Modern Sport

Volume 24
Issue 3 *Special Issue of the Third International Scientific Conference, Titled (Artificial Intelligence and Its Role in the Cognitive Creativity of Sports Science)*

Article 10

7-25-2025

Classroom Enrichment-Based Energy-Exhaustion Games and Their Impact on Developing Selected Social Skills and Physical Attributes and Reducing Hyperactivity and Attention Deficit in Gifted Students

Nihad Mohammed Alwan
College of Physical Education and Sports Sciences for Women, University of Baghdad

Ali Sadiq Dhiyab
College of Physical Education and Sports Sciences, University of Baghdad

Doaa Muhib Al-Din Ahmed
Department of Student Activities, University of Technology

Farah Alaa Jafar
College of Physical Education and Sports Sciences for Women, University of Baghdad

Recommended Citation
Alwan, Nihad Mohammed; Dhiyab, Ali Sadiq; Ahmed, Doaa Muhib Al-Din; and Jafar, Farah Alaa (2025) "Classroom Enrichment-Based Energy-Exhaustion Games and Their Impact on Developing Selected Social Skills and Physical Attributes and Reducing Hyperactivity and Attention Deficit in Gifted Students," *Modern Sport*: Vol. 24: Iss. 3, Article 10.
DOI: https://doi.org/10.54702/2708-3454.2081

MODERN SPORT 2025;24:345–357

SPECIAL ISSUE ARTICLE

Classroom Enrichment-Based Energy-Exhaustion Games and Their Impact on Developing Selected Social Skills and Physical Attributes and Reducing Hyperactivity and Attention Deficit in Gifted Students

Nihad Mohammed Alwan [a,*], Ali Sadiq Dhiyab [b], Doaa Muhib Al-Din Ahmed [c], Farah Alaa Jafar [a]

[a] College of Physical Education and Sports Sciences for Women, University of Baghdad
[b] College of Physical Education and Sports Sciences, University of Baghdad
[c] Department of Student Activities, University of Technology

Abstract

The significance of this research lies in exploring the impact of energy-exhausting games through enrichment classroom activities on the development of specific social skills and physical attributes, as well as reducing hyperactivity and attention deficit among gifted students aged 13. The research problem emerged from the question: *To what extent can energy-exhausting games, when implemented through enrichment classroom programs, contribute to enhancing selected social and physical traits and minimizing hyperactivity and attention deficit?* This study aimed to (a) identify the levels of specific social skills in the sample, (b) identify the values of specific physical attributes in the sample, (c) measure the degree of hyperactivity and attention deficit in the sample, (d) design instructional units based on energy-exhausting games incorporating enrichment classroom programs; and (e) investigate the effect of these prepared instructional units on the development of the targeted traits. An experimental method was employed on a sample of 14 gifted students aged 13 (second intermediate grade), divided equally into an experimental group and a control group (7 students each). After conducting pre-tests and confirming group equivalency, the experimental group was taught using the designed instructional units, while the control group followed conventional methods. Following the intervention, post-tests were administered, and data were analyzed statistically. The results showed that using energy-exhausting games through enrichment classroom activities in physical education classes directly and significantly improved social skills and physical attributes and reduced hyperactivity and attention deficit among gifted students. And this achieves one of the sustainable development goals of the United Nations in Iraq which is (Quality Education).

Keywords: Enrichment classroom activities, Hyperactivity, Attention deficit

1. Introduction

Allah Almighty has created humans with varying health and abilities, making each person reliant on others. Among them are individuals with disabilities, healthy individuals, and the gifted—all of whom have their own unique needs. "individuals with special needs" refers to people who require specific care and attention. For example, it is not appropriate to teach or train individuals with disabilities together with healthy or gifted students due to individual differences. Gifted students are characterized by exceptional performance in areas such as creativity, the arts, leadership, or specific academic fields, and

Received 25 February 2025; revised 15 March 2025; accepted 20 March 2025.
Available online 25 July 2025

* Corresponding author.
E-mail addresses: nihad@copew.uobaghdad.edu.iq (N. M. Alwan), ali.jawad@cope.uobaghdad.edu.iq (A. S. Dhiyab), doaa.m.ahmed@uotechnology.edu.iq (D. M. Al-Din Ahmed), farah.a@copew.uobaghdad.edu.iq (F. A. Jafar).

https://doi.org/10.54702/2708-3454.2081

they require services and activities not typically available in regular schools.

It is essential to pay attention to gifted students as they represent a vital sector of society due to their high intelligence, special talents, and abilities in innovation and leadership. These qualities equip them to tackle current societal problems and contribute to the safety and well-being of others. Therefore, gifted students should receive comprehensive support, especially in physical activities, as these enhance their overall health, regulate excessive movement, and contribute to physical well-being.

