricity in Infant Education taking into account different factors such as the materials or environments, which can be used to develop the Motor Education. So, this teaching proposal is essential owing to the fact that it provides with examples which show how motor storytelling, learning corners, workshops and projects based on action and adventure spaces can be worked in our classroom shining in their own right. From our point of view, professionals working in the field of Infant

Childhood motor skills may know and recognize the value of the proposals shown here so that they can teach us to be more

critical regarding our professional practice, increasing our concern about the development of motor skills – physical education in Infant Education in its systematic form – which without any doubt will result in children’s higher levels of welfare and health with regards to their own construction of the reality which surrounds them.

Key words: Infant Education; physical education; motor development; skills

3. Visuo-motor control in individuals with Developmental Coordination Disorder – Why we should improve coupling perception and action.

Deconinck, F.J.A.

Movement and Sports Sciences, Ghent University, Ghent, Belgium

frederik.deconinck@ugent.be

Abstract

Developmental Coordination Disorder (DCD) is a neurodevelopmental disorder characterised by a reduced ability to acquire and perform motor skills, which results in difficulties engaging the physical and social environment. DCD occurs in the absence of an identifiable medical cause, affects between 1.8 – 5.5% of school-aged children and is persistent across the developmental span. Due to their reduced motor competence individuals with DCD are at risk of psycho-social problems and sedentary lifestyles, which in turn increase the risk of health problems such as obesity, diabetes, and cardiovascular diseases. This paper will discuss the potential underlying factors of the difficulties related to planning and control of motor tasks, provide empirical evidence for visuo-motor problems in daily tasks and suggest training methods based on these findings.

Visuo-motor behaviour of individuals with DCD was examined and compared with neurotypical controls during a fine motor (cup stacking) and gross motor task (walking through a cluttered terrain). Direction and timing of gaze was measured using mobile eye tracking glasses (ETG, SensoMotoric Instruments, Teltow, GE) and movement of the hand (in the fine motor task) and feet (in the gross motor task) was tracked with a digital camera (EX-F1, Casio, Tokyo, Japan). The individuals with DCD performed both tasks slower than the neurotypical individuals, yet with similar accuracy. In the cup stacking task, the individuals with DCD demonstrated less stable gaze than the controls and a tendency to postpone gaze shifts until a sub-movement of the sequence was completed, making the entire movement less fluent. Similar findings were observed in the walking task, where individuals with DCD again used more gaze shifts, needed more time to initiate the foot movement after they had foveated a target, and postponed gaze shift to the next target until a step was completed.

Altogether, these findings suggest disruptions in the coupling between gaze control and control of other effectors which contribute to the slowing and impaired coordination of movement in individuals with DCD. Based on this evidence and pending further research, practitioners are advised to integrate visuo-motor training in the treatment of children with DCD.

Key words: Developmental Coordination Disorder; Motor Control; Perception; Action

4. Applying self-controlled video feedback in Physical Education

Kok, M^{1.}, Komen, A.K., van Capelleveen, L. K., van der Kamp, J. ^{1,2}

1. Department of Human Movement Sciences, Faculty of Behavioural and Movement Sciences, Vrije Universiteit, Amsterdam, The Netherlands

2. Research Centre for Exercise, School and Sport, Windesheim University of Applied Sciences, Zwolle, The Netherlands

m.j.kok@vu.nl

Abstract

Many studies have shown that self-controlled (video)feedback benefits motor learning and self-motivational beliefs in laboratory settings. It can be questioned whether self-controlled feedback has similar effects in a Physical Education (PE)- setting, because application of self-controlled video feedback in a group of PE-students requires a different strategy compared to laboratory settings, in which participants commonly practice individually or in small groups. This study examined the effects of self-controlled video feedback in a Physical Education (PE) setting. Participants were grade 1 students of a regular secondary school who practiced the shot put during four PE-lessons. One class practiced with self-controlled video feedback (self-controlled video feedback, SC-VF group). Opposed to the common application of self-controlled feedback, they practiced primarily independently of the teacher in dyads: the peers filmed each other and analysed the recorded video together with the help of video-applications, a video model and cue cards. A second class practiced in a similar fashion. However, they were yoked to the first group and could not choose their feedback schedule (externally controlled video feedback, EC-VF group). A third group practiced the shot put in a traditional way (traditional, TG-group): they received demonstrations, verbal instructions and feedback from the PE- teacher. Results showed that shot put distance and shot-put form increased significantly after practice, without differences between groups. Self-efficacy also increased significantly after practice. Although the Group x test interaction just failed to reach significance, post hoc analyses did indicate significant increases in self-efficacy in the TG- group and the SC-VF group, but not in the EC-VF group. Thus, self-controlled video feedback without continuous guidance of a teacher during practice appeared to be as effective as traditional guidance of the teacher in a PE-context.

Key words: Feed-back; self efficacy; video

5. DEVELOPMENTAL COORDINATION DISORDER: INTERVENTION THROUGH MUSIC AND MOVEMENT

A. V. Valero-García, A. Díaz-Pérez, G. Vicente-Nicolás, M. Olmos-Soria

Department of Psychology

Universidad de Murcia.

marolmos@um.es

Abstract

Developmental Coordination disorder is a pathology that affects approximately a 5-8% of child population in western societies with a high prevalence. It affects children with no cognitive disabilities but that have a deficient motor development for their age, with limitations in coordination and difficulties in motor daily tasks. Early intervention is recommended as the consequences of this disorder delay the normal course of daily life. In order to answer to these needs, an intervention program based in music and movement was proposed. Its aim was to improve motor abilities in children at risk of DCD. The program was carried out in a Primary School centre with a weekly session of 50 min. The sample consisted of 22 children with this disorder between 6 and 9 years of age. To assess the sample the Spanish adaptation of the Movement Assessment Battery for children (MABC-2) was used. This program was based in the development of seven fundamental aspects in the identification of DCD: 1) fine motility; 2) fine motor integration; 3) manual dexterity; 4) bilateral coordination; 5) balance; 6) agility and speed (upper limbs); and 7) coordination and strength (lower limbs). Activities were designed from a playful perspective and were divided in three categories: playing with songs, playing without songs and dancing plays. To assess the efficiency of the intervention program, an ANOVA model was applied to analyze the effect of the intersubject factor in the MABC-2 scale. The mean change was significantly higher in children in the experimental group that in the without risk control group for the global score ($F(1, 50) = 14.656; p < .001$) and for the subscale of Balance ($F(1, 50) = 5.361; p < .05$). However, there were not significant differences between these groups in the subscales of Manual Dexterity and Aiming and Catching. This same pattern was also found in the risk control group when the performance of these children were compared to the experimental group; nevertheless, in this case, a bigger improvement in the experimental group was found not only in the global score and in balance, but also in Manual Dexterity ($F(1, 33) = 4.780; p < .05$). Hence, the program happened to be effective for MCD.

Keywords: Developmental coordination disorder; music; playful

