https://doi.org/10.51483/IJEDT.5.2.2025.71-78 ISSN: 2788-5011

SvedbergOpen
DISSEMINATION OF KNOWLEDGE

International Journal of Education and Teaching

Publisher's Home Page: https://www.svedbergopen.com/

Research Paper Open Access

Gender Interaction Effect in The Improvement of Coordination and Agility Levels of School Children After Participating in Selected Developmental Games for 12 Weeks

Sorkpor Richmond Stephen*

*Health Physical Education, Recreation and Sports (HPERS), University of Education, Winneba, Ghana. E-mail: rssorkpor@uew.edu.gh

Article Info

Volume 5, Issue 2, December 2025
Received : 14 April 2025
Accepted : 19 October 2025
Published : 25 December 2025
doi: 10.51483/IJEDT.5.2.2025.71-78

Abstract

This study examined the effects of a 12-week developmental games intervention on the coordination and agility levels of school children aged 10–12 years in the Cape Coast Metropolis, Ghana, with a focus on gender interaction effects. A quasi-experimental design was used, involving 30 children (15 boys and 15 girls) randomly selected from the Cape Coast Metropolis. The participants completed a 12-week motor skills intervention, with coordination and agility assessed at baseline, and after 4, 8, and 12 weeks using the BOT-2 test (Bruininks and Bruininks, 2005), which took 15 to 20 min to administer. Results showed a significant gender interaction effect on agility ($F(5, 84) = 7.74$, $p = .001$, $\eta^2p = .472$) and coordination ($F(5, 84) = 3.65$, $p = .025$, $\eta^2p = .297$), with boys improving more in coordination ($M = 3.75$, $SD = 0.41$) than girls ($M = 3.37$, $SD = 0.41$).Based on the results obtained, it was concluded that, developmental games could be effective tools for improving coordination and agility levels among children aged 10-12 years, especially if they are given about three months interval to practice. Thus, using these available games can reduce source challenge in teaching and learning PE and help improve sports in the country.

Keywords: *Developmental Games, Balance, School Children, 12-week Practice*

1. Introduction

Humans differ from other species in various ways. These differences manifest at the spiritual, intellectual, and physical levels. Within the physical level, specific developmental areas distinguish human beings from other species. These physical developmental areas involve; gross motor, fine motor, language, and social and emotional developments (Faure and Richardson, 2011). Human beings are the only species that use the upright standing posture as their primary position for any interaction with their environment and the rest of the outside world. The development and maintenance of this upright posture greatly require gross motor development. The term gross motor development is used to describe the large movements performed by the body. During the first year of a baby's life, the primary goal of the gross motor system is to achieve successful control against the pull of gravity, transforming the baby from a helpless, curled-up bundle through the stages of rolling, sitting, and crawling, to the mobile toddler after approximately one year (Faure and Richardson, 2011). A child experiencing gross motor difficulties may appear to be clumsy or have difficulty with tasks such as walking, running, or riding a bicycle (Bizos, 2009).

* *Corresponding author: Sorkpor Richmond Stephen, Health Physical Education, Recreation and Sports (HPERS), University of Education, Winneba, Ghana. E-mail: rssorkpor@uew.edu.gh*

Similarly, when observing fine motor development, humans have wonderfully and uniquely designed hands that enable the precise manipulation of objects of varying shapes and sizes. Furthermore, humans possess the ability to coordinate their hands and eyes (i.e. eye-hand coordination) for precise tasks such as writing. This requires the development of fine motor skills which include refining the movements of the arms, hands, and fingers (Faure and Richardson, 2011).

Infancy and childhood are regarded as and defined by dynamic periods of growth and change. Neurodevelopment and physical growth occur in an orderly and predictable fashion that is intrinsically determined (Gerber *et al.*, 2010). Motor skills progress from cephalic to caudal; from proximal to distal; and from generalized, stimulus-based reflexes to specific, goal-orientated reactions that gradually become more precise as the child grows and develops (Gerber *et al.*, 2010). The order and duration of all the developmental phases are crucial to every individual's future performance (De Jager, 2009). The environment, however, may cause many challenges to the physical and motor skill development of children as seen, especially, in the diversity of the Sub-Saharan African living conditions. These challenges may include poor socio-economic outcomes such as malnutrition, overfeeding, disease, trauma, and violence (Pienaar, 2009).