Hyperactivity is a widespread childhood disorder that extends beyond physical restlessness to include behavioral traits such as impulsivity, excitability, and difficulty focusing or maintaining attention. This often leads to further behavioral and social challenges. Research indicates that the prevalence of hyperactivity among school-aged children ranges between 5% and 15%, with males being more affected than females (Al-Khatib, 1993).

Physical attributes are fundamental in all sports and essential to general fitness. These traits do not operate in isolation during performance and are defined as the ability of the heart, blood vessels, lungs, and muscles to function efficiently (Hamdan & Saleem, 2001).

Several important realities must be considered when addressing social skills and the social needs of gifted students. An individual's social life cannot be separated from other aspects. For gifted students, their social life permeates all their activities, thoughts, and experiences. Social skills enable individuals to interact and communicate effectively with others. Classroom participation helps students expand their social networks by allowing them to connect with peers, primarily through involvement in school clubs and team sports, where they learn new skills through such interactions.

Among these are enrichment classroom activities—targeted activities designed for gifted students that aim to deepen their understanding of academic content. These activities are conducted under the supervision and guidance of a teacher and may include puzzles, physical games, and scientific methods.

2. Research problem

Through frequent visits to the school for gifted students, the researchers observed—through direct discussions with school administrators and physical education teachers as well as personal observation during physical education classes—that some students displayed signs of hyperactivity, attention deficit, deficiencies in specific social skills, and weakness in some physical attributes. Based on these observations, the researchers deemed it necessary to develop energy-exhausting games utilizing enrichment classroom programs. These programs can enhance social skills by making lessons more engaging, appealing, and interactive. Consequently, this approach may also help develop physical attributes and reduce hyperactivity and attention deficit symptoms among the targeted students.

Play is one of the most essential tools for energy expenditure; it helps children achieve harmony and balance within themselves and their environment. Therefore, providing a suitable environment and the necessary components is essential to ensure that physical education classes enable students to take initiative, exhibit spontaneous behavior, and support self-actualization and self-confidence. This should be achieved by engaging and motivating through structured play, an indispensable aspect of physical, linguistic, cognitive, and social development. As such, energy-exhausting games are considered one of the most effective therapeutic methods.

3. Significance of the study

The importance of this study lies in the targeted population: gifted students, who are regarded as the foundation and future of a nation's progress. Accordingly, the research significance can be summarized as follows:

- Highlighting the importance of energy-exhausting games by developing classroom enrichment programs tailored to the needs of gifted students.
- Demonstrating how these programs may contribute to the improvement of specific social skills.
- Enhancing specific physical attributes.
- Reducing hyperactivity and attention deficit, which are commonly observed among gifted students.

4. Research objectives

1. To identify the selected social skills and physical attributes levels among the study sample.
2. To assess the degree of hyperactivity and attention deficit in the sample.
3. To design instructional units using energy-exhausting games integrated with enrichment classroom programs to improve social skills and physical attributes and reduce hyperactivity and attention deficit.

4. To evaluate the effect of the designed instructional units employing energy-exhausting games and enrichment classroom activities on the development of social and physical traits and the reduction of hyperactivity and attention deficit among the study sample.

5. Research hypotheses

1. There are statistically significant differences between the pre-and post-tests of the control and experimental groups regarding improving specific social skills and physical attributes and reducing hyperactivity and attention deficit.
2. There are statistically significant differences between the control and experimental groups in the post-tests regarding the development of specific social skills, physical attributes, and the reduction of hyperactivity and attention deficit.

5.1. Research domains

Human Domain: A sample of gifted students (n = 14), aged 13 years.

Temporal Domain: From October 25, 2024, to March 30, 2025.

Spatial Domain: Gifted Students' School Field–Baghdad –Al-Jamia District.

6. Methodology and procedures

The researchers adopted the experimental method using the equivalent group design (experimental and control groups) with pre-and post-tests, as it was deemed appropriate for the nature of the study. The research population was intentionally selected from second-grade intermediate gifted students at the Gifted Students' School in Baghdad for the academic year 2024–2025, totaling 14 students (both males and females). The sample was divided randomly by drawing lots into two groups: the experimental group and the control group. Group A, consisting of 7 students, was assigned as the control group, while the experimental group also comprised seven students, representing 50% of the total population. Their ages ranged from 12 to 13 years.

7. Data collection tools

The researchers utilized Arabic sources, standardized measurements, and the following expert opinion surveys:

– Appendix 1: Expert opinion survey to assess the validity of the Social Skills Scale.

– Appendix 2: Expert opinion survey to assess the validity of the attention deficit hyperactivity disorder (ADHD) Scale.

In addition, the researchers employed various tools and materials including flags, a whistle, a measuring tape, chalk, a stopwatch, reference markers, ropes, hoops, small balls, coloured adhesive tape, and appropriate statistical methods.

