



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Yn Ffocws Addysg; Trawsnewid Bywydau
Education; Transforming Lives

SKIP- Cymru[©]

(Successful Kinaesthetic Instruction
for Pre-schoolers- Wales)

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ACADEMI CYMRU AR GYFER
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WALES ACADEMY FOR
HEALTH & PHYSICAL LITERACY



Physical Literacy

Physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life.

Whitehead, M. 2016.

- Physical inactivity is one of the leading risk factors for death worldwide and a key risk factor for NCDs (WHO, 2020b)
- A report by the National Assembly for Wales Health, Social Care & Sport Committee (2019) indicated that **physical inactivity in Wales** is a national problem for **people of all ages**
- The physical inactivity pandemic is at risk of becoming even worse as a result of the COVID-19 pandemic (Hall et al., 2020)

Young children are moving less

- Baby gadgets
- Increased time in buggies
- Busy working parents
- Coffee shop culture
- Screen time
- A lack of free play



We are facing a 'Perfect Storm' of inactivity

- The combination of many factors are all contributing to children moving less in early childhood.
- Why is this a problem?



This has serious implications for child development

- Sensory motor integration- organising sensations from one's body & the environment in the nervous system
- Physical development is reliant on well integrated and functioning body systems- Vestibular system (balance) Proprioception (intuition)



Moving lays the foundations for learning

- 7 or 8 years of **moving** and **play** are required to give the child a sensorimotor intelligence that can serve as a foundation for **intellectual, social and personal and physical development**
- Play consists of a series of adaptive responses that make sensory integration happen (Ayres, 2005)

Evidence from neuroscience

- ‘**Movement skills** in childhood are inextricably **linked to** core aspects of development including **social, cognitive and psychological.... Language emerges as children physically interact with their surroundings...**’
- Studies show **movement skills** are linked with early **language and literacy, emotional regulation, social behaviour and academic self perceptions**

Diamond,A. (2000; 2015), Iverson, J (2010), Van der Fels et al., (2015), Bedard et al., (2017)

Early childhood

- Early childhood is critical period for children to develop their movement vocabulary, memory and quality as a **foundation for physical competence**
- The more we move the more competent we become developing strength, balance, co-ordination and dexterity
- 0-8 is critical for developing the physical, social and cognitive domains- **play** plays a crucial role- what do we have in Wales?
- WHO state that **enabling children to achieve their full potential is a human right**

The Foundation Phase

- Introduced in 2008
- Age 3 to 7
- Play based approach
- 7 Areas of learning
- Holistic approach
- Child and adult led
- Indoor and outdoor learning



Remember the Physical Literacy perspective...

- Drawing on existentialism, Whitehead highlights how it is through physical '*embodiment*' that humans '*create themselves as they interact with their surroundings*' (Whitehead, 2010:26).



Physical literacy & Foundation Phase

- The person-centred, holistic approach of physical literacy recognises the value of embodied engagement to human development and the contribution it will have to self-esteem (Whitehead et al., 2018).

Principles & Framework of Foundation Phase Curriculum

‘first-hand experiences allow children to develop an understanding of themselves and the world in which they live’ with the core of the curriculum being *‘the development of children’s self-image and feelings of self-worth and self-esteem’* (Welsh Government, 2015, p.3).

No PE?



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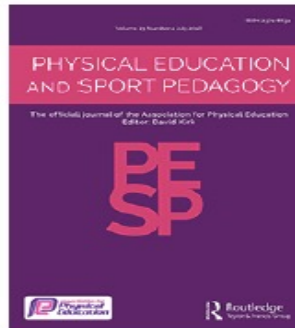
Education 3-13

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The Foundation Phase in Wales – a play-based curriculum that supports the development of physical literacy

N. Wainwright, J. Goodway, M. Whitehed, A. Williams & D. Kirk



Physical Education and Sport Pedagogy

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Laying the foundations for physical literacy in Wales: the contribution of the Foundation Phase to the development of physical literacy

Nalda Wainwright, Jackie Goodway, Margaret Whitehead, Andy Williams & David Kirk

Findings

- Schools were implementing the curriculum with fidelity
- Correlation between physical competence and their intellectual development
- Independent motivated learners
- Progress in the development of Physical Literacy
- Children were **NOT** developing all aspects of their physical competence- at the phase where they should be developing their FMS

Findings

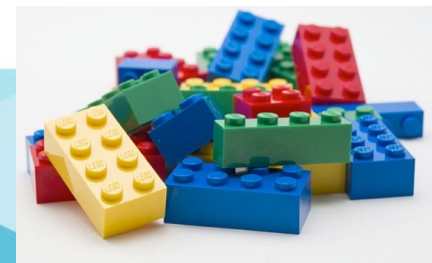
- FP children were developing their locomotor skills
- However, despite having taught sessions and lots of play pupils did **not improve object control skills**
- Teachers did not know **how** to teach these skills



Why is this an issue?



- FP children are at the phase of motor development where they are developing their FMS
- FMS lay the foundations for physical competence- key attribute of PL
- A misconception is that children 'naturally' learn FMS, however they need to be taught, reinforced and practiced in the correct environment
- Without this foundation in the early years, an individual is less likely to participate in a variety of physical activity contexts in later life