Motor skill development is critical for both movement and sports performance, and acquisition of these skills at early life is most important. The motor skills refer to both fundamental movement and basic sports skills (Graham, 2007). Motor skills are deliberate and controlled movements requiring both muscle development and maturation of the central nervous system. Also, the skeletal system needs to be strong enough to maintain the movement and weight involved in any new activity and once these conditions are met, children are able to learn new physical skills by practicing them until each skill is mastered (Faure and Richardson, 2011).

Movement skills can be categorized into four levels of developmental hierarchy. Level one, is made up of the rudimentary skills of sitting, crawling, creeping, standing, and walking. Level two consists of fundamental motor skills which emerge from birth to the end of about six or seven years of age. Level three represents loco-motor skills such as running, jumping, hopping, galloping, skipping, and object control skills like throwing, catching, striking, kicking, and dribbling. These fundamental motor skills provide the foundation for the learning of other more specialized and complex movement skills. Level four is at the top of the hierarchy; these are referred to as ontogenic (development of an individual) skills, and specific to the needs and interests of a particular person (Burton, 2002). Thus, fundamental motor skills include balance, coordination, and agility, which are the foundations of any physical literacy development.

The development and refinement of motor skills are regarded as extremely important as they determine the level of motor control and integration within each child. These aspects later affect each individual's ability to concentrate, delay gratification, plan and complete tasks (De Jager, 2009), leading to the future learning and development of new skills. The role that motor ability plays in the total development of children has been considered very imperative by previous researchers that many of them have developed and designed programmes to improve the motor ability of children. These programmes arguably; enhance the learning experience and subsequently development of children. Some researchers (e.g. Derbyshire, 2001), therefore, assumed that a child's motor ability forms the foundation for all types of learning encountered in life.

Bilateral coordination is the ability to use both arms and/or both legs together in a coordinated manner, and is also known as bilateral integration (Le Roux, 2011; Pienaar, 2012). It is vital to development as it lays the foundation for the establishment of hand dominance and is used in various daily tasks in the school and home environments. These daily tasks may include using eating utensils, tying shoelaces, washing dishes, ball skills or cutting with scissors. Bilateral coordination skills begin to emerge during the early baby years and consist of symmetrical and asymmetrical movements (Le Roux, 2011). Symmetrical movements occur when both arms and legs are moved together. Examples include jumping, clapping hands, rolling out dough or pastry with a rolling pin or pushing a large object such as a piece of furniture (Pienaar, 2012). Crawling helps a baby to learn how to use each side of his or her body in a rhythmical manner, one side at a time. This is also known as reciprocal movement. Crawling is, therefore, critical in the development of a child as it provides the opportunity to develop sufficient bilateral coordination and thus, the foundation for establishing hand and/or foot dominance.

Various reciprocal skills such as walking, running, and climbing emerge during the development of a child. During these activities, both sides of the body are the same task, one side at a time. Examples of reciprocal bilateral coordination skills include pulling a rope (hands) and riding a bicycle (legs). Once reciprocal bilateral coordination has developed sufficiently, asymmetrical movements emerge. Both sides of the body work together but perform entirely different yet complementary tasks. Cutting with scissors is a good example of asymmetrical bilateral coordination (Le Roux, 2011). The child's one hand leads/cuts while the other only supports or assists/holds the paper during the activity. Other examples include drawing, threading beads, kicking a ball jumping on one foot, and even the tennis serve (Pienaar, 2012).

Alternating movements occur when one limb relieves the duty of another limb, using the same movement in a rhythmic and coordinated manner. Examples include running, crawling, and climbing stairs.

