

Impact of a dexterity programme on motor skills and inventiveness in 5–6-year-old children

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Abstract

Background: It is believed that a child's early years provide the foundation for all subsequent generations' lives. Early childhood is a critical period in the neurological system's development, thus **Aims:** In this study, a programme incorporating motor dexterity will be created, and its impact on preschoolers' imaginative thinking and some motor skills will be assessed. 40 students who took part in the study were subjected to the experimental approach by the researchers. Pre-schoolers in the Kingdom of Saudi Arabia were randomly assigned to one of two groups, the experimental group (n = 20, age = 5.55±0.34 years; height = 109.65±0.97 cm; weight = 22.5 ±0.51 kg; intelligence = 8.30±0.47 Number), or the control group (n = 20, age = 5.50 ±0.34 years; height = 109.85 ±0.93cm; weight = 22.5±0.51 kg; intelligence = 8.30±0.47; Intelligence = 8.15±0.67 Number; weight = 22.70±0.57 kg). Anthropometric measurements, intelligence testing, motor ability tests, and creative thinking were used to acquire the data. The educational programme was implemented over the course of eight weeks at a rate of two instructional units each week. **Results:** The findings demonstrated that the proposed educational programme using a dexterity kinetic had a more favourable impact than the conventional programme on the growth of creative thinking and restricted motor skills. As the percentage differences in motor skills ranged from (1.07% to 99.16%) and the percentage differences in creative thinking ranged from (7.67% to 26.97%) and (P<0.05), respectively. All of the differences in the rates of progress worked in favour of the experimental group. In conclusion, the suggested educational programme employing a dexterity kinetic improved the imaginative thinking and some motor skills in preschoolers, which resulted in substantial differences between the post-tests and advantages for the experimental group.

Keywords: Motor dexterity, creative thinking, motor abilities

Introduction:

A child's earliest years of life are among the most crucial because they lay the foundation for future generations' lives and because movement is a crucial aspect of a child's development (Denysschen M., et al. 2021). Early childhood is the prime time for the nervous system to grow, therefore stimulating young children will help them develop their motor skills more quickly (Cristia A., 2015). Therefore, research on children's motor abilities, especially at this age, can considerably advance our knowledge of their full personalities (Ilgar E.A., Cihan B.B. 2018). All areas of development can be maximised through early learning, which can also increase vital growth factors like the physical components of movement in the future.

Thus, these physical learning components can enhance young children's motor abilities, creativity, and social skills (Martyniuk, OJM, Tucker, P. 2014; Gil-Madrona, P. et al. 2021). In order to lay the groundwork for later physical practise and for more complicated movement tasks in daily life, basic motor skills must be developed in early childhood (Goodway JD. Et al. 2019). Children can learn through play in a joyful and pleasurable method that enables complete appreciation and knowledge. Play can give children the chance to explore, discover, feel, create, and learn. The best way for children's to improve their skills is through play (Simón-Piqueras, J.Á. 2022). It gives children's a chance to adjust to other people and their surroundings and influences how well they can move, think, and solve problems (Tapia-Fuselier, J. L., & Ray, D. C. 2019). Play is a child's world since it is both a fun and exciting activity for them and something they absolutely must do. Children can adapt to individuals and their surroundings through play, which also has an impact on their motor development, cognitive function, and problem-solving skills (Coker C.A. 2017; Gil-Madrona P. et al. 2021). Children benefit from a process linked to sensory equipment that promotes their physical and psychological

growth. Children can learn to build their muscles through active play, which will make them stronger, faster, and more flexible movers (Sáez, M. B. S. et al. 2021) .

Play influences children's mental and emotional development as well as their mental maturation by allowing them to explore their own worlds and making them feel content to do so (Zimmer, R. 2015) . Children learn and develop through the formation of ideas about their world through various forms of games, which provide them the chance to present and experiment with these ideas in a safe and enjoyable environment, which in turn leads to the development of problem-solving abilities and creativity. Play is an essential part of a child's existence and is an important activity for the growth of imagination and creativity. It also offers possibilities for the development of fundamental motor skills, social and emotional competencies, and basic motor coordination (Gil-Madróna, P. et al. 2021) . Kinetic dexterity is one of the primary objectives of motor development and should be attained, whether through play or participating in sports, as it is thought to be an excellent framework for children to acquire rich motor skills and increases their positive outcomes in terms of motor abilities, skills, motor patterns, and employment prospects, as well as their innovative and exploratory activities (Gil-Madróna P. 2021; Vincent-Lancrin, S., et al. 2019) .