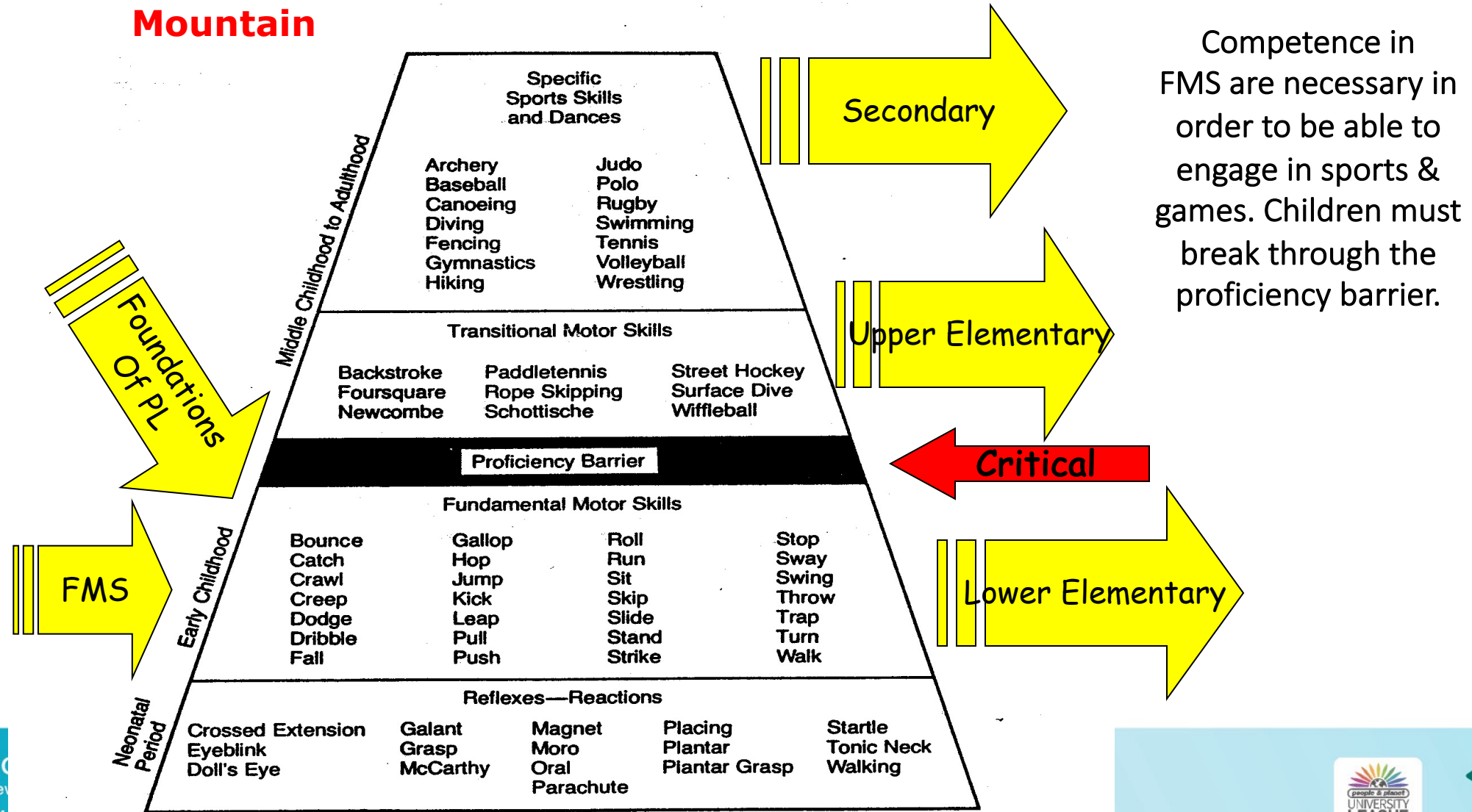
Why is this an issue?

Developmental models and research in the field of motor development indicate the importance of motor skill development in early childhood.

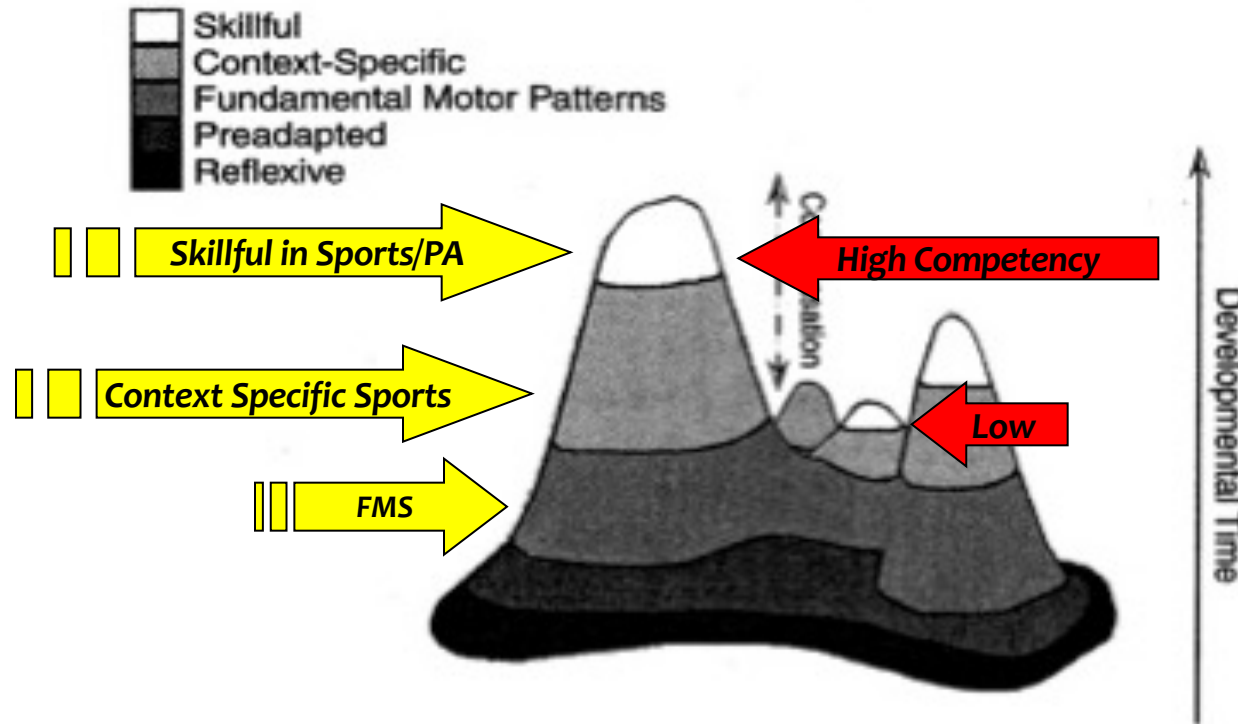
- **Seedfelt (1980)** - Proficiency barrier
- **Clark and Metcalf (2003)** - 'Base camp' of skills for a 'Mountain Range' of Motor Development
- **Stodden et al. (2008)**- proposed synergistic relationships among physical activity, motor competence, perceived motor competence, health-related physical fitness, and obesity
- **Barnett et al. (2009)**- OC skills are associated with and predict physical activity in adolescent
- **Robinson et al. (2015)**- Motor competence and PA behaviors should be established in early life
- **Barnett et al. (2016)** –Importance of Fundamental Motor skills (FMS)
- **Hulteen et al. (2018)** –Foundational movement skills for physical activity across the lifespan

Figure 1. Progression of Motor Proficiency Skill Levels (from Seefeldt, 1980, p.317)