Bilateral coordination involves tasks that require total body control as well as simultaneous and sequential coordination of the upper and lower limbs. Bilateral coordination has also been found to play an important role in the participation of various sports and recreational games (Bruininks and Bruininks, 2005). Agility is defined as "a rapid whole-body movement with change of velocity or direction in response to a stimulus" (Sheppard and Young, 2006). It deals with the changes in direction and has been reported to be influenced by explosive strength, balance, muscular coordination, and flexibility, also with the ability to effectively couple eccentric and concentric actions in ballistic movements (Sahin, 2014). This implies that agility has relationships with trainable physical qualities such as strength, power, and technique. Cognitive components such as visual scanning techniques, visual scanning speed, and anticipation are also part of agility. Therefore, agility testing is generally confined to tests of physical components such as change of direction speed, or cognitive components such as anticipation and pattern recognition (Sheppard and Young, 2006). These factors have been elaborated in the Illinois Agility Test, which is a challenging 15-20 seconds test that requires the participant to run fast, stop quickly, change directions, and move the body from a laying position to a running stride as quickly as possible.

Several reasons including unavailability of equipment and materials have been mentioned by teachers as factors for actively teaching of PE at the lower levels of education. Evidence (Pate *et al*., 2000) confirmed that it might be impossible to achieve satisfactory results from teaching students with training facilities and equipment that are inadequate or sub-standard. Furthermore, Bunker (2001) noted that the lack of instructional materials for participation is a significant problem in the education system especially at the basic level. This calls critical motor skill interventions. Fortunately, research indicates that motor skill interventions are found to be effective in the improvement of motor skills in children. Thus, a call is made, (Logan *et al*., 2011), for a need for research to understand the effectiveness of motor skill interventions, more specifically to determine the overall effect of motor skill intervention programs on the improvement of motor skill competence in children. This is a challenge to PE teachers in countries such as Ghana, who are confronted with the problem of inadequate resources to teach children.

Altinkök (2016) emphasized that it is when original materials are not available for use in teaching and learning that other types and forms of instructions can be applied. Unfortunately, PE teachers in Ghana, especially at the basic school level, are faced with the challenge of limited equipment, facilities and materials in teaching the subject. Fortunately, evidence from countries like Israel, Nigeria, Kenya, and South Africa, with similar challenges, indicated that they have adopted locally designed appropriate motor skill developmental programs which require minimal equipment or materials to augment their inadequate resources (De Jager, 2009; Altinkök, 2016). Accordingly, these countries used their very local childhood games to teach and help improve upon the various fundamental motor skills. Research findings appear to suggest that the development of a motor skill like coordination and agility levels is on the decline due to several factors including decline in accidental play among children, increase in television watching and extra classes (Ogah, 2010).

Recent findings by Bortsie *et al*. (2018), further attest that the attitude of parents not encouraging their children to engage in meaningful physical activities towards motor development compared with television viewing is on the ascendancy in Ghana. The trend, if not checked, might be detrimental to the holistic development of children in the country. Frimpong (2016), contends that the lack of well-programmed routine physical exercises by individuals in the country is contributing to an upsurge of preventable diseases among Ghanaians including children. The purpose of this study therefore was to examine the impact of gender interaction effect in the improvement of coordination and agility levels of school children after participating in selected developmental games for 12 weeks in the Cape Coast Metropolis of the Central Region, Ghana. We assumed that the children between 10 to 12 years will significantly improve in their Coordination and Agility Levels after participating in selected developmental games for 12 weeks, and that there will be significant gender interaction effect on the improvement of coordination and agility levels among school the children 10 to 12 years after participating in the selected developmental games for 12 weeks.

2. Method

This study adopted a quasi-experimental approach involving pre-test, post-tests control group design. A quasi-experimental design was accordingly used for the study given that the research population already belonged to existing groups (Baumgartner *et al*., 2002) in the form of Primary 5 classes. Of the five basic schools in the metropolis, three were classified as disadvantaged schools located in a low economic area. Therefore, we purposively selected the three and randomly sampled only one for the study. Furthermore, we purposively sampled primary five pupils in the selected

school. This class consisted of 42 children within the target age group of 10 -12 years (Baumgartner et al., 2002). We recruited children (N-30) between the ages of 10 and 12 years. They were assigned to the experimental group consisting of (15 girls and 15 boys). This number was determined because the children spend about seven hours in school which allowed for testing all the participants within a day, after every four weeks of intervention. Random sampling was used to select five boys and five girls from primary five for each of the age groups, 10, 11, and 12 years into strata. The researchers selected this sample size to meet the demands of the test battery Bruininks-Oseretsky Test of Motor Proficiency-2 [BOT-2] (Bruininks and Bruininks, 2005), which takes 15- 20 min to test each participant