8. Field procedures

8.1. Determining physical attributes of the sample

It was essential for the researchers to identify which physical attributes should be studied carefully. To accomplish this, the researcher reviewed specialized sources and previous studies on similar topics and designed a questionnaire reviewed by a panel of experts. After calculating the percentage of expert agreement, attributes with a consensus of 70% or higher were adopted.

The final list of targeted physical attributes included:

Explosive strength of the leg muscles, strength of the arm muscles, Speed endurance, Linear speed, Agility.

8.2. Determining tests for the physical attributes under study

The process of selecting tests for physical attributes is one of the key factors that must serve the purpose for which it was designed. The researchers reviewed specialized sources and similar studies to identify the most critical tests. They also created two expert opinion survey forms to gather feedback from experts and specialists regarding identifying appropriate tests for specific physical attributes.

Based on the survey results, the researcher adopted a 70% agreement or higher criterion as the threshold for accepting a test.

– **Agility Test: "Shuttle Run Test for Both Genders"** (Diwan, 1993, p.158)

Purpose of the Test: To measure agility through running and changing direction.

8.3. Required equipment

Stopwatch, open field area (15 × 15 meters), and four wooden cubes (each 5 × 5 × 10 cm).

8.4. Procedures

Two parallel lines are drawn on the ground, each 9 cm long, and spaced 0 mm apart. The wooden cubes are placed behind the finish line.

8.5. Performance description

The participant stands behind the starting line in a standing start position. Upon hearing the start signal, they run as fast as possible toward the cubes, pick one up, and return quickly to place it behind the starting line. The participant then runs again to pick up the second cube and returns with it, crossing the starting line at maximum speed.

– **"Speed-Strength Test for Arm Muscles"** (Diwan, 1993, p.159)

Purpose of the Test: To measure the speed-strength of arm muscles.
Required Equipment: Stopwatch.
Procedure: The participant is given 10 seconds to perform the test. The maximum number of repetitions within this time is recorded.
Performance Description: The participant assumes a push-up position. At the start signal, they perform as many push-ups (arm flexion and extension) as possible within 10 seconds, keeping their toes on the ground.

– **"Speed-Strength Test for Leg Muscles: "Maximum Distance Hopping Test in 10 Seconds"** (Diwan, 1993, p.160).

Purpose of the Test: To measure the speed-strength of leg muscles.
Required Equipment: Measuring tape, small field (20–25 meters), chalk or tape.
Performance Description: The participant stands on one foot and hops forward along a straight line for 10 seconds without stopping or touching the ground with any body part except the hopping foot. The distance covered in 10 seconds reflects the muscular power of the leg. The test is repeated with the other leg. The best of three trials is recorded.

– **Transitional Speed Test: 30-Meter Sprint from Standing Start** (Abdul Jabar & Ahmed, 1997)

Purpose of the Test: To measure transitional speed.
Required Equipment: Stopwatch, a correctly marked track with clear start and finish lines.
Performance Description: The participant stands behind the starting line. At the start signal, they sprint as fast as possible to the finish line. The time taken is recorded. Each participant gets one attempt.

– **Speed Endurance Test: 25 × 8 Shuttle Run from Standing Start** (Darwish, 2006)

Purpose of the Test: To measure speed endurance.
Required Equipment: Flat surface, measuring tape, stopwatch, chalk, whistle, marked start and finish points.
Performance Description: Two points 25 meters apart are marked. The participant stands at one point in a standing start position. At the start signal, they run at maximum speed to the opposite point, touch it with their foot, then turn around and run back to the start point. This is repeated 8 times for a total distance of 200 meters (25 m × 8).
Test Conditions: Time is recorded from the moment the participant starts until they return to the starting point after the final lap. The participant must touch each point with their foot.
Scoring: The total time taken to complete the eight repetitions is recorded. Only one attempt is allowed.

9. Determining the social skills scale

After reviewing numerous Arabic sources and references in psychology, measurement, and testing and consulting with specialists in these fields, the researcher adopted a social skills scale based on a study by Ahmed (2015) p.227). This scale was applied to second intermediate-stage students and presented to experts and specialists for validation. The experts agreed on the validity and appropriateness of the scale for the sample. The teacher completes the scale, and consists of 47 items.

9.1. Determining the ADHD Scale (hyperactivity and attention deficit disorder)

After reviewing various Arabic psychological sources and consulting with specialists, the researcher adopted the ADHD Scale by Al-Janabi (2017), which was also applied to students in the second intermediate stage. The scale was reviewed by experts in psychology, training, and measurement, who agreed on its validity and relevance to the sample. The teacher completes the scale and includes 8 and 13 psychological, social, and cognitive functions items. The total number of items is 30, as detailed in Appendix 2.

