LEARNING MODEL OF BASIC MANIPULATIVE MOVEMENT GAMES FOR ELEMENTARY SCHOOL STUDENTS (SYSTEMATIC LITERATURE REVIEW)

Masnur Ali[1], Abdul Sukur[2], Aan Wasan[3]

[1),2),3)] Jakarta State University, East Jakarta , Indonesia

Ali.masnur@unj.ac.id

Abstract

Basic movement is a very basic movement that is the basis for the initial instillation of knowledge or experience in children in the future. Manipulative movement activities are recommended to be carried out from an early age because they are the foundation for physical motor development in adulthood. Manipulative movement activities also have important values, especially cognitive, language and social emotional development if carried out together in a game. This study uses a quantitative descriptive method with a bibliometric approach. The research data used for journals or scientific articles for the period 2020-2024 are sourced from the Google Scholar database. The search for scientific articles was carried out using the Publish or Perish application with the keyword "Manipulative Movement" in the article title, category, abstract, keywords. The map of the basic manipulative movement learning model was analyzed using the VOSViewer application. From the search results using the Publish or Perish application, the maximum number of searches used was 1000 articles, limited to 100 article publications according to the keywords entered, then with the type filtering using articles there were 100 papers written in the form of articles.

***Keywords**: Basic Manipulative Movement, Systematic Literature Review*

1. INTRODUCTION

The game model has a positive impact on children (Benton et al., 2021). Play models can be used in education, especially for children, to improve a variety of physical, cognitive and social skills through fun and interactive play activities. Children build cognitive, emotional and physical skills through play. Children can develop problem-solving, concentration, and coordination skills through experiences with play models that involve children's coordination. Children aged 6-9 years experience a pivotal developmental phase where they experience significant physical, cognitive, social and emotional growth. Their physical motor development begins to progress, and fine and gross motor coordination begins to develop, requiring a variety of games that support their coordination skills.

A number of movement learning perspectives have been formulated, which are used in the context of movement education, such as physical movement education in schools and sports training, to improve learning. Basic movements are various movement activities ranging from locomotor, non-locomotor, manipulative which are the basis for children to carry out various physical activities, sports and other activities now and in the future (Sari, 2019). In the phase of motion development starting from the age of birth to 8 (eight) years and above, motion development consists of several stages. (Miang, 2010) divides the stages of motion development in children, as follows: (1). Reflex and reaction movements (Newborn age up to 1 year); holding, grasping, searching, crawling, pulling. (2). Irregular movements (age newborn to 2 years); swaying crawling, walking (assisted/unassisted) grasping, reaching, and releasing. (3) Basic movement (age 2 years to 8 years); locomotor, stability, controlling objects, (4) Transition to sports/games (5 years and above), (5). Specialized sports (age 5 years and above).

According to Wetton, manipulative movement activities are highly recommended from an early age because it is the foundation of physical motor development when they grow up. Manipulative movement activities also have important values, especially cognitive, language and social emotional development if done together. According to Miller and Pound (2011) manipulative movement activities can be done using tools such as various shapes and sizes of balls, for throwing and catching activities, pushing hula hop hoops, tables, chairs, or similar objects. In performing manipulative movements, coordination is required, eye-hand coordination (when catching and throwing the ball), eye-foot coordination (when kicking and dribbling the ball), both coordination are needed later when children are involved in specialized sports activities.

According to (Wong, T. K. K., Ma, A. W. W., Liu, K. P. Y., Chung, L. M. Y., Bae, Y.-H., Fong, S. S. M., ... Wang, 2019) balance control when performing manipulative movements affects agility, coordination in

.

.

athletes. (Lopes et al., 2012) Children's BMI affects children's motor coordination, (Platonov & Nikitenko, 2019) children's agility and coordination in martial arts sports affect performance, (Jones et al., 2020) there is a significant relationship in fundamental motion to children's physical activity, (Johann et al., 2016) Physical exercise can improve cognitive abilities such as attention, spatial ability, memory performance, and body function, (Dapp et al., 2021). Being physically active plays an important role in children's physical development, (Luz et al., 2016) three main components (stability, locomotor, and manipulative) in improving children's coordination skills, (Honrubia-Montesinos et al., 2021) preschool children who do extracurricular physical activities score significantly higher motor skills compared to children who do not.

This literature review examines various studies and theories related to learning models of manipulative basic movement games for students. Basic manipulative movements, such as throwing, catching and kicking, are fundamental skills that are important for children's physical and motor development. Game-based learning models offer an engaging and effective approach to teaching these skills, as they match the characteristics of children who love to play.

RESEARCH METODOLOGY

This research uses a descriptive quantitative method with a bibliometrics approach. According to (Bores-García et al., 2021) bibliometrics is a mathematical and statistical method used to study and identify patterns of material use and analyze the development of a specific literature, especially for authorship, publication and use. When bibliometrics is used to study a scientific journal, a description of the journal such as journal quality, journal maturity, journal productivity and so on will be obtain Rajšp & Fister (2020). The research data used in this study are journals or scientific articles with a range of years 2020-2025 sourced from the Scopus database. The search for scientific articles was carried out using the Publish or Perish application with the keyword in the article title, category, abstract, keywords. The development map of the learning model of basic manipulative movement games for elementary school students scientific publication model was analyzed using the VOSViewer application.