Climbing the Motor Development Mountain



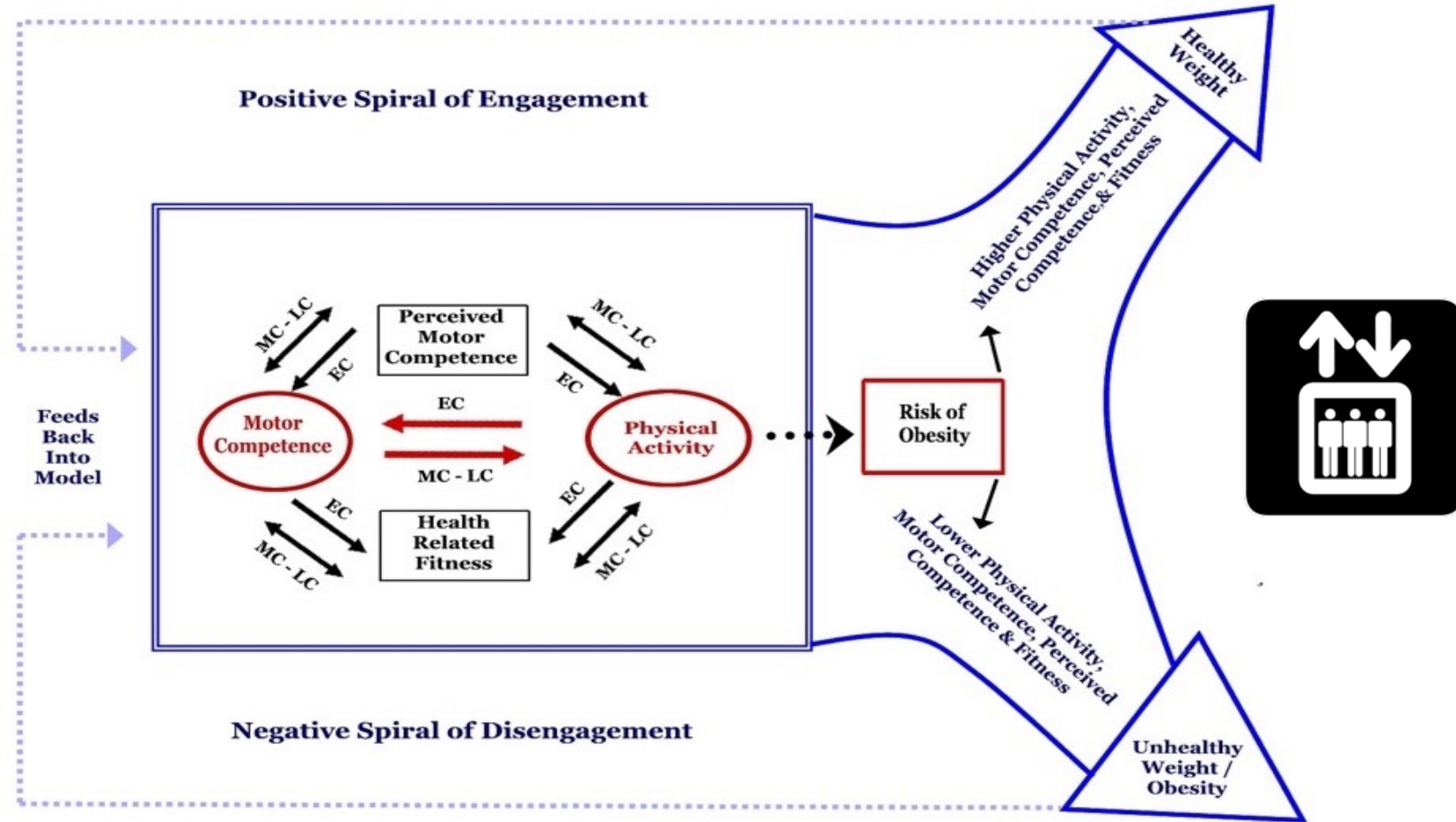
Mountain of Motor Development



FMS are the “base camp” to the mountain of motor development. Each child needs to develop MC to travel up the mountain to skillfulness.

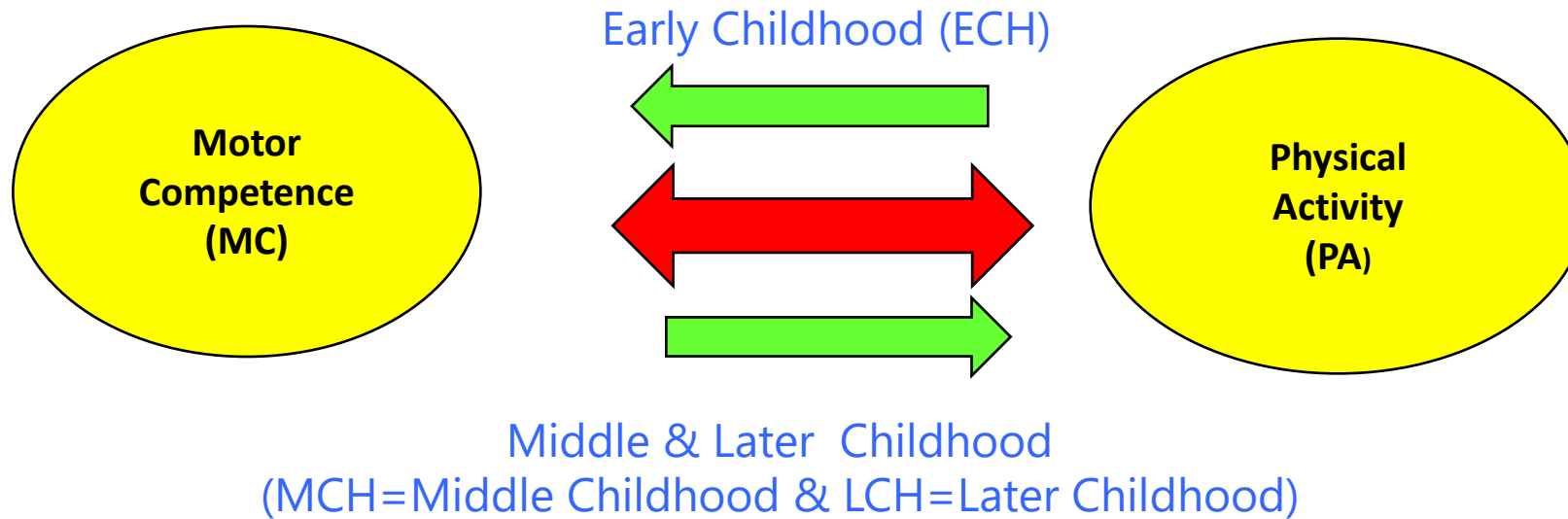
Clark & Metcalfe (2003)

MC's role in influencing the Physical Activity & Obesity Trajectories of Children Elevator Up?.....Elevator Down



Stodden et al. (2008)

Physical Activity and Motor Competence



- Movement opportunities in the preschool and early primary school years (3-8 years) influences the ability to develop motor competence.
- By middle and later childhood if a child is not motor competent he/she will not chose to be physically active. If she/he is not active then their motor competence will get worse.

