



## Who can best report on children's motor competence: Parents, teachers, or the children themselves?



Isaac Estevan <sup>a,\*</sup>, Javier Molina-García <sup>a</sup>, Steven J. Bowe <sup>b</sup>, Octavio Álvarez <sup>c</sup>, Isabel Castillo <sup>c</sup>, Lisa M. Barnett <sup>d</sup>

<sup>a</sup> Department of Teaching Music, Visual and Corporal Expression, University of Valencia, Valencia, Spain

<sup>b</sup> Deakin Biostatistics Unit, Faculty of Health, Deakin University, Geelong, Victoria 3125, Australia

<sup>c</sup> Department of Social Psychology, University of Valencia, Valencia, Spain

<sup>d</sup> School of Health and Social Development, Institute for Physical Activity and Nutrition (IPAN), Deakin University, Geelong, 3220, Australia

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### ABSTRACT

**Objective:** A positive perception of motor competence (MC) is important for children's health trajectory. It is purported that young children's perception is not well aligned with their actual ability. Alternative sources of perceptions are postulated from children's social context such as their parents or teachers. This study aims to analyse the associations among children's, parents' and Physical Education (PE) teachers' perception of children's MC and the children's actual MC, and whether these sources of information can report on children's actual MC.

**Design and method:** A convenience sample of 139 typically developed children (48.2% girls) from six schools participated in this cross-sectional study. Actual and perceived MC was assessed by using the Test of Gross Motor Development and the Perceived Movement Skill Competence scale, respectively. Spearman's rho correlation and multilevel mixed-effects linear regression models were conducted.

**Results:** Weak, weak-moderate and moderate positive associations were found between children's, parents' and PE teachers' reports and children's MC ( $p < 0.05$ ), respectively. Children presented limited capability in explaining their actual MC. Parents' and PE teachers' proxy reports on children's MC were predictors of children's MC, with PE teachers best able to report on children's MC.

**Conclusion:** Taking into account the resources needed to objectively assess children's actual MC, this study offers alternative sources of information for educators, researchers and/or therapists to assist in reporting children's actual MC.

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Motor competence (MC) is a broad concept which encompasses fundamental movement skill (FMS) level, i.e. locomotor and object control skills (Gallahue, Ozmun, & Goodway, 2012). MC has been identified as relevant for young people to be active physically in their daily life (Robinson et al., 2015; Stodden et al., 2008). MC in childhood also tracks to later adolescent movement skill mastery (Barnett, van Beurden, Morgan, Brooks, & Beard, 2010; Gallahue et al., 2012).

\* Corresponding author. Department of Teaching of Music, Visual and Corporal Expression, University of Valencia, Avenida dels Tarongers, 4, 46022, Valencia, Spain.

E-mail addresses: [isaac.estevan@uv.es](mailto:isaac.estevan@uv.es) (I. Estevan), [javier.molina@uv.es](mailto:javier.molina@uv.es) (J. Molina-García), [s.bowe@deakin.edu.au](mailto:s.bowe@deakin.edu.au) (S.J. Bowe), [octavio.alvarez@uv.es](mailto:octavio.alvarez@uv.es) (O. Álvarez), [isabel.castillo@uv.es](mailto:isabel.castillo@uv.es) (I. Castillo), [lisa.barnett@deakin.edu.au](mailto:lisa.barnett@deakin.edu.au) (L.M. Barnett).

During recent years there is more evidence to show that a positive perception of physical competence is also very important to a child's health trajectory (Jekauc, Wagner, Herrmann, Hegazy, & Woll, 2017; Robinson et al., 2015). Children's perception of physical competence is important for their well-being, social acceptance, general participation in play, and willingness to participate in physical education (PE) and physical activities in general (Ntoumanis, 2001; Stodden et al., 2008). Systematic review evidence shows children with high levels of perceived physical competence are more likely to engage in physical activity (Babic et al., 2014).

In relation to self-perception, children form their beliefs by interpreting information from four sources of self-perception (Bandura, 1997): (1) mastery experience, 2) vicarious experience, 3) social persuasion from significant others and 4) physiological states. Among the determinants of why individuals are physically

active or inactive, significant others play a relevant role in affecting children's behaviour (Jekauc et al., 2017; Ramanathan, O'Brien, Faulkner, & Stone, 2014; Rivard, Missiuna, Hanna, & Wishart, 2007; Stodden et al., 2008). However, little is known about whether the development of MC could be influenced by the significant others (Laukkanen, Pesola, Heikkinen, Sääkslahti, & Finni, 2015). In particular, parental influence has comprised only a minor area of study in efforts to enhance MC in children, making it difficult to interpret the role of parents on the outcomes (Laukkanen et al., 2015). Studies conducted on the analysis of social correlates were mainly focused on preschool children (Iivonen & Sääkslahti, 2014), finding that significant others (e.g., parents and teachers) can affect children's MC in both boys and girls (Iivonen & Sääkslahti, 2014). In this line, children themselves and their significant others (e.g., parents and educators) can provide valuable insight regarding children's actual MC (Lalor, Brown, & Murdolo, 2016). It is therefore recommended to create a comprehensive and thorough picture of children's actual MC by considering both children's and significant others' views (Kennedy, Brown, & Chien, 2012).