Children exercise their imaginations in games and stories during the first five years of life, which is a crucial time for the development of their creative skills. To foster this development, it is important to use a variety of effective educational tools and strategies. Numerous researchers have examined this issue because of how crucial motor activities are for kindergarteners, and the findings of their studies (Gil-Madróna, P. et al. 2021; Simón-Piqueras, J.Á. et al. 2022; Gil-Madróna P. 2021; Santos S., Monteiro D. 2021; Honrubia-Montesinos, C. 2021). The relationship between creativity and motor fluency in preschoolers has received little attention. The motivation to learn creative thinking, on the other hand, was found to have a positive and statistically significant link in one Jordanian study (Bai H. et al. 2020). Another study in China looked at how a creative relaxation programme affected preschool pupils' motor creativity, and it discovered that the programme encouraged an improvement in motor creativity levels, including motor fluency (Santos S., Monteiro D. 2021). Additionally, lateral prefrontal brain areas were active during creative thinking tasks, suggesting a potential connection between cognitive flexibility and creative thinking in early childhood (Arazola Ruano, C. 2017). Children's motor skills are crucial to their physical development and have a significant impact in their growth throughout their life (Payne, V. G., & Isaacs, L. D. 2016). Children's motor skills are crucial to their physical development and have a significant impact in their growth throughout their life (Payne, V. G., & Isaacs, L. D. 2016) Three categories of motor skills—balance, displacement, and object control skills—can be used to categorise motor talents. Early childhood, or the time before starting school, is the best time to educate and improve motor skills (Cohen K.E., et al. 2014) . The development of the skills that serve as the foundation for the most complicated motor programmes takes place throughout the era of fundamental movements, which lasts from two to seven years old. The ability to move well and efficiently requires the physical traits of strength, agility, speed, flexibility, coordination, and balance, all of which are necessary for mobility (Honrubia-Montesinos, C. et al. 2021). Children's motor and cognitive development is extremely dependent on physical activity. Early childhood is a critical time for the brain to develop connections that will underpin later skills and traits (Čoh M. 2021). The development of children's gross motor skills is benefited by organised physical activity, whether it is done exclusively or in conjunction with unstructured activity (Dapp, L.C. 2021). Structured physical activity also appears to have a tendency to improve fine motor abilities (Bukvić Z. et al. 2021). Numerous physical activities, including dance, yoga, aerobic training, strength training, and walking programmes, have been demonstrated to boost children's mood and mental health (Biino V. et al. 2021). The benefits of regular physical activity for children's mental, physical, cognitive, and psychosocial health are numerous (Plazibat, K. et al. 2021). It also promotes growth and development.

In order for children and young people to be successful learners, self-assured individuals, responsible citizens, and effective contributors, they need to have the skill of creativity, which includes "creative thinking" or "creative problem solving" (Forte-Celaya, J. 2021) . As such, creativity is seen as a necessary skill that needs to be encouraged and developed throughout all subjects in school curricula. In light of the fact that creativity is essential for thriving in both communities and educational settings, students should be encouraged to develop their own ideas rather than simply receiving information (Gonthier, C. 2023) .

This study highlights the importance of objective play activities in improving children's motor skills. These activities keep children engaged and prevent boredom, contributing to their development. The research focuses on children aged five to six, as they are ideally suited for accelerated engine growth. Early play activities with a purpose can enhance children's motor skills. However, most studies have not examined the impact of motor dexterity on the development of creative thinking and motor abilities in pre-school children. The study conducted interviews with kindergarten teachers to determine the motor activities provided for children. Researchers found that children's poor motor dexterity levels may be due to a lack of activities. To promote creative thinking and motor skills, researchers focused on motor dexterity in preschools. This study aimed to assess the effects of a motor dexterity program on children's cognitive and motor development. The study predicted significant differences in motor and creative thinking abilities between experimental and control groups.