3. Intervention Activities

Jump Rope/Skipping **(**Coordination); during the jump rope training, all the repetitions were guided by Metronome rate for 120 rotations per minutes to ensure equal exercise intensity among children. The jump rope intervention consisted of five exercises performed with the following order: basic bounce step, double basic bounce step, alternate foot step, scissors step and double under. Each exercise was executed by all participants using a jump rope with identical features in terms of weight (i.e., 230g), length (i.e. shoulder measurement) and material (i.e. PVC Polyvinyl chloride). The children also performed three basic types of rope jumping activities-lights, graceful leaps over a rope, turned by an individual or with a partner. Rope jumping which involves jumping over a long rope turned by two performers. Finally, ropes were jumped in a variety of ways to enhance improvement concepts and skills. This intervention was performed by participants within 30 minutes two times every week over four weeks.

Squirrels in the Forest (Agility); this is a game involving two groups with one being "trees" and the other "squirrels". The "trees" were asked to find their personal space in the playing area within a playing area of 20-by-10 meters. Meanwhile, the "squirrels" ran and dodged around the "trees" without being touched. Members of the "trees" group assumed stationary position and stretched both arms horizontally in search of the "squirrels". By the command "go", the members of "squirrel" group ran and dodge the "tree". However, the roles changed if a "squirrel" was touched by a "tree". The pupils went through this game four times for five minutes each with 2 minutes rest between each set.

Finally, regarding *Foxes and Squirrels* (Agility); three children were chosen to be foxes. All other children were arranged in groups of three. Numbers 1 and 2 of each group joined hands overhead to form a tree. Numbers 3 in each group were the squirrels and stood under the tree of the group. On signal from the teachers "go", the squirrels ran to find a new tree while foxes tried to tag a squirrel before they reached new trees. Only one squirrel was allowed under a tree. When a fox cached a squirrel, they changed position on the next turn. The game was repeated after all squirrel were tagged or under a new tree. This varying interventional activity was undertaken for 30 minutes twice a week for four weeks.

4. Data Collection

Ethical clearance was sought from University of Cape Coast, Ethical Review Board. With an Introductory letter from the Department of Health, Physical Education and Recreation, UCC, permission was also sought from the Metro Education Service and the Head of the school to conduct the study. Informed consent was sought from the Head and the parents. Pupils' levels of balance, coordination and agility were assessed with BOT battery test using one group pretest-posttest design.

The group participated in the 12-week motor skills development programme designed for this study. By comparing the pre-test to the post-test results of the group's motor skill performance, the effects of the motor skills development programme were observed (Torgerson and Torgerson, 2008).

Boys and girls between the ages of 10 and 12 years from the selected school were included in this study. Any child with an obvious disability or physical injury, who would not be able to participate in the motor proficiency test, was excluded from this study. The conduction of the motor proficiency test battery and the implementation of the self-designed motor skills development programme took place in the facilities provided by the school involved in this study.

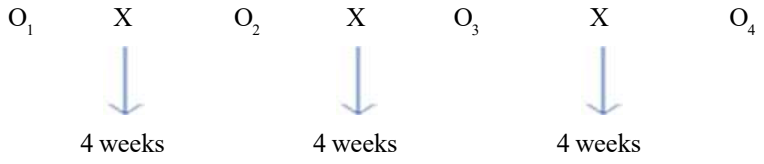

Figure 3. 12 weeks intervention design with four tests i.e., one pre- test and three post- tests (O_1 represents the pre-test and O_2, O_3 & O_4 represent post-tests. X represents the intervention).

5. Results

Repeated-measures factorial ANOVAs revealed a significant gender interaction effect on agility improvement ($F(5, 84) = 7.74$, $p = 0.001$, Pillai's Trace = 0.472, partial $\eta^2 = .472$) and coordination improvement ($F(5, 84) = 3.65$, $p = 0.025$, Pillai's Trace = 0.297, partial $\eta^2 = 0.297$). Boys showed greater improvement in coordination ($M = 3.75$, $SD = 0.41$) compared to girls ($M = 3.37$, $SD = 0.41$).