RESULTS AND DISCUSSION

The main focus of this systematic review is the learning model of manipulative basic motion games for elementary school students. From the search results using the Publish or Perish application, from 2020 to 2025 with the maximum number of searches used which is 200 articles, there are 5 publications of articles that match the keywords entered, then with the type of filtering using articles there are 5 papers written in the form of articles.

In addition, we attempted in this systematic review to collect scientific evidence available in online databases according to the inclusion and exclusion criteria based on PICOS (Johnson, 2019) eligibility criteria:

In addition, we endeavored in this systematic review to collect scientific evidence available in online databases according to the inclusion and exclusion criteria based on PICOS (Page et al., 2021). The eligibility criteria were:

1. Population: children aged 6-8 years
2. Intervention: Basic movement, Manipulative, Elementary school children 2.
3. Comparison: same condition with placebo or control group 4.
4. Outcome: Manipulative Basic Movement
5. Study Type: randomized-blind and randomized-parallel or parallel design.

Exclusion criteria were articles that were not available in English or articles that did not have full-text publications such as only the title and abstract. In this literature review, a comprehensive and systematic search was conducted for journals published between 2020 and 2025 through the Scopus online database. The following search terms were used in the database: Manipulative basic

.

movement, primary school students and children. Through the search process, several relevant articles were obtained from the online database. Cross-reference tests were performed on titles and abstracts to avoid duplication.

Table 1. Article Summary

Tahun	Nama Penulis dan *Publisher*	Judul
2021	Chen, J., Wang, X., Chen, W.	Impact of bilateral coordinated movement on manipulative skill competency in elementary school students
2024	Nugroho Puji Santoso, Subagyo, Nurhadi Santoso, Trisnar Adi Prabow0, Wahyu Dwi Yulianto Physical Education Theory and Methodology	Assessing the Effect of Traditional Games on Manipulative Movements in Elementary School Students Based on Gender
2020	Aulia Maris Syahputri, Pamuji Sukoco Health, sport, rehabilitation	Application of developmental games based on kinesthetic perception to improve proprioceptive sensitivity, intelligence and cooperation in primary school children
2024	Oldemar Mazzardo Bárbara Maria Weis, […], and Ovande Furtado, Sage Journal	Associations Between Fundamental Motor Skill Domains and Physical Fitness Components in 5-11-Year-Old Children
2022	Anderson dos Santos Carvalho, Leonardo Santos Lopes da Silva, Pedro Pugliesi Abdalla, Nilo César Ramos, Jorge Mota, Dalmo Roberto Lopes Machado Motricidade journal	Autonomous fundamental motor skills in the school environment: a cross-sectional study

DISCUSSION

The results of this literature review indicate that the manipulative basic movement game learning model has great potential to improve the motor and cognitive abilities of elementary school students. Manipulative games are not only fun, but also provide opportunities for students to learn through direct experience. Several studies have shown that traditional games and sports are very effective for developing students' manipulative movements. In addition, modified games can also be designed to emphasize specific manipulative movements to be trained.

Play-based, cooperative and integrated learning models can be integrated with manipulative games to create a more meaningful learning experience for students. Teachers have an important role in facilitating the games and creating a safe and supportive learning environment.

Factors such as game design, the role of the teacher, and student characteristics also affect the effectiveness of these learning models. Interesting and challenging game design can increase students' motivation and participation. The role of the teacher as a facilitator and motivator is also very important in creating a conducive learning atmosphere. Students' characteristics, such as age, initial ability, and interest, also need to be considered in the selection and implementation of learning models.

Learning manipulative basic movement games can be an effective approach to improve the basic manipulative movement skills of elementary school students. A fun and interactive approach to play can motivate students to actively learn and practice basic manipulative movements. Variations of games tailored to students' age and ability are also important to ensure that learning remains challenging and relevant.

.

.

Conclusion

This research has important implications for curriculum development and physical education learning in elementary schools. The identified learning models of basic manipulative movement games can be a reference for teachers in designing and implementing effective and fun learning for students. In addition, this research can also be the basis for further research to develop learning models that are more innovative and in accordance with the needs of elementary school students.

REFERENCES

Ali, M., Aqobah, Q. J., & Tirtayasa, A. (2020). IMPROVING THE BALANCE MOVEMENT OF LOWER-GRADE STUDENTS THROUGH THE MODIFICATION OF ENGKLEK TRADITIONAL GAMES. *JPSD*, *6*(1).