9.2. Preparing instructional units with energy-exhausting games using in-class enrichment programs

It was necessary to consult recent sources and references related to teaching methods and psychology

to ensure the instructional units were effective. Instructional units were designed using games aimed at exhausting excessive energy through enrichment activities to reduce hyperactivity and attention deficit. The games used were specifically chosen to develop selected physical attributes.

These games were incorporated into educational units, each targeting the development of a specific physical attribute using appropriate games to achieve its objectives. A sample of these units was presented to a group of experts, to gather their opinions on the suitability of the games for the sample's level and the extent to which the activities could achieve their goals in enhancing physical attributes—furthermore, the activities within these units aimed to foster the development of social skills among gifted students.

10. Pilot experiments

10.1. First pilot experiment on the tests of physical attributes

The first pilot experiment was conducted on four students on December 6, 2024. Its purposes included:

- Determining the time required to complete the tests.
- Verifying the validity of the devices and tools used.
- Assessing the research sample's understanding of the tests.
- Evaluating the assistant team's competence.
- Identify any potential problems that could hinder the process and avoid them.
- Applying scientific standards to the tests.

Through this experiment, the researchers evaluated the scientific foundations of the tests, specifically validity, reliability, and objectivity, as follows:

1. Validity:

To ensure test validity, the researchers relied on expert judgment validity, which is based on the test's ability to represent the aspect it aims to measure. As Ibrahim (1999) shows, this validity confirms that the test achieves its intended objective. The tests were reviewed by experts who agreed (at a rate of 70% or higher) that the tests measure what they were designed to assess.

2. Reliability:

A test is considered reliable if it yields consistent results when administered repeatedly under the same conditions. The researcher applied the test-retest method by administering the tests to the exploratory sample and repeating them after 7 days under similar conditions to ensure accuracy.

3. Objectivity:

According to Al-Kindi and Abdul Karim (1999), objectivity means freedom from personal bias or influence. Tests should assess the individual's true capabilities without subjective interference. The tests have high objectivity since the results are based on measurable outcomes, not researcher judgment.

10.2. Second pilot experiment: Social skills and ADHD scales

The second pilot experiment, which was conducted to assess the Social Skills Scale and the attention deficit hyperactivity disorder (ADHD) Scale, was carried out on a group of four students on January 8, 2025. The questionnaire was evaluated by the teacher responsible for the sample. The primary purpose of this pilot was to determine the amount of time required to complete the questionnaire and to identify any items that were unclear to the teacher, allowing for clarification by the researcher.

Through this pilot experiment, the researchers were also able to establish the psychometric properties of the scales used in the study—namely, validity, reliability, and objectivity—as outlined below.

1. Validity:

They were presented to experts to ensure the scales met their objectives. The experts unanimously agreed (100%) that both the social skills scale and the ADHD scale accurately measure their targeted constructs.

10.3. Third pilot experiment: Implementation of the educational units

The researchers prepared an instructional unit for the pilot experiment aimed at implementing educational units designed to develop selected physical attributes among the experimental sample group, which consisted of seven students. The experiment was scheduled for January 10, 2025, at 8:00 a.m. to administer the educational unit focused on enhancing physical attributes, reducing hyperactivity and attention deficit, and improving selected social skills in the experimental group.

The objectives of the pilot were to: evaluate the suitability of the games for the students' level; assess the feasibility of implementing enrichment activities within the instructional unit; determine the time required for each section of the unit; verify the effectiveness and appropriateness of the tools and

Table 1. Presents the results of the equivalence between the experimental and control groups in the variables under investigation and the pre-tests. It displays the results of the means, standard deviations, and the calculated t-values for the pre-tests of both the experimental and control groups.

	Control Group		Experimental Group				
Measure	AM	SD	AM	SD	Calculated t-value	P-value	Significance
Social Skills Scale	68.571	3.154	69.285	8.769	1.294	0.134	Not Significant
ADHD Scale	56.57	9.0343	63.285	5.023	0.987	0.321	Not Significant
Agility	46.028	20.016	16.0604	26.254	1.094	0.890	Not Significant
Speed-strength (Arms)	2.8571	1.0690	3.8571	1.3451	1.987	0.698	Not Significant
Speed-strength (Legs)	5.495	0.6631	4.608	0.6918	1.095	0.456	Not Significant
Transitional Speed	12.428	1.1338	12.8571	1.0690	2.012	0.845	Not Significant
Speed Endurance	1.9114	0.51005	2.052	0.564	1.009	0.912	Not Significant

Significance Level ≤ 0.05 and Degrees of Freedom $= 12$.

equipment used; and identify potential errors or obstacles that might arise during implementation, in order to address and overcome them in the final application of the educational unit.

10.4. Pre-tests for the research sample

Pre-tests were conducted over two days, February 5–6, 2025 (Tuesday and Wednesday). On the first day, three physical attribute tests were administered to the experimental and control groups, and the social skills scale was given to the teacher. Two more tests were conducted on the second day, and the ADHD scale was administered. All environmental and temporal conditions were standardized for both groups to ensure consistency in the post-test phase.