Therefore, while there was no significant gender interaction effect on agility, the results showed a significant interaction effect on coordination, with males demonstrating better coordination than females, although the effect size was small.

6. Discussion

The study revealed that there was no significant gender interaction effect on agility. However, a significant gender interaction effect was observed in coordination improvement, with males outperforming females, although the effect size was small. Thus, male participants had statistically significant higher levels of agility and coordination as compared to their female counterpart. Literature in the field of motor skill development shows that difference in male and female children is normally not significant, however, this difference appears to increase after the puberty stage (Butterfield and Loovis, 2003). Bouchard *et al*. (2004) noted that both boys and girls before the puberty stage have similar skills and ability in hopping and balance. This supports the findings of this study, which found a non-significant gender difference in effectiveness of developmental games on balance skills.

Despite the observations of Bouchard *et al*. (2004) and Butterfield and Loovis (2003) that there appear to be no significant gender difference in motor development, this study revealed a statistically significant difference in agility and coordination of male and female children after taking them through the developmental games. In other words, the developmental games were more effective for males than females in improving agility and coordination but not for balance. These variations may be due to subtle disparities in the degree of neurological maturation demonstrated by the two genders. Research suggests that the differences found are due to parents, peers, teachers and coaches, who provide opportunities and encourage girls and boys toward different activities (Bouchard *et al*., 2004). Girls are generally encouraged to play quietly and practice fine motor skills such as drawing and colouring whilst boys are encouraged to participate in more vigorous movement activities such as running, chasing and jumping (Bouchard *et al*., 2004).

Consistent with the findings of this study, Govatos (1999) and Krombholz (2001) revealed that with respect to physical performance of motor skills, significant differences were identified between girls and boys, where boys exceeded on some items and girls on others. However, boys and girls of similar growth status seemed to be equally effective in activities involving running and jumping, but boys appeared to excel more than girls in throwing and kicking. Supporting the views of Govatos (1999) and Krombholz (2001), Butterfield and Loovis (2003) discovered that boys tend to attain maturity in performing most physical activities at an earlier age compared to girls. From a different perspective, prior studies on preschool children from diverse cultural backgrounds have revealed that females outperform the males on agility and balance (Kourtessis *et al*., 2008; Livesey *et al*., 2003). These findings from previous studies do not support the findings of this study. This study did not attain differences in balancing skills between male and female participants. For agility, this study rather found that male participants performed better than their female counterparts.

It is reasonable that variances in motor skills ability between genders is present throughout early childhood and can be attributed to a multifaceted interaction of biological, environmental and sociocultural factors (Cools *et al*., 2009). It has been found that brain development and structure varie between genders during early stages (Alexander and Wilcox, 2012). This may have residual effects during the preschool years, demonstrated by improved development of the brain's left hemisphere, that is largely associated to improved acquisition of language, social cognition, and fine motor skills in young infant girls compared to boys (Cools *et al*., 2009).

Furthermore, the finding that gender influences the effectiveness of developmental games on agility and coordination aligns with existing theories (Barnett *et al*., 2004). These theories suggest that socio-cultural and environmental factors play a role in shaping motor skill development. While previous research highlights that preschool boys tend to excel in object control skills due to greater participation in ball games and gross motor activities, similar patterns may be relevant for the 10–12 age group. At this stage, boys are often more engaged in structured sports and physical activities, while girls may focus more on creative and fine motor tasks. This dynamic could explain the observed differences in coordination improvements between boys and girls, emphasizing the need for targeted interventions to enhance motor skill development across genders in this age.