Materials and Methods

Experimental design

We employed an experimental design with two groups, one experimental and the other a control, and we analysed the pre- and post-measurements of both groups to assess the research hypotheses. Participants in the study will be kindergarteners who will be between the ages of five and six in the 2022–2023 academic year. A random sample of 40 children's, or 40% of the research sample, was chosen from among the 100 children that were chosen in the first semester. The children were split into two groups of 20 each, with the experimental group receiving the study's presentation, which aimed to foster their imaginative thinking and some of their motor skills. While The other group served as the control group and received the traditional programme in the normal manner to track the growth of their creative thinking and specific motor skills. Prior to the program's start, all variables were assessed. Before-searching with the group. In the days of August 30 and 31, 2022. Two educational units were used each week on Sundays and Wednesdays during an eight-week educational programme. It commences on September 5, 2022, and concludes on October 26, 2022.

Research sample

An experimental sample of 20 children's from Al-Sanabel Kindergarten in Hofuf-Al-Ahsa, Saudi Arabia (average age: 5.55 ± 0.34 years; average height: 109.65 ± 0.97 cm; average weight: 22.5 ± 0.51 kg; average IQ: 8.30 ± 0.47) participated in the programme. The study included a control group of 20 children's who received standard training (average age = 5.50 ± 0.34 years; average height = 109.85 ± 0.93 cm; average weight = 22.70 ± 0.57 kg; average IQ = 8.15 ± 0.67 Number). A motor dexterity program's impact on pre-schoolers' imaginative thinking and some of their motor skills could be determined by comparing these groups and analysing the results. Parents completed informed consent forms that had been institutionally approved before their children took part in the trial with full knowledge of the risks and benefits involved. Additionally, the agreement was approved by the parents of the children.

Research Instruments

Tools and Devices:

We used a scale to measure weight, a rastameter to measure height, a measuring tape to measure distance (to the nearest centimetre), Swedish benches, wooden boxes, soccer balls, barriers and a wooden plank or wooden bar for side jumping in order to gather data for the study. By comparing the outcomes of some of the devices with measurements made of other devices of the same type under the same circumstances, the validity and reliability of the instruments and devices utilised were confirmed. These yielded the same outcomes, demonstrating the consistency and dependability of the findings.

Tests:

Appendix A: John Raven's Color Progressive Matrices Test:

To assess the intellect of the children in the research sample, we used a test of sequential matrices, which consists of three groups of 12 matrices each, with six additional little matrices at the bottom of each group's matrix. In order to measure a child's mental development until they reach the stage at which they use standard thinking as a method of deduction, which is the stage of mental maturity, the examiner selects one matrix to be complementary to the matrix that is above, and the previous three groups are placed in an ordered form. This arrangement develops a coordinated line of thinking and codified training about the method of work. Additionally, it should be emphasised that the test cards' various colours are intended to catch the attention of the children's taking the test and keep them from being sidetracked (Gonthier, C. 2023) .

Appendix B: Torrance test of creative thinking scoring scale

The Torrance test for creative thinking is presented as a series of activities appropriate for children's between the ages of three and seven. Both verbal and non-verbal responses from the children's are accepted, and the scale aims to measure creative thinking skills (originality, flexibility, and fluency) (Torrance E. et al. 2008).

Appendix C: Children's motor abilities test. The Kindergarten Mobil (KiMo) Test:

The KiMo test consists of five test items that measure five motor skills: flexibility, balance capacity, endurance and coordination, speed, and explosive force. These skills are relevant for children between the ages of three and six. Each task's test purpose, necessary materials, structure, administration, and recording of measured values are all detailed (Tepe Z.G. 2020) .

