

**Literature Review of Gross Motor Skills Development and Cognitive Advances in Early Childhood**

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**Introduction**: While there is support that the development of gross motor skills and cognitive learning are associated with each other, further research into these variables is needed to identify the magnitude with which they are related. This is important for the child since a deficiency in one may likely be associated with a deficiency in the other. With this research, physical educators and classroom teachers will be better informed and thereby provide children with appropriate movement activities in hopes of better gross motor and cognitive development. **Review of the Literature**: Research suggests a positive relationship between the development of gross motor skills and cognitive development in early childhood. Previous results found that students who participated in extracurricular physical activities had an improvement in executive function, mathematics, and English test scores by 20% (Abdelkarim et al.

2017). Benefits include but are not limited to productive use of energy, body control, body awareness, attention, academic achievement, improvement in classroom behavior, and cognitive neuroplasticity. In addition, research has shown that cognitive and motor processes develop at similar speeds and can affect the maturing of one another. Motor skills and executive functioning together create a strong premise for a successful academic career (Botha et al.2020). With this research data, educators, parents, and anyone who works with children will be able to utilize this information to strengthen the foundation necessary in early childhood for future academic success. The purpose of this study will be to establish the relationship between the development of gross motor skills and the learning of academic skills in pre-kindergarten students. **Proposed Methods**: Elementary students will be assessed at the beginning (BOY), middle (MOY), and end (EOY) of year on the two gross motor skill objectives (GMS) and the five learning objectives (LRN) related to numeracy (NUM) and literacy (LIT) skills using the GOLD Objectives. The GMS (Objectives 4 & 5) will be scored on a 3-point scale, while the LIT and NUM (Objectives 16 & 20, respectively) will be scored on a 6 or 8-point scale as per the GOLD objectives. Pearson’s Product Moment Coefficient will be used to determine the significance of the relationship between the mean of the GMS and the mean of each LRN. Repeated measures ANOVA will determine the difference at each time point for each skill. Alpha of .05 will be used for all tests. **Conclusions**: This will help determine the relationship between preschool students' gross motor skills and cognitive development. If one exists, this may suggest that physical activity aids in better retention of the curriculum, which is the crucial

foundation of every young child’s academic career.