Although no known study has investigated whether gender discriminates with regards to the effectiveness of developmental games/intervention programmes on motor skill development, it is convincing to indicate that male and female children even before the introduction of a training programme, are not equal on motor skill development as shown in several studies (Alexander and Wilcox, 2012; Cools *et al*., 2009; Sigmundsson and Rostoff, 2003). This suggests that male and female children at preschool level have different mechanisms fostering their development of motor skills. If this happens, any effective intervention programme introduced to them would, to a larger extent, result in different levels of performance after the intervention

7. Conclusion

The aim of the study was to examine gender interaction effect in the improvement of coordination and agility levels of school children after participating in selected developmental games for 12 weeks in the Cape Coast Metropolis of the Central Region, Ghana. We observed that children from less endowed schools would improve the motor skills like balance with appropriately designed developmental games. Moreover, the games will improve the fundamental balance skill of the children if they are taking through for considerable number of weeks such as 12 weeks. In specific terms, the skill of coordination and agility levels will improve when these children are given about 12 weeks to practice these developmental games. However, for coordination and agility skills to be properly acquired, the games must be well-structured, and children must be guided through the process. The findings further revealed that male students showed greater improvement in coordination compared to their female counterparts after 12 weeks of training with developmental games. This suggests that designing gender-specific programs may be necessary to help female students improve their coordination skills to match the performance of their male peers

8. Limitations

Results cannot be entirely generalized to other schools' populations in the selected age bracket though both probability (random) and non-probability sampling technique (purposive sampling) was used.

9. Recommendations for Further Studies

1. Firstly, it is recommended that physical education teachers at the basic level of education resort to the use of developmental games, to help children to improve their motor skills.
2. Since male students demonstrated greater improvement in coordination than their female counterparts, physical education instructors should implement gender-specific training programs to help bridge the gap in coordination skills.

References

Alexander, G. and Wilcox, T. (2012). Sex Differences in Early Infancy. *Child Dev Perspect.,* 4(64), 400–406.

Altinkök, M. (2016). The Effects of Coordination and Movement Education on Preschool Children's Basic Motor Skills Improvement. *Universal Journal of Educational Research,* 4(5), 1050-1058.

Barnett, L.M., Van Beurden, E., Morgan, P.J., Brooks, L.O. and Beard, J.R. (2010). Gender Differences in Motor Skill Proficiency From Childhood to Adolescence: A Longitudinal Study. *Research Quarterly for Exercise and Sport,* 81(2), 162-171.

Baumgartner, T., Strong, C. and Henley, L. (2002). *Conducting and Reading Research in Health and Human Performance.* New York, NY: McGraw-Hill.

Bizos, E. (2009). Understanding Learners With Special Educational Needs. In A. Decaires-Wagner and H. Picton (Eds.), *Teaching and ADHD in the Southern African classroom* (pp. 102-130). South Africa: Macmillan (Pty) Ltd.

Bortsie, A.S., Sorkpor, R.S. and Ampiah, J. (2018). Comparison Between Residential and Non-Residential Soccer Players Physical Fitness. *International Journal of Scientific Research and Management, 6*(07), 41-52.

Bouchard, C., Shehard, R.J. and Stephens. (Eds) (2004). *Physical Activity, Fitness and Health: International Proceedings and Consensus Statement.* Champaign, IL: Human Kinetic.

Bruininks, R.H. and Bruininks, B.D. (2005). *BOT-2 Bruininks-Oseretsky test of motor proficiency manual* (2nd Ed.). Minneapolis, MN: NCS Pearson.

Bunker, L.K. (2001). Elementary Physical Education and Youth Sport. *Journal Physical Education and Recreation*, 52(2), 26-28.

Burton, A.W. (2002). The Development Of Movement Skills. *Early Report,* 19, 2.

Butterfield, S.A. and Loovis, E.M. (2003). Influence of Age, Sex, Balance and Sport Participation on Development of Throwing by Children in Grade k-8. *Perceptual and Motor Skills,* 76, 459-464.

Cools, W., De Martelaar, K., Samaey, C. and Andries, C. (2009). Movement Skill Assessment of Typically Developing Preschool Children: A Review of Seven Movement Skill Assessment Tools. *Journal of Sport Science and Medicine,* 8, 154-168.

De Jager, M. (2009). *Baby Gym: Brain and Body Gym for Babies.* Welgemoed, CPT: Metz Press.

Derbyshire, E. J. (2001). School-Readiness Problems. In J.A. Kapp (ed.), *Children With Problems: An Orthopedagogical Perspective.* Hatfield, PTA: J.L. van Schaik Publishers.