Program procedures:

We presented a set of chosen motor dexterity activities to experts in the field of physical education and kindergartens in order to prepare a motor dexterity programme for the development of pre-school children's creative thinking and specific motor abilities. We sought their opinions about the appropriateness of motor dexterity as a measurement for the development of creative thinking and motor abilities of the children being studied. Following the identification of the program's components based on these expert scientific opinions, we presented the programme to a group of experts to get their feedback on its suitability for the research's intended audience as well as its content, structure, and organisation. Their feedback helped the programme take on its final shape. The program's material was divided into 16 educational units that were administered over the course of eight weeks. Two times a week, for 45 minutes, the following activities were required: The children were welcomed, attendance was taken, and instructions were given as part of the administrative duties. The children

warmed up on the playground with some easy exercises or quick games to get them ready and boost their energy. The motor dexterity programme was used as the instructional exercise to foster the children's creative thinking (originality, flexibility, and fluency). Additionally, some of their motor skills. Individual exercises included practising balance, mimicking animals, manual dexterity, learning environments, spaces for action and adventure, (speed and agility - speed of motor response - muscular ability - neuromuscular compatibility) to develop balance and strength, body perception and discrimination, perceptual-motor pairing, visual control, form perception, fluency, originality, and flexibility. Short games and soothing activities made up the activity's conclusion (see Appendix D).

Research Timeline

We used the following time allocation for the educational unit in both the experimental and control groups; administrative work (three minutes), general and specific warm-ups (10 minutes), practical application / practise (30 minutes) and conclusion (two minutes). The general and specific warm-ups, as well as the closing parts, were incorporated as one material for the experimental and control research groups, and the programme under study was put into action to look at how the youngsters in the experimental group developed their basic motor abilities. In order to avoid any problems that might arise during the study's implementation and to calculate how much time each child spent participating in the study, the exploratory study was carried out using a sample of 10 children's. Testing ensured that the programme was appropriate for the age of the research sample's children in terms of both their physical capacity to engage in programme activities and their conceptual grasp of motor skills. The two research groups were telemetered from 29 October to 31 October, 2022, following the same procedure as the pre-measurement and in the identical circumstances. This was done once the program's execution was complete.

Statistical Analysis

A two-way ANOVA for repeated measures was used to identify differences between measurements and groups. If connections are discovered. Holm-Bonferroni correction is used in post hoc tests when the analyses show substantial differences. Results are shown as mean and standard deviation in the tables. The partial eta-square (η^2) method was used to determine effect sizes. The SPSS version 26.0 (IBM Corp., Armonk, NY, USA) programme was used to analyse the statistics.

Results

Tables 1, 2 provide the findings and show the differences in the variables under examination between the experimental and control groups.

Figure 1. shows the outcomes of the pre- and post-measurements for the research variables in the experimental and control groups. We found that the repeated measures differed in a statistically significant way in favour of the post-measurement. Between the groups, there are statistically significant differences that favour the experimental group.

