Parent's and teacher's accuracy in rating motor abilities that influence handwriting in children aged 5 and 6

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Résumé

During the first years of schooling, teachers play a key role in educating and promoting prerequisite skills needed for handwriting instruction (i.e. small muscle development and eye-hand coordination). Teachers' accuracy in estimating children's actual competencies on fine motor tasks is relevant to determine school readiness for formal handwriting instruction and possible need of educational interventions. Since fine motor abilities in preschool children and first graders have been found to be predictive factors of later academic performance in literacy (Dinehart & Manfra, 2013; Brown, 2010; Grissmer et al., 2010), it is important to determine caregivers' ability to rate children's development on these domains. While parents' ability in estimating children's developmental status has been already investigated (Federer et al., 2001), teachers' accuracy in rating children's actual competencies is a relatively new topic which deserves further research (Koch et al. 2011) to orient appropriate educational interventions and enhance the quality of instruction.

The objective of this study is to investigate kindergarten and primary teachers' accuracy in evaluating children's skills required to develop handwriting. In addition, the study aims at detecting possible differences between parents' and teachers' ratings of children's developmental abilities.

57 South-Tyrolean kindergarten children and 68 first graders participated to the study. Parents and teachers filled out the Motor Scale from the *Vineland Adaptive Behaviour Scales-II* (Sparrow et al., 2005). The *Movement Assessment Battery for Children-2* (Henderson et al., 2007) was administered to test children's fine and gross motor functioning, including finger dexterity and graphomotor skills. Visual motor integration, as a significant predictor of handwriting, was assessed through the Beery Buktenika *VMI* (Beery et al., 2010). A correlational design was used to determine teachers' accuracy in estimating children's motor skills. Pearson's correlation coefficients expressed the strength of the relationship between VABS-II scores (teachers' ratings on children's motor development), and MABC-2 and VMI scores (children's actual performances on motor tasks). In addition, t tests were employed to detect significant mean's differences between parents' and teachers' estimations of fine and gross motor development.

Following results were obtained after statistical analysis:

a) Small significant correlations were found between overall teachers' estimations of children's motor development (VABS-II) and the following children's performances: MABC-2

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[*]Intervenant

(dexterity tasks, with r's values ranging from $r(116)=.20$ $p< .03$, to r(116)=.26 $p< .004$) and VMI ($r(123)=.33$, $p< .0001$). No correlations were found between parents' ratings and children gross motor performances (r's values ranging from $r(116)=.11$ p=ns, to $r(116)=.16$ p=ns).

b) Kindergarten's teachers showed to be more accurate in rating children's finger dexterity ($r(52)=. 54$ $p< .0001$) and grapho-motor skills ($r(52)=.28$ $p< .04$), rather than eye-hand coordination ($r(56)=.12$ p=ns), while conversely primary teachers were more reliable in estimating visual-motor integration abilities ($r(67)=.41$ $p< .0001$) rather than manual dexterity ($r(64)=.05$ p=ns) and grapho-motor skills ($r(64)=.10$ p=ns).

c) Parents' estimations were significantly higher compared to the teachers' ones, on the VABS-2 fine motor subscale (t=2.412; p=.017; d=.20).

Results indicate that kindergarten teachers are very accurate in estimating children's manual dexterity and less reliable when rating grapho-motor skills, whereas primary teachers showed high accuracy in reporting children's eye-hand coordination abilities and low reliability in rating children's finger movement control. However, all these fine motor abilities – in-hand manipulation as well as visual-motor skills – have been found to predict later academic achievement (Dinehart & Manfra, 2013) and to be associated with good handwriting legibility (Cornhill et al., 1996; Weil, 1994) in normal developing children. Therefore it is important to support teacher's observation and accuracy in rating fine motor development in all school grades.