Theoretically, it is purported that due to the limited development in children's cognition influencing their accuracy in self-perception (Barnett, Vazou, et al., 2016), young children's perceptions of their own physical competence is not well aligned with their actual ability. From a developmental approach two reasons are offered: a) young children may perceive effort as mastery, and have not yet integrated their own performance in relation to others (Harter, 1999; Stodden et al., 2008). b) Young children confuse the wish to be competent with the reality (Harter & Pike, 1984), so until eight years-old they do not seem to be capable to report self-judgements accurately. Interestingly, it is noted that as children age, their reflection of their own MC will align better with their actual performance (Stodden et al., 2008). Moreover, it seems that when appropriate instruments are used (those adapted to the children's cognitive ability), such as pictorial scales, young children can make more reliable judgements about their competence (Harter & Pike, 1984; Ruiz-Pérez & Graupera, 2005). In this line, studies conducted in primary school (Barnett, Ridgers, & Salmon, 2015; Liong, Ridgers, & Barnett, 2015) by using pictorial scales, found children are able to report on their MC but their accuracy in reporting MC may be also affected by the sex and the type of movement skill (i.e., locomotion or object control skills). Thus, taking into account that childhood is a key period for the development of MC (Gallahue et al., 2012) and seems critical for the children's capability in making reliable judgements about their MC (Ruiz-Pérez & Graupera, 2005), the study of children's actual and perceived MC should consider that age, sex and type of FMS can provide an insight to children's motor development.

Until recently, assessment of young children's MC did not align with assessment of perceived MC (i.e. children may be assessed objectively in a catch but asked about their perception in a different task). Therefore, studies in this area have generally not compared 'apples with apples' in terms of the relationship between physical self-perception and actual MC (e.g. Kennedy et al., 2012; LeGear et al., 2012; Toftegaard-Stoekel, Groenfeldt, & Andersen, 2010). A recent study showed children around eight years-old with low perceived MC (in this case, athletic competence) were less autonomously motivated for sports and had a lower global self-worth than children with high perception, even if they had high actual MC (Bardid et al., 2016). Other studies using directly aligned assessments (i.e., perception of a catch and actual assessment of a catch) have found weak to moderate associations between perceived and actual MC in young children, with a suggestion that object control skill has better alignment (Liong et al., 2015).

Regarding the information from significant others, Bandura

(1997) stated that social persuasion interacts with children's own perception, and this may consequently affect the children's actual MC (Jekauc et al., 2017; Laukkanen et al., 2015; Liong et al., 2015). Social persuasion includes exposure to the verbal and nonverbal judgments that others provide (Britner & Pajares, 2006) by encouraging (or not) children to engage in activities that promote movement competency (Bangsbo et al., 2016; Eddolls, McNarry, Stratton, & Mackintosh, 2016; Haywood & Getchell, 2005; Liong et al., 2015). Significant others could therefore be integral to cultivating children's positive perception of their MC. In this line, parents of children with better MC seem to perceive their children's athletic competence to be higher than the perception of parents whose children showed poorer movement skill (O'Neill et al., 2014).

Furthermore, educators may also be capable in identifying children with low perceived competence (Toftegaard-Stoekel et al., 2010). Teachers are often the initial source of referral in cases when poor MC development is noticed (Rivard et al., 2007). Hence, despite the important role that significant others may play in the development of children's MC (Liong et al., 2015), only one study to date has analysed children, parents and teachers' perception of children's MC; finding parents predicted children's manual coordination, agility and strength, and teachers predicted children's body coordination but not manual coordination, agility or strength (Lalor et al., 2016). Nonetheless, this study involved general classroom teachers, not teachers of PE. Other studies have demonstrated that PE teachers can identify pupils' MC accurately, even in pupils who are low motor competent (Ruiz-Pérez, Graupera, & Gutiérrez, 2001). Also, PE teachers are able to help children enhance their self-competence (Breslin, Murphy, McKee, Delaney, & Dempster, 2012). However, whilst significant others' capability in reporting children's MC appears to be a dependable and formative source of report (Lalor et al., 2016), parents and teachers may think that a child with poor motor skills could reflect a kind of incompetence in their parenting or teaching abilities, thereby introducing social-desirability bias (Fisher & Katz, 2000).

Taking into account that those children who are limited in MC will not have the prerequisite skills to be active (Clark & Metcalfe, 2002; Clark, 2005), research assessing MC in children must pay attention to understanding the relevance of children themselves and significant others (Stodden et al., 2008) as potential sources of information regarding children's actual MC (Weiss & Amorose, 2005). Thus, the purpose of the current study was to analyse the associations among children's, parents' and PE teachers' perception of children's MC and the children's actual MC, and whether children, parents and PE teachers can report on children's actual MC considering the children's age, sex and the type of FMS. This holistic perspective may allow researchers to recognise which one of these sources provide a better insight into children's actual MC.

## 1. Method

### 1.1. Participants

A cross-sectional design was used to study children's MC from 6 to 11 years old. A convenience sample of 139 (consent rate of 79.6%) typically developing children (48.2% girls) from six schools in Spain participated (45 children aged between 6 and 7 years-old; 31 aged between 7 and 8 years-old; 12 aged between 8 and 9 years-old; 36 aged between 9 and 10 years-old; and 15 aged 10 or 11 years-old). Schools were selected based on having a diversity of schools (three public and three private; two from coastal cities and four from inland). Previous studies in the field calculated a sample size of 20 children for predictive analyses in actual MC (Lalor et al., 2016); in the current study this sample was considered as the minimum for each sex. Table 1 presents descriptive socio-demographic

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