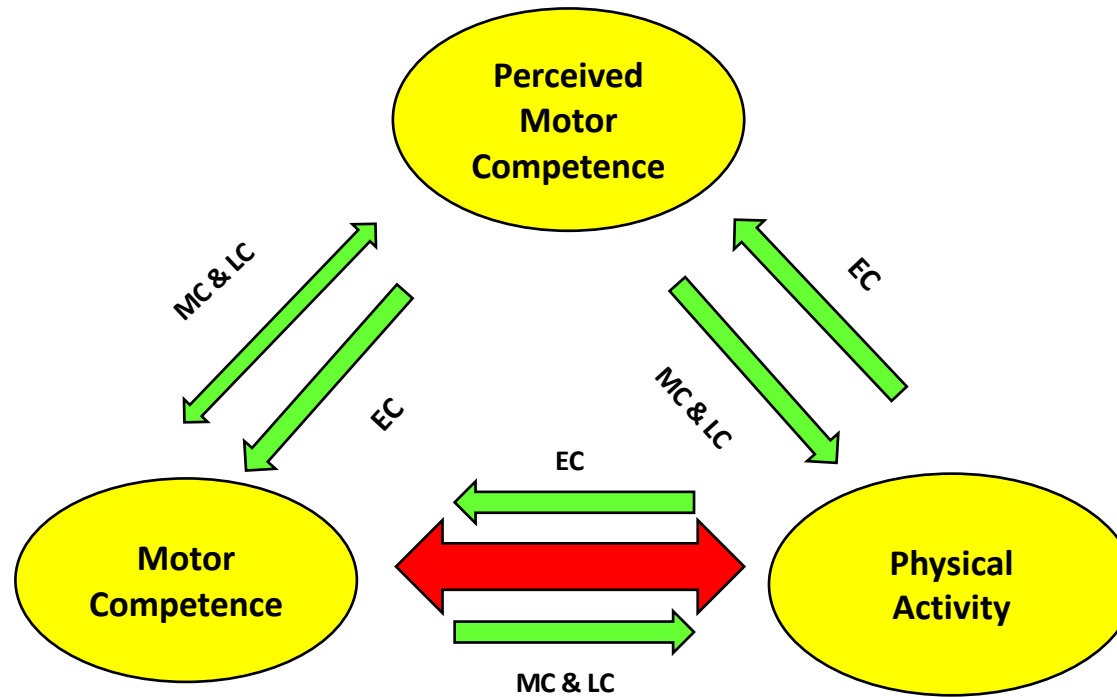
TAKE HOME MESSAGE

We need structured physical activity programs for young children that focus on developing fundamental motor skill competence.

Relationship between PA, MC & PMC- Perceptions of MC (PMC) become increasingly important

Early Childhood – children have limited ability to accurately judge PMC. Weak relationship between PA & PMC & MC & PMC. This can be used as an asset to promote motor acquisition in PE.

Middle Childhood – Children's cognitive capacity changes & PMC begins to play a more critical role. PMC & MC more closely approximate each other. By 7 years of age, children with low MC & low PMC are vulnerable and be much less PA.



Later Childhood – By LCH the interaction between these factors can strongly push children into a negative spiral of disengagement with low MC influencing PMC & PA negatively. It is hard to change the PA behaviors of these children at this point in time.

Hulteen et al. 2018 Foundational skills

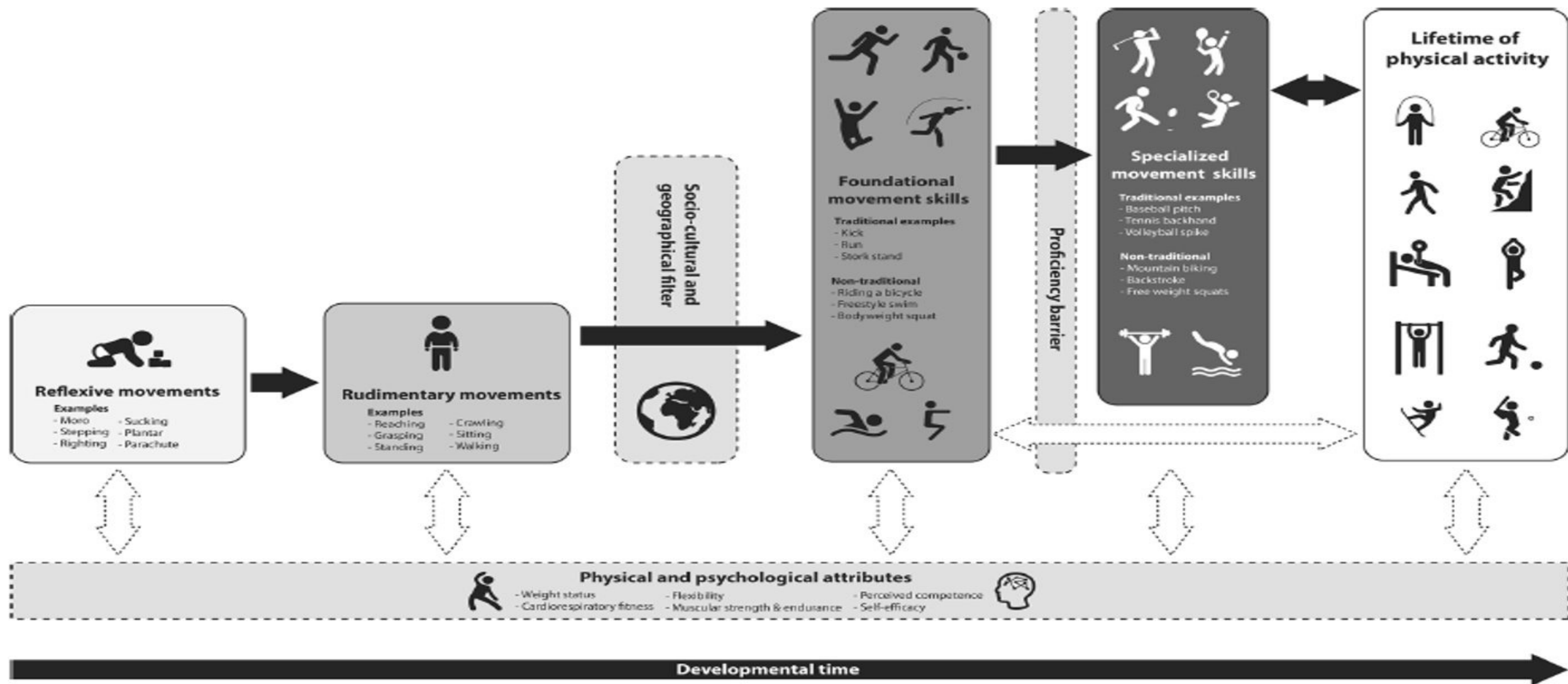


Fig. 1 Development of foundational movement skills for physical activity across the lifespan. *Black arrows* indicate previously hypothesized pathways; *white arrows* and *dotted boxes* indicate newly hypothesized pathways/components unique to this conceptual model