Aqobah, Q. J., Ali, M., & Nugroho, A. I. (2021). Pengaruh latihan soft toss ball terhadap hasil pukulan dalam cabang olahraga softball. In *Altius: Jurnal Ilmu Olahraga dan Kesehatan* (Vol. 10, Issue 1, pp. 31–39). https://doi.org/10.36706/altius.v10i1.13561

Aqobah, Q. J., Rahmawati, D., Youdistira, F., & Kurnia, A. R. (2023). ANALISIS PENGARUH OLAHRAGA TERHADAP PENURUNAN TINGKAT STRES ANALYSIS OF THE INFLUENCE OF EXERCISE ON REDUCING STRESS LEVELS. In *Journal of Sport Science and Tourism Activity (JOSITA)* (Vol. 2, Issue 1). https://jurnal.untirta.ac.id/index.php/JOSITA

Benton, L., Mavrikis, M., Vasalou, A., Joye, N., Sumner, E., Herbert, E., Revesz, A., Symvonis, A., & Raftopoulou, C. (2021). Designing for “challenge” in a large-scale adaptive literacy game for primary school children. *British Journal of Educational Technology*, *52*(5), 1862–1880. https://doi.org/10.1111/bjet.13146

Çakto, P., & Akin, S. (2024). The Effect of The Situated Game Teaching Model Through Set-Plays on Motor Development. In *Retos* (Vol. 57, pp. 64–71). Federacion Espanola de Asociaciones de Docentes de Educacion Fisica (FEADEF). https://doi.org/10.47197/retos.v57.104840

Dapp, L. C., Gashaj, V., & Roebers, C. M. (2021). Physical activity and motor skills in children: A differentiated approach. *Psychology of Sport and Exercise*, *54*(February), 101916. https://doi.org/10.1016/j.psychsport.2021.101916

Esen, H. T., Güçlüöver, A., Kurnaz, M., & Altinkök, M. (2023). The impact of coordination-based movement education model on balance development of 5-year-old children. *Frontiers in Psychology*, *13*(January), 1–10. https://doi.org/10.3389/fpsyg.2022.1045155

Honrubia-Montesinos, C., Gil-Madrona, P., & Losada-Puente, L. (2021). Motor development among spanish preschool children. *Children*, *8*(1), 1–13. https://doi.org/10.3390/children8010041

Johann, V. E., Stenger, K., Kersten, S., & Karbach, J. (2016). Effects of motor-cognitive coordination training and cardiovascular training on motor coordination and cognitive functions. *Psychology of Sport and Exercise*, *24*, 118–127. https://doi.org/10.1016/j.psychsport.2016.01.008

Jones, D., Innerd, A., Giles, E. L., & Azevedo, L. B. (2020). Association between fundamental motor skills and physical activity in the early years: A systematic review and meta-analysis. *Journal of Sport and Health Science*, *9*(6), 542–552. https://doi.org/10.1016/j.jshs.2020.03.001

Kultima, A. (2021). Game Jam Natives?: The rise of the game jam era in game development cultures. In *ACM International Conference Proceeding Series* (Vol. 3, pp. 22–28). ACM. https://doi.org/10.1145/3472688.3472691

Lopes, V. P., Stodden, D. F., Bianchi, M. M., Maia, J. A. R., & Rodrigues, L. P. (2012). Correlation between BMI and motor coordination in children. *Journal of Science and Medicine in Sport*, *15*(1),38–43.https://doi.org/10.1016/j.jsams.2011.07.005

.

Luz, C., Rodrigues, L. P., Almeida, G., & Cordovil, R. (2016). Development and validation of a model of motor competence in children and adolescents. *Journal of Science and Medicine in Sport*, *19*(7), 568–572. https://doi.org/10.1016/j.jsams.2015.07.005

Petzinger, G. M., Fisher, B. E., McEwen, S., Beeler, J. A., Walsh, J. P., & Jakowec, M. W. (2013). Exercise-enhanced neuroplasticity targeting motor and cognitive circuitry in Parkinson's disease. *The Lancet Neurology*, *12*(7), 716–726. https://doi.org/10.1016/S1474-4422(13)70123-6

Platonov, V., & Nikitenko, A. (2019). Agility and Coordination Testing in Hand-to-Hand Combat Sports. *Polish Journal of Sport and Tourism*, *26*(2), 7–13. https://doi.org/10.2478/pjst-2019-0008

Szabo, D. A., Neagu, N., Teodorescu, S., & Sopa, I. S. (2020). Eye-hand relationship of proprioceptive motor control and coordination in children 10-11 years old. *Health, Sports & Rehabilitation Medicine*, *21*(3), 185–191. https://doi.org/10.26659/pm3.2020.21.3.185

Wong, T. K. K., Ma, A. W. W., Liu, K. P. Y., Chung, L. M. Y., Bae, Y.-H., Fong, S. S. M., … Wang, H.-K. (2019). *Balance control, agility, eye–hand coordination, and sport performance of amateur badminton players.pdf*. 1–6.

Wuang, Y. P., Su, J. H., & Su, C. Y. (2012). Reliability and responsiveness of the Movement Assessment Battery for Children-Second Edition Test in children with developmental coordination disorder. *Developmental Medicine and Child Neurology*, *54*(2), 160–165. https://doi.org/10.1111/j.1469-8749.2011.04177.x