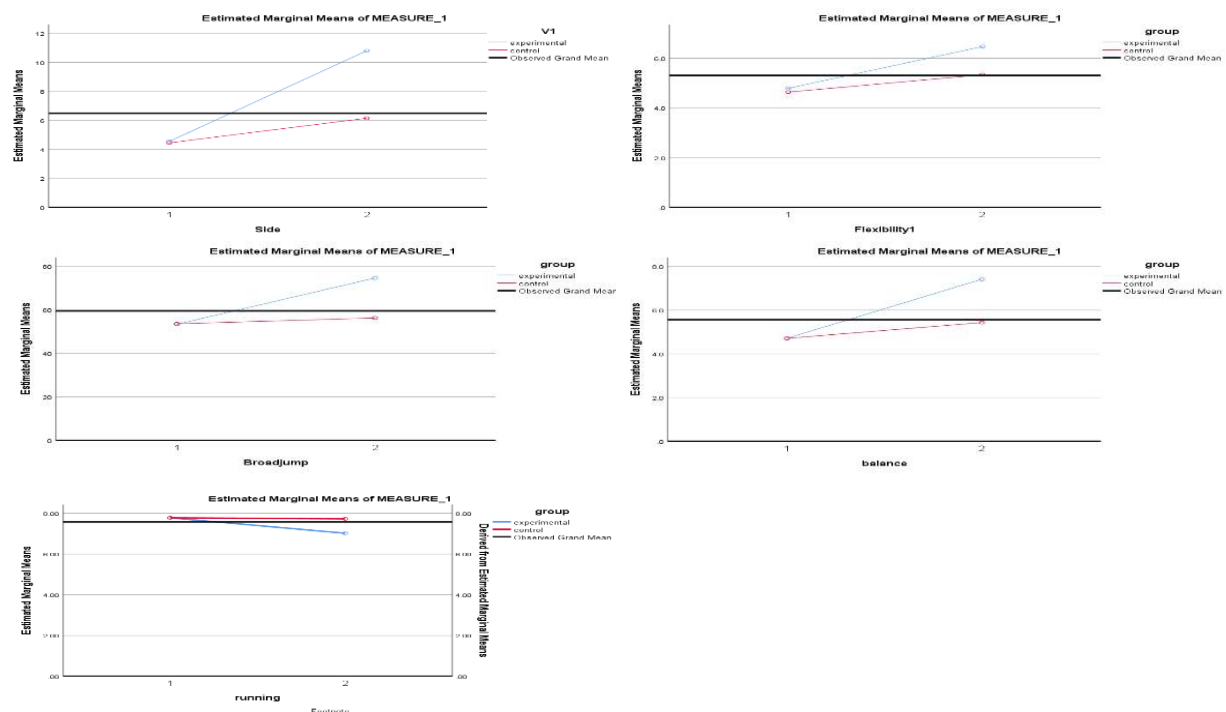


Figure 1. Pre and post measurements of the experimental and control group in Motor abilities

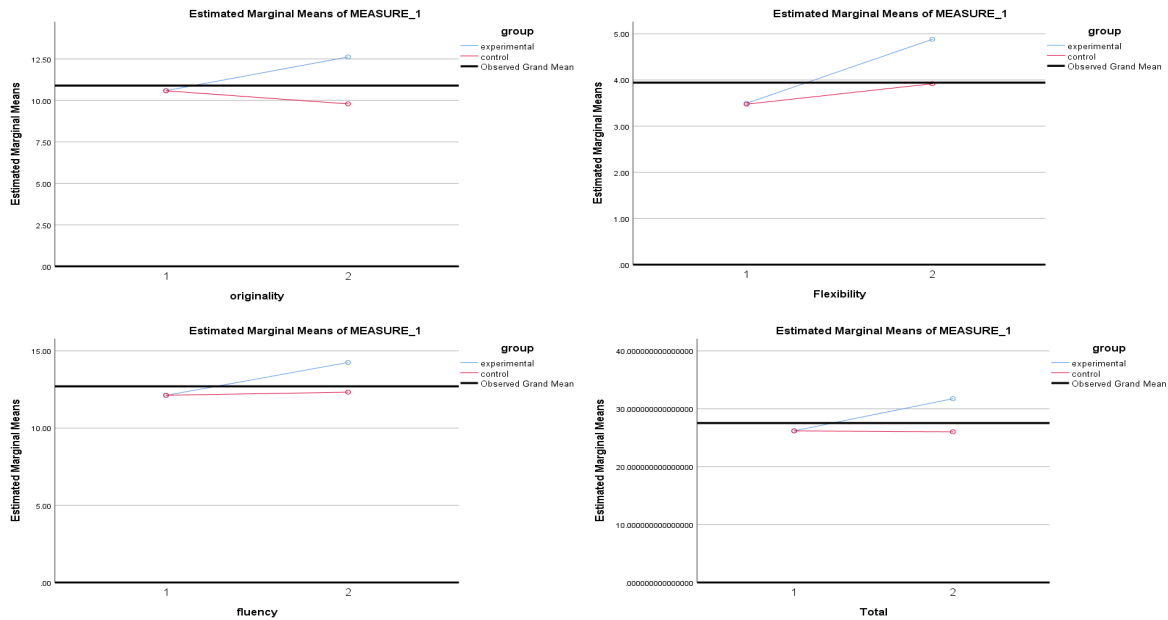


Figure 2. Pre and post measurements of the experimental and control group in Creative thinking

In comparison to the control group, the experimental group displayed a larger increase in all variables, according to bonferroni's post hoc analysis. Anova findings are shown in table 1. Simply put, there were significant effects ($p < 0.05$) in the motor abilities (side jump, flexibility, broad jump, and balance) and creative thinking (flexibility, fluency, total) in measurement. The motor skills (side jump, flexibility, broad jump, balance, and running) and creative thinking (originality, flexibility, fluency, total) were the areas where "group" had the biggest effects. The "measure group" interaction was moderate for motor skills (running) and total creativity, but big for the other variables. The "measure group" interaction was minor for creativity (originality).