Early childhood development

- Development of 'physical competence' in the early childhood years is critical
- Without FMS as a base for physical competence, children are unlikely to develop the **motivation** and **confidence** that will encourage them to engage in movement/ physical activity
- Links between early physical competence and engagement in physical activity in later life
- FP children 'preoperational' phase and egocentric- 'Magic Window'
- Strong research to suggest that children in areas of socio-economic deprivation are developmentally delayed in their FMS

Practical 1

- Fundamental movement concepts- spatial and body awareness
- Building a movement vocabulary
- Activities to promote balance strength and core strength
- Developmentally appropriate warm up games and activities to develop movement vocabulary

Project SKIP[©] *(Successful Kinaesthetic Instruction for Pre-schoolers)*

- Developed by Professor Jackie Goodway, Ohio State University over 20 years ago
- Motor skill Intervention- developmentally appropriate activities to develop motor competence
- Focuses on FMS, MVPA and movement knowledge
- 8-12 weeks/ 2 x 30- 45 minute sessions per week
- SKIP-Cymru[©] developed to fit a playful pedagogy



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SKIP CYMRU®
SUCCESSFUL KINAESTHETIC INSTRUCTION FOR PRE-SCHOOLS

- Advocacy with leadership
- Training day for Foundation Phase staff
- Mentoring
- Parental engagement sessions and parent bags
- SKIP-Cymru developed to fit a playful pedagogy
- Not resource driven
- 2 x 30- 45 minute sessions **every** week (5 to 10 min warm up/ cool down, 3 stations/ gardens 10 min each)



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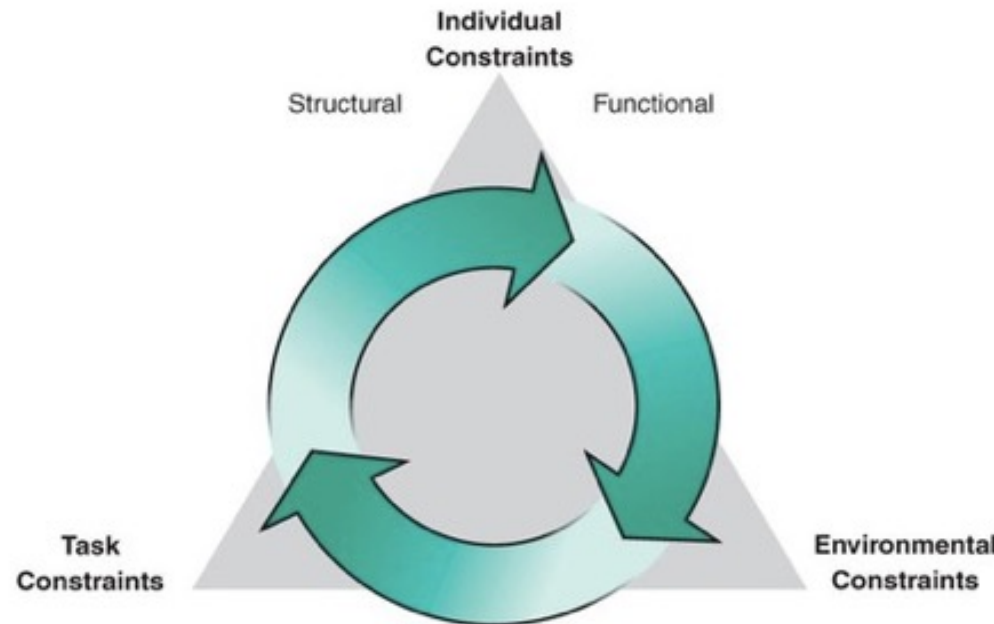
Dynamic Systems Theory (DST) & Newell's Constraints Theory

Learner

FP children, Age, Gender,
ALN, BMI, Motor skill level, Psychological,
Previous experience

Task

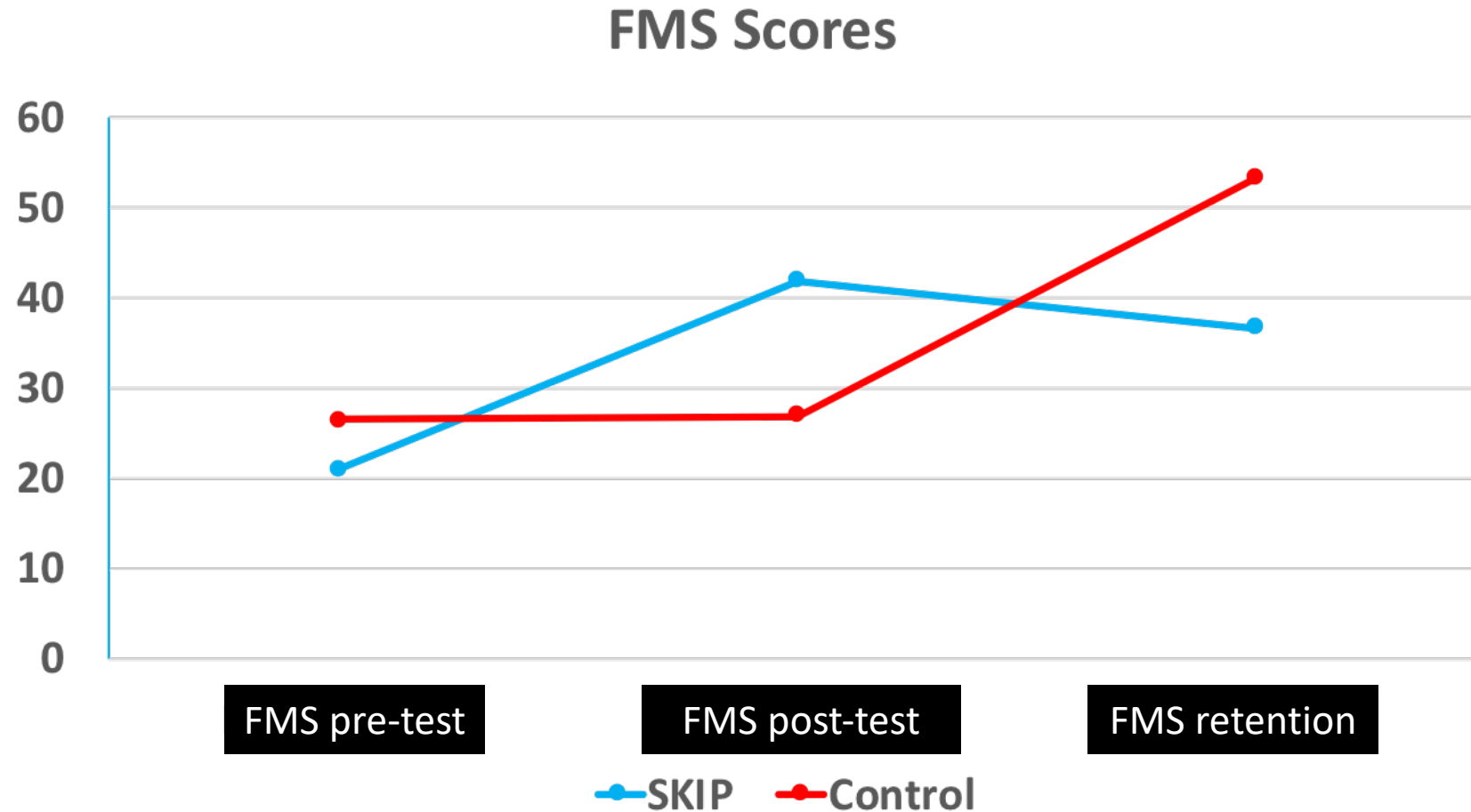
Goal of activity, rules/
structure, Equipment used