To begin from a common starting point, the researcher ensured group equivalence between the experimental and control groups in the research variables. Statistical analysis using independent samples t-tests revealed no significant differences between the groups in the pre-test phase. This is shown in Table 1.

Table 1 shows no statistically significant differences between the experimental and control research groups.

10.5. Implementation of the educational units

The implementation of the educational units began on February 9, 2025, and lasted until March 23, 2025, for six weeks. The number of academic units delivered was two per week, totaling twelve educational units. The key procedures followed during the implementation of these educational units were:

1. All games aimed to develop the selected physical attributes, enhance social skills, and exhaust excess energy. Various tools were utilized to attract students' attention, and different teaching styles were applied, such as training and reciprocal. Enrichment activities were conducted by dividing students into groups, giving them freedom of participation, and assigning two students as class leaders to encourage leadership skills. Warm-ups were done using music instead of traditional warm-ups, and a laptop was used to display videos of games that enhance physical traits. Students were encouraged to compete with each other.
2. Students were divided into groups of 3-4 members for most games to promote collaboration, social interaction, and mutual encouragement. Students were free to participate and communicate with peers, which helped improve their social skills.
3. One student in each group was designated as the group leader, selected based on maturity, intelligence, and leadership potential. Leadership roles were rotated periodically among students.
4. A station teaching method was used, along with the redistribution of groups during different activities.
5. Competitive games were held between groups.
6. Students were encouraged to compete and exchange ideas on how to apply the games.
7. The teacher organized the group work by focusing on individual contributions and encouraging positive and competitive group dynamics.

By using enrichment-based activities, the school created an effective learning environment with teaching methods that differ from traditional approaches. These methods increased students' responsibility toward learning, made them central to the educational process, and transformed them from passive recipients to active participants. Students now interact with lessons, express their ideas freely without anxiety or fear, and develop their personalities to become responsible and socially capable individuals. This approach aims to prepare a new generation

Table 2. Presents the pre-and post-test results of the experimental group in the physical fitness attributes.

	Pre-Test		Post-Test						
Variables	AM	SD	AM	SD	MD	SDD	Calculated t	Error Level	Statistical Significance
Agility	16.0604	26.254	30.00	4.0824	13.395	26.246	1.350	0.002	Significant
Speed Strength (Arms)	3.8571	1.3451	12.142	1.6761	8.2857	0.95119	23.047	0.000	Significant
Speed Strength (Legs)	4.608	0.6918	12.9114	2.625	8.328	1.97520	11.122	0.000	Significant
Transitional Speed	12.8571	1.0690	4.4286	0.5345	8.4285	1.397	15.960	0.000	Significant
Speed Endurance	2.052	0.564	5.142	10.172	48.0900	9.8224	12.953	0.000	Significant

Significant at a significance level ≤ 0.05 and under degrees of freedom $= 6$.

Table 3. Shows means, standard deviations, and calculated T-value for the pre- and post-tests of the experimental group in social skills and hyperactivity.

	Pre-Test		Post-Test						
Variables	AM	SD	AM	SD	MD	SDD	Calculated t	Error Level	Statistical Significance
Social Skills scale	69.285	8.769	197.000	3.4156	127.71	7.889	42.831	0.000	Significant
Hyperactivity scale	63.285	5.023	32.7143	0.9511	7.88	4.859	16.643	0.000	Significant

Significant at the significance level ≤ 0.05 with a degree of freedom $= 6$.

capable of overcoming challenges and societal difficulties.

10.6. Post-testing of the research sample

The post-tests were conducted two days after the completion of the instructional program, Wednesday and Thursday (March 26–27, 2025). The researchers ensured that the same organization and testing conditions were maintained as in the pre-tests to obtain highly reliable results.

10.7. Statistical tools

The data were analyzed using the SPSS-18 statistical software.

11. Results and discussion

Tables 2 and 3 show that all the differences were statistically significant between the pre-and post-tests for the experimental group in favor of the post-tests. When comparing the error level for the tests and measures to the significance level (0.05) at a degree of freedom (6), it appears to be lower, indicating statistical significance. This demonstrates the impact of energy-exhausting games using in-class enrichment programs on improving social skills and physical fitness traits and reducing hyperactivity and attention deficit in gifted students.

The researchers attribute this to the games adopted by the researcher, which increased students' motivation to learn new things about themselves, discover their abilities, develop their latent skills, and realize their responsibilities toward the group. The presence of a group of peers deepens positive participation, reduces hyperactivity, attention deficit, and tension, and enhances social skills and self-confidence. Moreover, the desire to win and receive recognition helped students build a positive self-concept.