Table 1. Analysis of variance with effect size (η^2) values for the main effects (measurement and group) and interaction (measurement group).

Variables		measruing unit	Measurement			Group			Group $\times$ Time Interaction		
			F	P	η^2	F	P	η^2	F	P	η^2
Motor abilities	Side jump	Number	601.175	.001	.941	367.184	.000	.906	196.920	.001	.838
	Flexibility	cm	430.280	.001	.919	65.872	.000	.634	74.011	.001	.661
	Broad jump	cm	336.398	.001	.899	126.605	.000	.769	201.804	.001	.842
	balance	Sec	454.023	.001	.923	133.788	.000	.779	151.616	.001	.800
	running	Sec	59.227	.001	.609	5.988	.019	.136	45.731	.001	.546
Creative thinking	originality	Number	1.705	.200	.043	9.639	.004	.202	8.766	.001	.187
	Flexibility	Number	352.038	.001	.903	104.091	.000	.733	93.930	.001	.712
	fluency	Number	1091.066	.001	.966	253.297	.000	.870	750.671	.001	.952
	Total	Number	33.463	.001	.468	41.632	.000	.523	37.182	.001	.495

For repeated measurements, Table 1. demonstrates statistically significant changes in measurements ($P = 0.001$). The (η^2) impact coefficient varied from (0.609 to 0.966). It revealed minor effects (0.043) with no statistically significant variations in creative thinking (originality) ($P > 0.05$). and reveals group differences that are statistically significant ($P = 0.001$) for many measurements.

The (η^2) impact coefficient varied between (0.136 and 0.906). The interaction's results likewise revealed significant differences in the variables, and the (η^2) ranged between (0.495 to 0.838), with a high effect and a minor effect (0.187) in the Creative thinking (originality).

Figure 3. displays the results of the pre- and post-measurements of the experimental and control groups for the variables under study. We discovered that there were differences in the rates of improvement between the two groups for variables related to motor abilities that ranged from (1.07% to 99.16%) ($P < 0.05$) and for variables related to creative thinking that ranged from (7.67% to 26.97%) ($P < 0.05$).

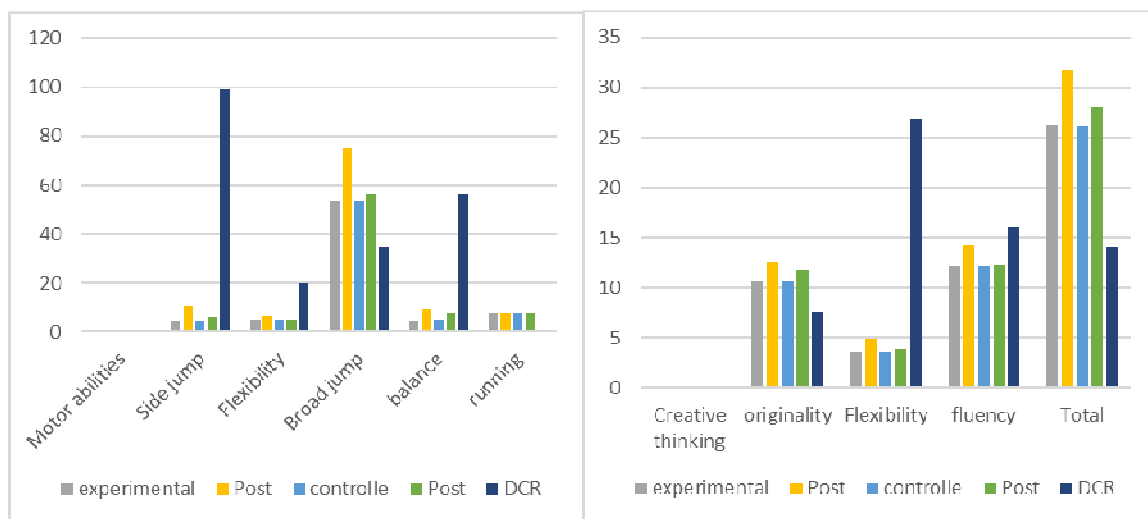


Figure 3. Pre and post measurements of the experimental and control group

Table 2. indicates the differences between the averages of post measurements of the experimental and controlled groups in the variables under consideration (n = 40)