Environmental

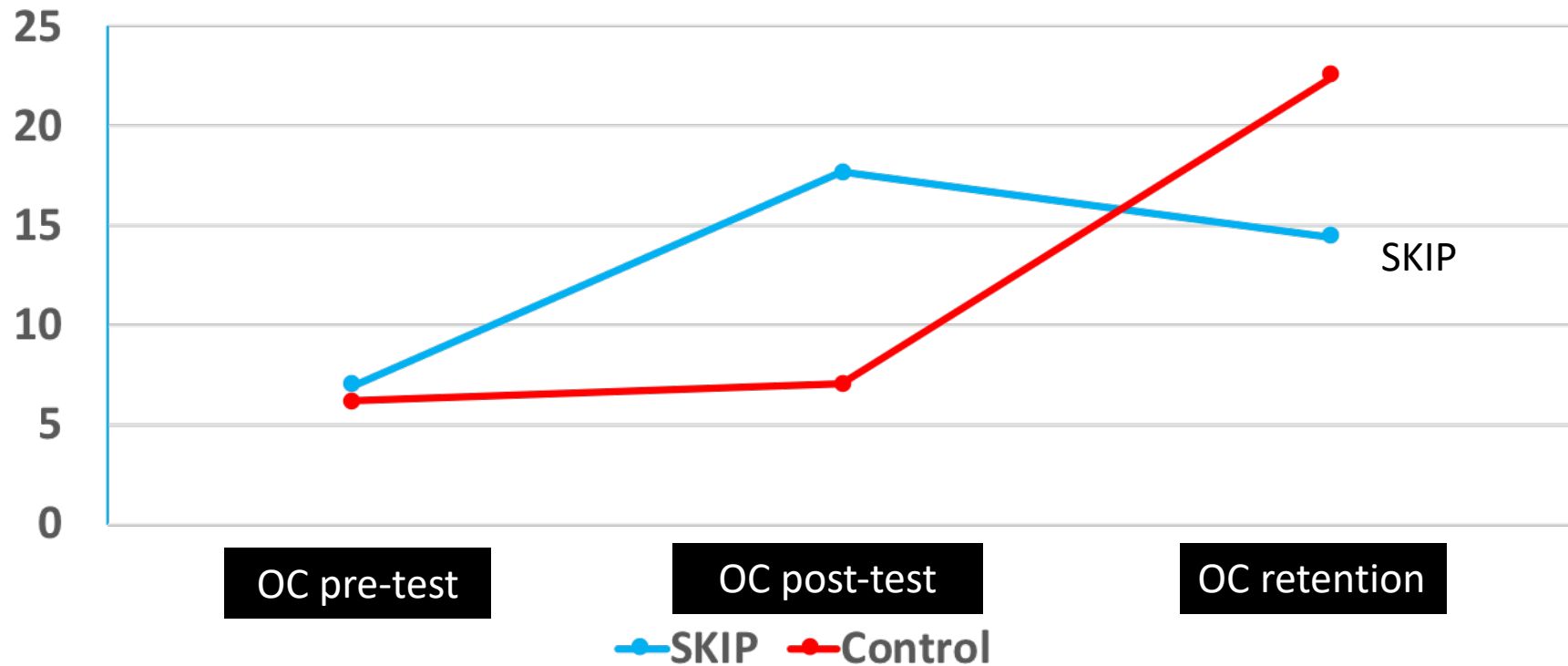
Equipment (i.e. size, shape,
Teacher, School/ location,
Inside/ outside

SKIP Cymru data 2016



SKIP Cymru data 2016

OC Scores pre-test, post-test and retention





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Developing children's motor skills in the Foundation Phase in Wales to support physical literacy

Nalda Wainwright, Jackie Goodway, Amanda John, Kirsty Thomas, Kate Piper, Kate Williams & David Gardener

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Aims of PhD research

The effectiveness of professional development SKIP Cymru

- It examined the impact of SKIP on FP children's:
 - *Motor competence (FMS)*
 - *Perceived motor competence*
 - *Physical activity levels across the school day*
- A secondary purpose of the study was to examine:
 - *The extent to which the teachers implemented SKIP Cymru with fidelity while receiving mentoring and support*
 - *The teacher and their experience, knowledge and understanding, prior to and following the SKIP Cymru training*

Participants & Measures

- **4** Schools in West Wales
 - **5** Classes (2 Welsh, 3 English)
 - **3** SKIP classes (n= 52)
 - **2** Comparison classes (n= 42)
 - **94** (Baseline) Children (4-7-year olds)
 - **5** Teachers
 - **2** Mentors
- 
- **Motor Competence-** TGMD 2 (Ulrich, 2000); M-ABC (Henderson, Sugden and Barnett, 2007); Product measures- Run, Throw and Jump
 - **Perceived Motor competence-** PSPCSA (Harter & Pike, 1984); PMSC (Barnett et al., 2015)
 - **Physical Activity-** ActiGraph GT3X- BT monitor
 - **BMI**
 - **Semi structured interviews/ Field notes**
 - **Lesson Fidelity**

Phase 1: Autumn 2019

Phase 2: Spring 2019

Phase 3: Summer 2020

SKIP Classes

Pre-test children
Interview teachers
SC Training day

SKIP
(10 weeks)