Tables 4 and 5 show that all differences were random between the pre-and post-tests for the control group. When comparing the error level to the significance level (0.05) at a degree of freedom (6), the values are higher, indicating the differences are random, except for the upper-limb speed-strength test, which showed a significant difference. The researchers attribute this to a lack of proper attention to physical education classes that meet the needs and aspirations of gifted students who tend to be highly active and the limited consideration for social skills that positively reflect physical traits.

Based on the aforementioned, it is evident in Tables 6 and 7, there were significant differences in the post-tests between the control and experimental groups for the social skills, hyperactivity/attention deficit measures, and some physical fitness traits. Thus, the research objectives and hypotheses were achieved, as shown by the results in favor of the experimental group.

The researchers attribute these results to the energy-exhausting games using in-class enrichment programs, which improved certain social and physical traits in the gifted experimental group. These games helped reduce hyperactivity and attention deficit, brought the sample closer together, and reduced isolation, boredom, and psychological stress. Their cooperative and group-oriented nature promoted satisfaction, joy, and fun. Moreover, they developed physical abilities in general and specific physical preparation for various sports and preparatory activity types.

These games also contribute to both psychological and physical development. They serve as a means to express suppressed emotions, relieve stress, express

Table 4. Shows pre-and post-test results of the control group in physical attributes.

	Pre-Test		Post-Test						
Variables	AM	SD	AM	SD	MD	SDD	Calculated t	Error Level	Statistical Significance
Agility	46.028	20.016	38.871	25.971	7.1571	20.894	0.906	0.400	Not Significant
Speed Strength (Arms)	2.8571	1.0690	3.4286	1.1338	0.5714	0.5345	2.828	0.030	Significant
Speed Strength (Legs)	5.495	0.6631	5.2643	0.5785	0.2314	0.6356	0.963	0.373	Not Significant
Transitional Speed	12.428	1.1338	12.714	0.7559	0.2857	1.496	0.505	0.631	Not Significant
Speed Endurance	1.9114	0.51005	1.8200	0.398	0.0914	0.30019	0.806	0.451	Not Significant

Significant at a significance level ≤ 0.05 and under degrees of freedom $= 6$.

Table 5. Shows the means, standard deviations, and the calculated t-value for the pre-and post-tests of the control group in social skills and hyperactivity.

	Pre-Test		Post-Test						
Variables	AM	SD	AM	SD	MD	SDD	Calculated t	Error Level	Statistical Significance
Social Skills scale	68.571	3.154	68.857	2.544	0.285	2.2146	0.341	0.744	Not Significant
Hyperactivity scale	56.57	9.0343	57.571	9.0527	1.000	1.0000	2.646	0.038	Significant

Significant at the significance level ≤ 0.05 with a degree of freedom $= 6$.

Table 6. The post-test results for the control and experimental groups in the physical fitness variables are shown.

	Pre-Test		Post-Test						
Variables	AM	SD	AM	SD	MD	SDD	Calculated t	Error Level	Statistical Significance
Agility	38.871	25.971	30.00	4.0824	13.395	26.246	1.350	0.000	Significant
Speed Strength (Arms)	3.4286	1.1338	12.142	1.6761	8.2857	0.95119	23.047	0.001	Significant
Speed Strength (Legs)	5.2643	0.5785	12.9114	2.625	8.328	1.97520	11.122	0.000	Significant
Transitional Speed	12.714	0.7559	4.4286	0.5345	8.4285	1.397	15.960	0.003	Significant
Speed Endurance	1.8200	0.398	5.142	10.172	48.0900	9.8224	12.953	0.000	Significant

Significant at the significance level ≤ 0.05 with a degree of freedom $= 12$.

Table 7. Presents the post-test results for the control and experimental groups in social skills and hyperactivity.

	Control Group		Experimental Group				
Variables	AM	SD	AM	SD	Calculated t	Error Level	Statistical Significance
Social Skills scale	68.857	2.544	197.000	3.4156	33.345	0.000	Significant
Hyperactivity scale	57.571	9.0343	32.7143	0.9511	19.243	0.000	Significant

Significant at a significance level ≤ 0.05 with a degree of freedom $= 12$.

oneself, and enhance mental clarity. In addition, they are part of personality formation and contribute to the development of social aspects by fostering values, supporting positive social relationships, and serving as a form of social interaction, helping individuals understand others.

Physically, they help individuals acquire necessary motor skills, achieve high physical fitness, and improve motor coordination. Hence, the second research hypothesis was confirmed: There are statistically significant differences between the control and experimental groups in the post-tests in developing some social skills and physical traits and reducing hyperactivity and attention deficit.

This is confirmed by studies such as Majid and Mohammed (2022), which indicated that group activities and performance help reduce some undesirable behaviors. Other studies, such as Nazar & Muhammed (2022), noted that learners must perform specific behaviors to focus on the conditions and requirements for successful performance effectively.