Variables	measruing unit	experimental		controlle		DCR	P-value
		Mean±SD	Mean±SD	Mean±SD	Mean±SD		
Motor abilities							
Side jump	Number	4.55±0.51	10.80±0.77	4.45±0.51	6.15±0.75	99.16%	0.000
Flexibility	cm	4.79±0.26	6.47±0.30	4.64±0.30	5.34±0.36	20.09%	0.000
Broad jump	cm	53.40±3.22	74.65±3.15	53.60±3.75	56.30±2.96	34.75%	0.000
balance	Sec	4.11±0.68	8.79±3.41	4.71±0.46	7.42±0.35	56.46%	0.000
running	Sec	7.78±0.51	7.48±1.52	7.78±0.54	7.56±0.64	1.07%	0.049
Creative thinking							
originality	Number	10.59±0.26	12.61±0.25	10.58±0.28	11.79±0.24	7.67%	0.000
Flexibility	Number	3.49±0.08	4.88±0.04	3.48±0.06	3.92±0.42	26.97%	0.000
fluency	Number	12.12±0.26	14.25±0.03	12.13±0.26	12.32±0.24	15.97%	0.000
Total	Number	26.20±0.39	31.74±0.28	26.18±0.42	28.03±0.51	14.08%	0.000

Differences in Change Ratio (DCR) .

Table 2. shows that for the relevant variables, there are statistically significant differences between the experimental and control research groups. These support the experimental group (p 0.05).

Discussion:

The experimental group performed better than the control group ($p < 0.05$) in Tables 1 and 2, which compare pre- and post-measurements of the experimental group and the control group for the variables under consideration.

This shows that the motor dexterity programme was innovative due to the creation of a fresh and engaging educational environment, as well as the provision of a suitable environment that promoted a spirit of cooperation and teamwork among the children. It also shows clear and tangible progress in the children's levels of creative thinking and the studied motor abilities. The programme is distinguished by giving children's access to tools, sports, and educational games they enjoy while also arousing all of their senses and boosting their desire to use their motor skills and creative thinking components. a number of tasks and scenarios that called for the children's to emulate the movements of nearby animals or objects or come up with appropriate kinetic solutions, In line with the findings of the study by Nezahat et al.2020 the program's activities included sounds like a tree, the wind, the sound of a train, and the sound of a car. These sounds were implemented in a way that was appropriate for the children's abilities and preparations.

Children who participated in the motor dexterity programme were able to strengthen their motor skills through a variety of exercises, which helped them build strong motor skills and boost their motor output (Duarte M.G et al. 2021). Additionally, the programme gave kids of the same age the chance to interact through movement (Costa, C.L. et al. 2021). Motor prowess programmes have been demonstrated to be beneficial in

teaching kids to control their motor performance, which reduces errors and frees up time and effort for learning (Plazibat, K. et al. 2021).

The program's aim is to improve the children's talents generally and help them develop a variety of facets of their personalities, therefore motor dexterity during this stage must achieve the primary objective of meeting the children's needs and potential (Vincent-Lancrin, S., 2019) . The findings of the investigations by (James R. et al. 2020, Thomaidou C. et al. 2021, Tešanović, G. et al. 2016 ; Yilmaz, S. et al. 2020) were in agreement with this. However, In contrast to the motor activities included in school programmes, which may be in a directed form, motor dexterity and motor education programmes had a more favourable and effective impact on the development of the creative thinking and motor abilities that were studied in this research.

as the curriculum concentrated on many of the motor activities that children need at this stage (de Niet M. 2021) ,as well as the existence of ongoing follow-ups regarding the implementation of motor activities, which provided better opportunities for the children's to develop their motor skills; additionally, the age stage in the children's lives increased the rate of motor development (Foulkes, J. 2015) .