Post-test
Interview
teachers

'New business as
usual'
(10 weeks)

Retention test
Interview
teachers

Comparison Classes

Pre- test children

Business as
usual
(10 weeks)

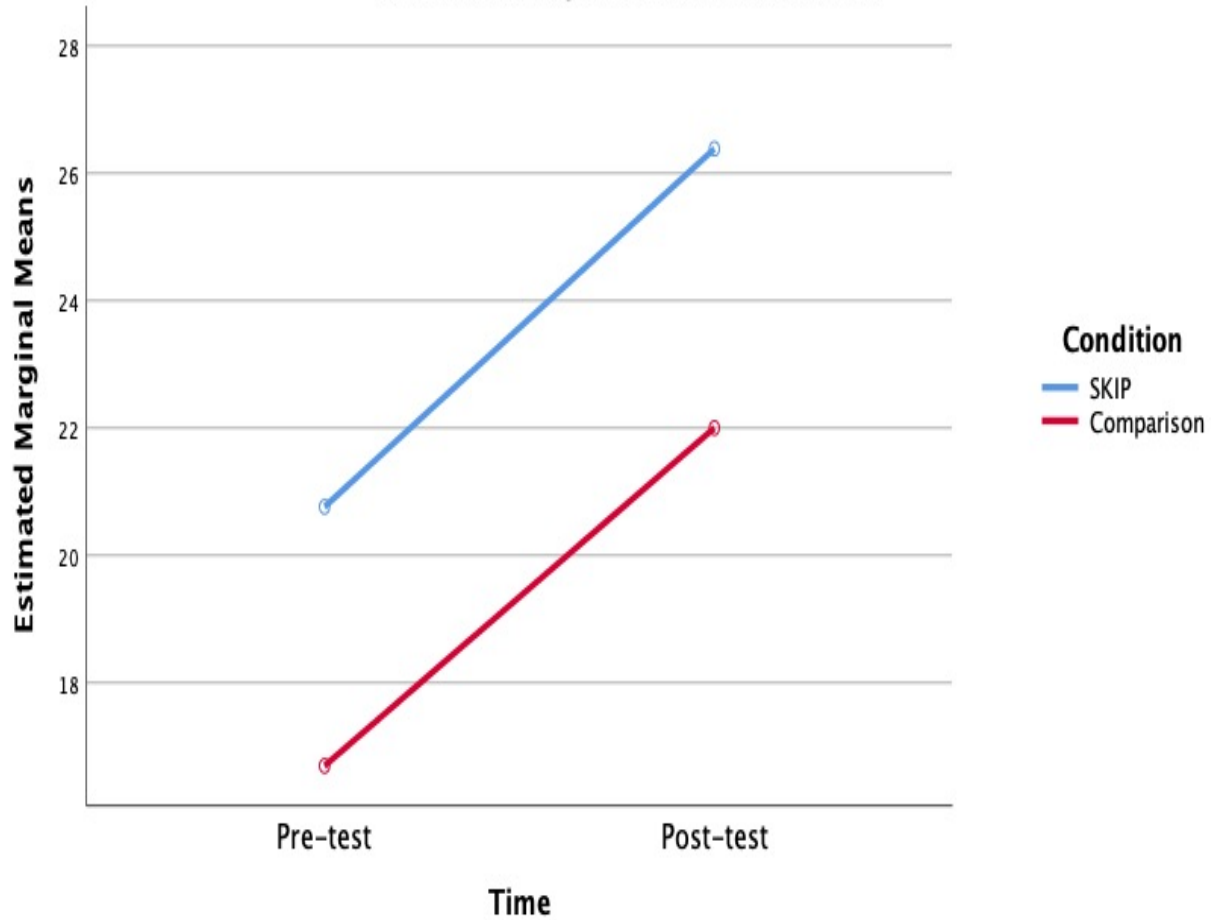
Post-test 1
Interview teachers
SKIP Cymru
training day

SKIP
(10 weeks)