12. Conclusions

1. The experimental group, which engaged in energy-depleting games through classroom enrichment programs, as well as the control group that followed the traditional method, both showed statistically significant improvements in developing some social skills and physical attributes and in reducing hyperactivity and attention deficit—albeit to different extents, favoring the experimental group.
2. Using energy-depleting games within classroom enrichment programs as part of the physical education curriculum for gifted students directly and significantly impacted the development of certain social skills and physical attributes.

3. These games also substantially and directly affected reducing hyperactivity and attention deficit in the experimental group.
4. The post-test results confirmed the validity and effectiveness of the educational units designed by the researcher, as evidenced by the clear development observed in the experimental group.

13. Recommendations

1. Attention should be given to implementing the instructional units developed by the researcher, which included energy-depleting games through enrichment activities. These units effectively taught specific social skills and physical traits while reducing hyperactivity and attention deficit.
2. Gifted students should be encouraged to engage in physical activities and social interactions to help release excess energy and improve attention focus. Adequate infrastructure and support must be provided to facilitate such engagement.
3. Greater emphasis should be placed on physical education classes, as they offer an essential outlet for hyperactive students to play, release energy, and acquire physical and social skills that contribute to their overall physical and mental development.
4. Gifted students should not be deprived of opportunities to participate in school activities. These activities help them release stored energy, improve attention focus, and enhance their social and physical skills.

Conflicts of interest

None.

We confirm that all tables and figures in this article are ours and written by the researchers themselves.

Ethics statement

This manuscript approved by School for the Care of Gifted and Talented Students on (5/12/2018).

Author's contributions

All contributions to this study were provided by the researcher, who conceived the idea, authored the manuscript, and finalized all elements.

Funding statement

This research received no external funding.

Data availability

The data that support the findings of this study are available on request from the corresponding author.

References

Abdul Jabar, Q. N., & Ahmed, B. (1997). Tests and principles of statistics in sports. Al-Watani Office.

Ahmed, L. H. A. (2015). Effectiveness of an emotional-cognitive counseling program to develop students (Master's thesis, Islamic University of Gaza).

Al-Janabi, A. K. H. (2017). A proposed model for treating hyperactivity and attention deficit and its effect on academic achievement and self-confidence in fifth-grade primary school students (p. 42). University of Baghdad.

Al-Khatib, J. M. S. (1993). Modification of behavior in children with disabilities (p. 180). Dar Al-Ishraq for Publishing and Distribution.

Al-Kindi, A. A. R., & Abdul Karim, M. (1999). Introduction to research methodologies in education and human sciences (2nd ed., p. 153). Al-Falah Library.

Darwish, N. H. (2006). A comparative study of some physical measurements and physical traits of participants in several team sports for ages 12–14 years at Kirkuk Sports School (p. 6). Kufa University.

Diwan, L. H. M. (1993). The relationship between some elements of physical fitness and performance level on gymnastic horses (pp. 158–160). University of Basra.

Hamdan, S. A., & Saleem, N. A. R. (2001). Physical and health fitness (1st ed., p. 28). Dar Wail for Printing and Publishing.

Ibrahim, M. A. M. (1999). Scientific foundations and statistical methods for testing and measurement in physical education (p. 19). Dar Al-Fikr.

Majid, J., & Mohammed, N. (2022). The effect of animation on the development of some cognitive, sensory-motor and physical abilities in autism spectrum children aged 6–7 years. *Modern Sport*, *21*(3), 0128–0135. https://doi.org/10.54702/msj.2022.21.3.0128.

Nazar, R., & Muhammed, N. (2022). Expectations of self-efficacy and its role in some mental abilities and basic skills in badminton for female students. *Modern Sport*, *21*(1), 0044. https://doi.org/10.54702/msj.2022.21.1.0044.

Appendix 1

Expert questionnaire form
Subject: Social Skills Scale

Dear Esteemed Professor . . ..,

We intend to conduct a study titled: "Energy-Exhausting Games Using Classroom Enrichment Programs and Their Effect on the Development of Certain Social Skills and Physical Attributes and the Reduction of Hyperactivity and Attention Deficit in Gifted Students Aged 13."

Given your expertise and research background in this field, we kindly ask you to review the Social Skills Scale developed by Ahmed (2015)) and assess its appropriateness for our research sample.

Thank you very much for your support and cooperation.

Scale	Appropriate	Not Appropriate
Social Skills Scale		

Note: Please feel free to add any scientific observations or suggest an alternative scale to serve the research better.

The Researchers

Name:	Academic Title:	
Student's Name:	Gender:	Date of Birth:

Dear Esteemed Teacher,

The researcher is conducting a study to understand the nature of second-grade intermediate students' activity. Because of your direct interaction with the student and your close observation of their behavior, we ask you to act as an expert in evaluating the student's social activity. Below is a list of items reflecting behaviors the student may or may not exhibit.