We attributed this to the superiority of the proposed motor dexterity program over the motor activities program provided by the physical education curriculum due to the diverse activities in the motor prowess program for the children in the experimental group, which included imitating animal movements to develop walking, running, control, and relay skills in the preliminary games, which helped the children to explore their motor skills via activities that depended on motivation and directed excitement, and accelerated the learning of the motor aspects of the skills. This result was also due to the positive impact of the content of the motor education program, which effectively contributed to taking children's tendencies and needs when playing into account, and served to stimulate all their senses in the educational process as well as assigning them a positive role while learning, which helped to increase their motivation to learn. The improvement in the motor dexterity program was attributed to the engaging and varied games in the experimental group. This increased the effectiveness of the lesson and motivation of the children, as the program was tailored to their age and included representative movements like the finger snap. The motor prowess program also demonstrated its effectiveness. The findings of the investigations by (Thomaidou C. et al. 2021, Tesanovi, G. et al. 2016, James R. et al. 2021, Nurper O. et al. 2017) . This study found motor dexterity and motor education programs positively impact creative thinking and motor abilities development compared to school-based motor activities. 4.1. Study Limitations and Future Directions :

The study demonstrated the impact of the motor dexterity programme on children's (5–6) creative thinking as well as some motor skills. This study strengthens the evidence in favour of using a motor dexterity programme. Despite the favourable findings of this inquiry, some restrictions must be taken into account. Due to the study's primary limitation—the small sample size—it is crucial to use caution when interpreting the study's findings. Given that the intervention programme had two sessions per week for eight weeks, a longer trial period might provide additional evidence of the differences between the two groups.

In the future, it is intended to conduct studies with a bigger sample size of children's and a longer evaluation time. In order to ensure that motor dexterity programmes are effective in teaching and developing new motor skills and abilities, as well as activities and other variables, it is also important to do more research and studies on their design and application.

Conclusions

Based on the research findings, we came to the conclusion that the proposed programme using motor dexterity had a positive impact on the development of the children in the study's creative thinking and motor skills rate of ($p = 0.001$). In fact, the proposed programme using motor dexterity had more positive results than the traditional programme did in terms of the development of these children's creative thinking and motor skills. The experimental group that employed the suggested programme for motor dexterity experienced a bigger percentage change in their creative thinking and motor skills than the control group that used the conventional programme ($p = 0.001$). We advise adopting the motor dexterity programme to foster children's creative thinking and motor skills based on the research's findings. Programmes for pre-service kindergarten teachers must also cover the use of motor dexterity in fostering children's creative thinking and motor skills. Kindergarten teachers should take training on how to use motor dexterity to foster children's creative thinking and motor skills, according to those working in the kindergarten industry.

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Appendix (A): John Raven's Color Progressive Matrices Test

The test of sequential matrices to measure the intelligence of the children in the research sample; this test consists of three groups with each group consisting of 12 matrices and each matrix containing six small matrices at the bottom. The examiner chooses one matrix to be complementary to the matrix that is above, and the previous three groups are placed in an ordered form; this arrangement develops a coordinated line of thinking and codified training about the method of work, which provides the opportunity to measure the mental development of children until they reach the stage at which they use standard thinking as a method of deduction.

Appendix (B) Torrance Test of Creative Thinking Verbal image (A)

This part contains six tests. The first three tests are based on the existing picture and give you the opportunity to think and ask questions so that their answers lead to knowing things you already know, and hypothesizing the possible causes and consequences of what happens in the picture. (First test: ask questions - second test: guess the reasons - third test: guess the results - fourth test: improve productivity, fifth test: uncommon uses, sixth test: suppose).

Torrance Test of Creative Thinking Formal image(B)

This part contains three tests, the first test: image formation, the second test: complete pictures, and the third test: parallel steps.

Appendix(C)From KiMo (Kindergarten Mobil) - Test: Motor skills screening for children aged 3-6 years

The KiMo (Kindergarten Mobil) test, which was developed by the German Sport University Cologne as part of the KiMo project, is intended to close this gap. It consists of five test tasks that check the motor skills relevant for the age of 3 to 6 years (balance ability, strength endurance, coordination, speed, explosive strength, flexibility)(Pendulum run (PL)- Standing long jump (SWS)- One Leg Stand (EBS)- Sit and Reach (SR) - Side Jumping (SH)). the objective test, the required material, the structure, the implementation and the recording of the measured values are described .

Appendix(D) : This section contains a model for the motor dexterity educational unit

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