Faure, M. and Richardson, A. (2011). *Baby Sense: Understanding Your Baby's Sensory World – The Key To A Contented Child.* Welgemoed, CPT: Metz Press.

Frimpong, M. (2016). *Dealing with Preventable Diseases.* Paper Presented at the National Conference of Doctors at in Accra. July 16-17, 2016.

Gerber, R.J., Wilks, T. and Erdie-Lalena, C. (2010). Developmental Milestones: Motor Development. *Pediatrics in Review,* 31, 267-277.

Govatos, L.A. (1999). Relationship and age differences in growth measures and motor skills. *Child Development, 30,* 333-340.

Graham, G. (2007). Motor skill acquisition- An essential goal of physical education programs. *Journal Physical Education Recreation and Dance,* 58(7), 44-48.

Kourtessis, T., Tsougou, E., Maheridou, M., Tsigilis, N., Psalti, M. and Kioumourtzoglou, E. (2008). Developmental Coordination Disorder In Early Childhood: A Preliminary Epidemiological Study in Greek Schools. *The International Journal of Medicine,* 2(1), 95–99

Krombholz. H. (2001). Physical Performance in Relation to Age, Sex, Social Class and Sports *Activities* in Kindergarten and Elementary *School. Perceptual and Motor Skills,* 84, 1168-1170.

Le Roux, T. (2011). "*OT Mom's Bilateral Coordination Activities." OT Mom Learning Activities.* Retrieved from Hyperlink [http://www.ot-mom-learning-activities.com/bilateral- coordination-activities.html].

Livesey, D., Coleman, R. and Piek, J. (2007). Performance on the Movement Assessment Battery for Children by Australian 3-to 5-year-old Children. *Child Care Health Dev.,* 33(6), 713–719.

Logan, S.W., Robinson, L.E., Wilson, A.E. and Lucas, W.A. (2011). Getting the Fundamentals of Movement: A Meta-Analysis of the Effectiveness of Motor Skill Interventions in Children. *Child: Care, Health and Development,* 38(3), 305-315.

Ogah, J.K. (2010). Developing and Promoting Active Lifestyles for Healthy Living and National Development. *West Africa Journal of Physical & Health Education*, 14, 47-70.

Pate, R. (2004). Physical Activity Among Children Attending Preschools. *Pediatrics,* 114(5), 1258–1263.

Pate, R.R., Trost, S.G., Levin, S. and Dowda, M. (2000). Sports Participation and Health Related Behaviors Among U.S. youth. *Archives of Pediatrics & Adolescent Medicine,* 154, 904–911.

Pienaar, A.E. (2009). Kinderkinetics: An Investment in the Total Well-Being of Children. *South African Journal for Research in Sport Physical Education and Recreation,* 31(1), 49-67.

Pienaar, A.E. (2012). *Motoriese ontwikkeling, groei, motoriese agterstande, die asessering en intervensie daarvan: Handleiding vir nagraadse studente in Kinderkinetika (5th ed.).* Potchefstroom: Xerox.

Sahin, H.M. (2014). Relationships Between Acceleration, Agility, and Jumping Ability in Female Volleyball Players. *Euro. J. Exp. Bio.*, 4(1), 303-308.

Shephard, J.M. and Young, W.B. (2006). Agility Literature Review: Classifications, Training And Testing. *Journal of Sports Sciences,* 24(9), 919-932.

Sigmundsson, H. and Rostoft M. (2003). Motor Development: Exploring the Motor Competence of 4-year-old Norwegian children. *Scand J Educ Res.,* 47(4), 451–459.

Torgerson, D.J. and Torgerson, C. (2008). *Designing Randomised Trials In Health, Education And The Social Sciences: An Introduction.* Basingstoke, HA: Palgrave Macmillan.

Cite this article as: Sorkpor Richmond Stephen (2025). Gender Interaction Effect in The Improvement of Coordination and Agility Levels of School Children After Participating in Selected Developmental Games for 12 Weeks. *International Journal of Education and Teaching,* 5(2), 71-78. doi: 10.51483/IJEDT.5.2.2025.71-78.