Please read each statement carefully and objectively, and indicate the extent to which each statement applies to the student by placing a (✓) under the appropriate option.

Your responses will be confidential and used solely for scientific research purposes.

Thank you for your valuable contribution.

No.	Statements	Excellent	Very Good	Good	Average	Poor
1	Obeys the teacher					
2	Thanks the teacher when receiving advice					
3	Greets the teacher with a smile					
4	Introduces themselves to others humbly					
5	Introduces their teacher to their younger siblings					
6	Borrows from peers when in urgent need					
7	Thanks peers when returning borrowed items					
8	Recognizes the teacher's emotions by looking at them					
9	Cares for borrowed items as if they were their own					
10	Seeks help from others when unable to solve problems					
11	Hesitates to decline invitations even when not interested					
12	Hesitates to report stolen items to the teacher					

(Continued.)

No.	Statements	Excellent	Very Good	Good	Average	Poor
13	Struggles to make decisions that oppose the group					
14	Struggles to say “no” when pressured					
15	Allows others to impose their opinions					
16	Finds it hard to make new friends					
17	Finds it hard to end lengthy conversations					
18	Feels shy when praised					
19	Can disagree with someone seen as always right					
20	Can apologize when asking to borrow money					
21	Follows rules of dialogue					
22	Shares opinions related to the topic of discussion					
23	Avoids arguments during discussions					
24	Overcomes shyness while presenting ideas					
25	Uses clear and understandable sentences in discussions					
26	Asks about unclear situations or conversations					
27	Uses polite expressions in discussions					
28	Uses proper gestures during communication					
29	Listens attentively and doesn’t interrupt others					
30	Ensures everyone gets a chance to express their ideas					
31	Expresses ideas concisely					
32	Accepts differing opinions					
33	Avoids belittling others’ views					
34	Chooses the right time to speak					
35	Identifies areas of agreement and disagreement					
36	Ends discussions positively					
37	Changes opinions when convinced by others					
38	Speaks fluently					
39	Does their best to complete assigned tasks					
40	Tries to solve others’ problems					
41	Uses school supplies properly					
42	Follows rules and regulations					
43	Keeps friends’ secrets					
44	Builds positive social relationships					
45	Prefers working as part of a team					
46	Shows interest in national affairs and follows the news					
47	Attends social events					

Appendix 2

Expert questionnaire form
Subject: Hyperactivity and Attention Deficit Scale

We are conducting the research titled: "Energy-Exhausting Games Using Classroom Enrichment Programs and Their Effect on the Development of Certain Social Skills and Physical Attributes and the Reduction of Hyperactivity and Attention Deficit in Gifted Students Aged 13."

Given your experience and study in this field, we kindly ask you to review the Hyperactivity and Attention Deficit Scale developed by Asia Kadhim Hammad Al-Janabi (2007) and determine its appropriateness for the research sample and variables to be measured.

Scale	**Appropriate**	**Not Appropriate**
Hyperactivity and Attention Deficit Scale		

Note: Please add relevant scientific notes or suggest an appropriate alternative scale.

The Researchers

Physical and Motor-Related Symptoms

No.	Symptoms	Often	Sometimes	Rarely
1	Overuses body parts when interacting with peers			
2	Cannot remain in assigned place			
3	Movements are erratic and uncoordinated			
4	Exhibits violent body movements			
5	Writes/draws on walls			
6	Climbs high places and jumps from school fences			
7	Leaves class upon hearing the bell before the teacher leaves			
8	Moves around the classroom without permission			

Psychological and Social Symptoms

No.	Symptoms	Often	Rarely
1	Interrupts and talks without permission during lessons		
2	Ignores school rules and teacher instructions		
3	Neglects personal hygiene and school belongings		
4	Mocks peers inside and outside the classroom		
5	Peers avoid forming friendships with him/her		
6	Uses offensive language with peers		
7	Handles peers' items without asking		
8	Displays aggression toward peers		
9	Engages in undesirable habits (e.g., nail biting, thumb sucking)		
10	Peers frequently complain about him/her to the teacher		
11	Moves to draw attention from teacher or peers		
12	Makes excuses to leave class		
13	Speech is unclear or hesitant		

Cognitive and Mental Symptoms

No.	Symptoms	Often	Sometimes	Rarely
1	Suffers from attention deficit during lessons			
2	Cannot stay focused on one topic			
3	Daydreams during lessons			
4	Has difficulty following teacher's explanations			
5	Struggles to comprehend visual information			
6	Has trouble linking different parts of a single topic			
7	Struggles to understand spoken information			
8	Has difficulty grasping simple math concepts			
9	Handles both simple and complex problems aggressively			