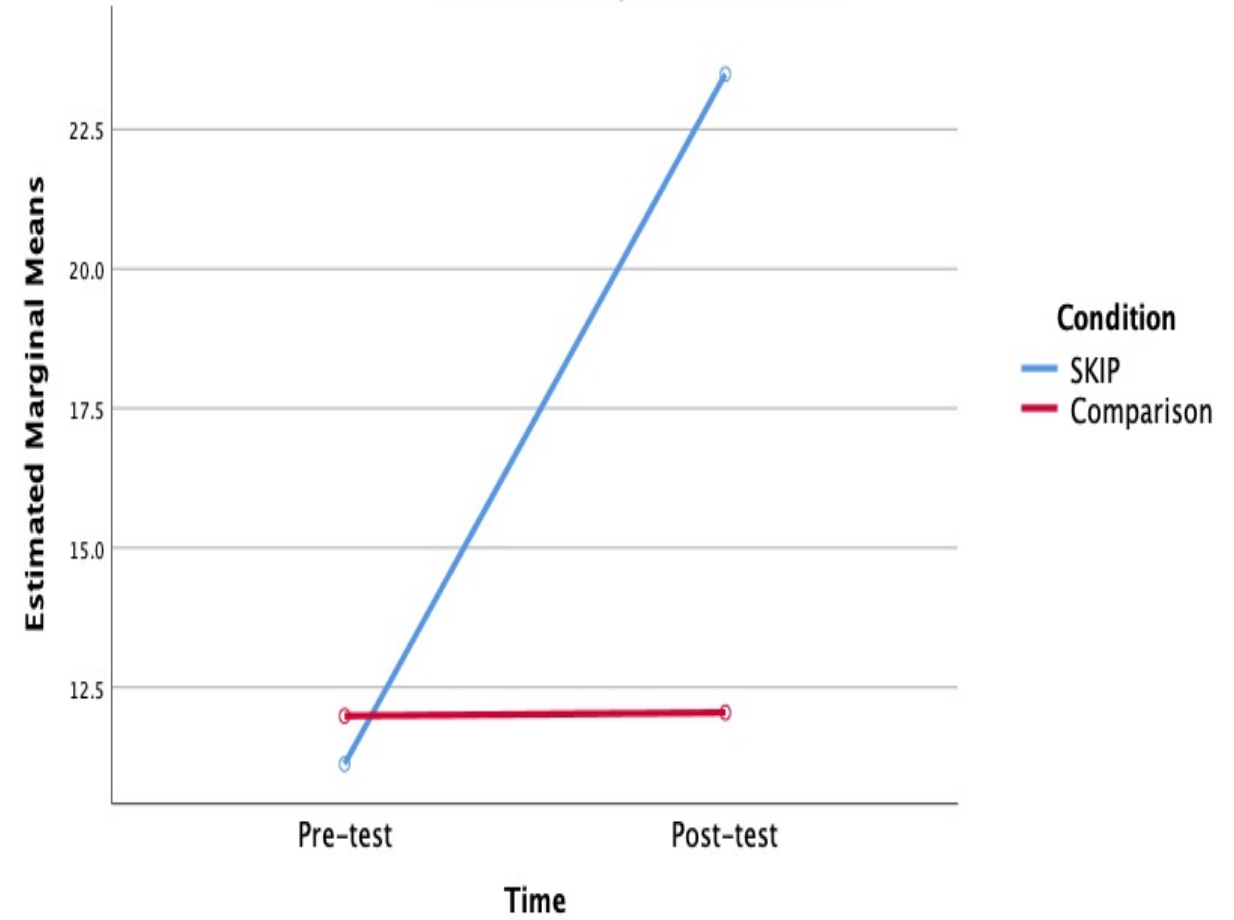
Post test 2
Interview
teachers

SKIP Cymru data 2018

Estimated Marginal Means of locomotor

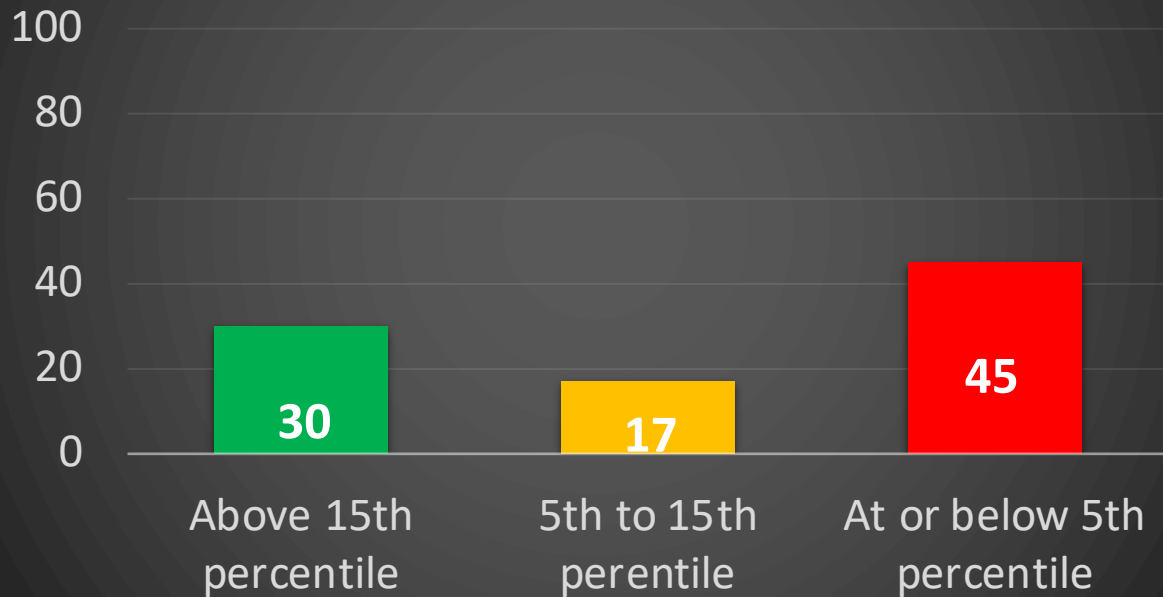


Estimated Marginal Means of OC

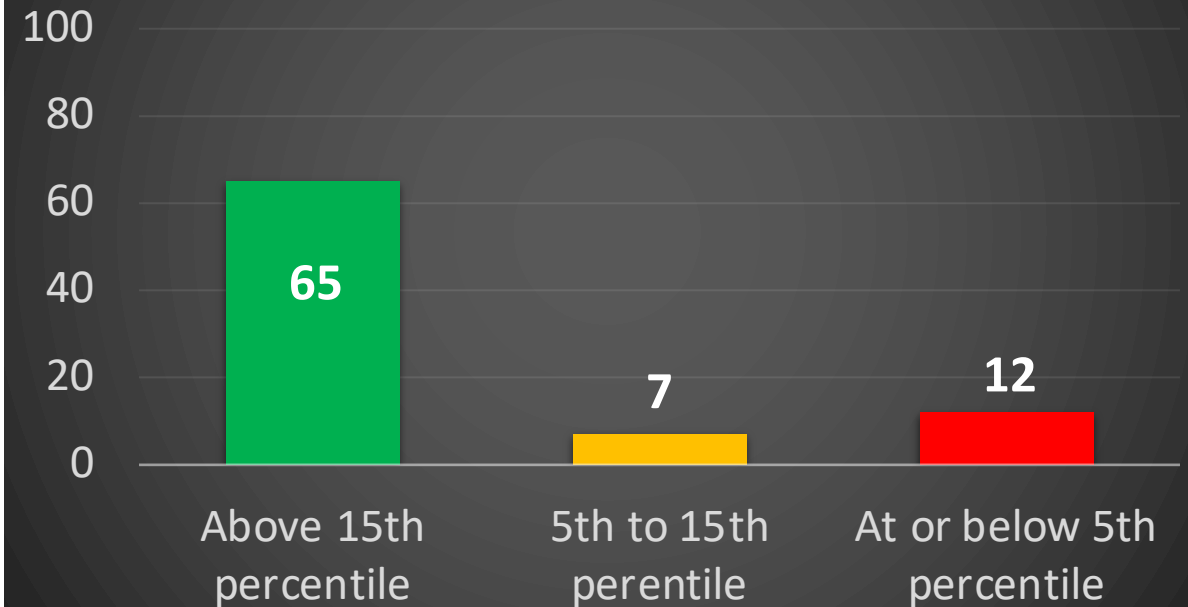


M-ABC 2018-2019

M-ABC Baseline (n=92)
Autumn 2018



M-ABC Retention & Post Test 2 (n=84)
Summer 2019



Findings

- There continues to be a gap in teacher knowledge & understanding
- FP children demonstrated extremely low levels of motor competence
- SKIP Cymru had a positive impact on MC (TGMD & M-ABC), however they were still not at a sufficient level- needs to be continuous- no impact on PMC and PA
- OC skills, standing jump & age predicted MVPA and SB in FP children
- The school day alone was not enough time for children to achieve the recommended 60 min MVPA

This trajectory is unlikely to change unless it is addressed as a matter of urgency as a compulsory part of ITT & professional development in Wales



Practical 2

- Concept of gardens
- Stages on locomotor skills and pre requisites
- Stages of catching
- Stages of throwing
- SKIP Cymru session

Diolch/ Thank you



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