

## **The effectiveness of an educational program according to Keller strategy in learning some basic skills for students in handball**

**By**

**Huda naji zaidan**

College of Physical Education and Sports Sciences/ University of Diyala - Iraq

Email: [Hoda.najy@uodiyala.edu.iq](mailto:Hoda.najy@uodiyala.edu.iq)

**Oussama Gaied Chortane**

High Institute of Sport and Physical Education of Ksar-Saïd / Tunisia

**Imen Ben Amar**

High Institute of Sport and Physical Education of Ksar-Saïd / Tunisia

**Sabri Gaied Chortane**

High Institute of Sport and Physical Education of Ksar-Saïd / Tunisia

### **Abstract**

Keller strategy is one of the methods of individualizing education and is based on studying the learner of the educational material according to his abilities and his high speed, and thus the basic principle on which .Therefore, this strategy in learning is that the learner absorbs all the concepts of the unit education, skill and proficiency before moving to the next unit, and thus I have to each learner is required to be a contributing and active member in the educational process rather than being a Passively accepting only the information conveyed to him by the teacher. The learner must be a participant in all activities to master the specific educational goals. The most important conclusions were:

1. The emergence of a clear improvement in the skill performance of the research variables in the basic skills of handball (handling, shooting accuracy) and for the experimental and control groups in the pre and posttests and posttests in favor of the post test.
2. Keller strategy has a clear effect on the skillful performance of the research variables in the basic skills of handball (handling, shooting accuracy) in terms of significant statistically significant differences in the results of the post-tests conducted for the experimental group.

**Keywords:** Keller strategy; educational program; handball

### **Introduction**

The world is now witnessing a huge revolution in technology and wide scientific progress. Education is one of the most important modern applications used to develop education in its fields and stages. Educational technology aims to prepare competent teachers and train them to use modern machines and devices are properly used, education to the numbers of competent teachers and training him on the use of modern machines and devices, in addition to providing him with comprehensive information on all aspects of the educational process in terms of goals and content evaluation methods, teaching strategies and teaching aids.

Keller strategy is one of the methods of individualizing education and is based on studying the learner of the educational material according to his abilities and his high speed, and thus the basic principle therefore, this strategy in learning is that the learner absorbs all the concepts of the unit education, skill and proficiency before moving to the next unit, and thus I have to each learner is to be a contributing and active member in the educational process rather than being passive, accepting only the information that is conveyed to him by the teacher. The learner must be a participant in all activities to master the specific educational goals.

Motor skills are the basis for any sporting activity, and the game of handball is one of games that depend on their performance and success on mastering motor skills and in view of what they require, this game is a high level of preparation and supervision during his first physical and dexterous attempts tactical and psychological for the purpose of bringing the skillful performance of the player to the required level, It is imperative for the teacher to choose the best methods and methods of learning to reach the goal the fastest time and the least effort.<sup>1</sup>

Therefore, the importance of the research was reflected in the design of an educational program with Keller strategy to learn the skills of handling and shooting with a handball as a contribution from the researcher in finding the most appropriate solutions to solve the problem of her research.

## **Research problem**

The research problem highlights that there are several methods and models for learning, the aim of which is access to the possibility of achieving the best results, achieving its goals, and the learner's active participation in learning.

Through the researcher's experience in the field of handball as a national team player and as a teacher for this field subject in the college as well as what you observed in the course of the educational process in the College of Physical Education and sports science in learning skills, especially in learning handball skills, found that there is a weakness in the performance of skills in general, as well as a lack of interest in some strategies and modern learning models that contribute to activating the role of the learner in the educational process and revitalizing.

## **Research objectives**

1. An educational program about Keller strategy in learning the skills of handling and shooting in handball for students.
2. Recognizing the impact of the educational program using Keller strategy in learning the skills of handling and shooting in handball for students.

## **Research hypotheses**

There are statistically significant differences between the pre and posttests of the experimental and control groups in favor of the experimental group in learning the skills of handling and shooting in handball for students.

## **Research methodology and field procedures**

### ***Research Methodology***

The researcher will use the experimental approach due to its suitability to the nature of the research among the variables of the study.

### *The research community and its sample*

The research community consisted of second-stage students in the College of Physical Education and Sports Sciences at the University of Diyala for the academic year 2022-2023, who numbered (30) students research before starting research procedures.

**Table 1.** Shows the homogeneity index (twisting coefficient) in the growth variables of the experimental group

| Variables | Units | Mean   | STD.EV. | Median | Std.error | Skewness |
|-----------|-------|--------|---------|--------|-----------|----------|
| Length    | Cm.   | 165.13 | 4.615   | 166    | 1.154     | -1.096   |
| Weight    | Kg.   | 55.30  | 5.55    | 53.00  | 1.139     | -1.450   |
| Age       | Year  | 19.22  | 2.300   | 19     | 0.125     | -0.45    |

**Table 2.** Shows the homogeneity index (the coefficient of torsion) in the growth variables of the control group

| Variables | Units | Mean  | STD.EV. | Median | Std.error | Skewness |
|-----------|-------|-------|---------|--------|-----------|----------|
| Length    | Cm.   | 163   | 4.012   | 165    | 1.213     | 0.687    |
| Weight    | Kg.   | 55.24 | 5.34    | 54     | 1.234     | -1.234   |
| Age       | Year  | 19.12 | 2.35    | 19     | 0.145     | 0.234    |

**Table 3.** Show the equivalence of the experimental and control groups in handling and shooting skills in handball for students

| Tests  | Experimental group |          | Control group |          | (t) value | Sig.  |
|--|--------------------|----------|---------------|----------|-----------|-------|
|  | Mean               | STD. EV. | Mean          | STD. EV. |           |       |
| Test measurement and speed of handling on the wall for a distance of 3 meter | 12.200             | 1.698    | 15.666        | .9759    | 9.2130    | 0.273 |
| Handball shoot accuracy test   | 18.933             | 3.634    | 25.600        | 1.594    | 9.8950    | 0.067 |

## **Means of collecting information, tools and devices used in the research**

### *Means of collecting information:*

- Arabic and foreign sources.
- Internet information network.
- Iraqi Virtual Library.
- Personal interviews of experts and specialists.
- Test registration form.
- Assistant Work Team.
- Expert opinion poll forms.
- Observation and experimentation.
- Preparing a form for emptying and tabulating the data.

### *Devices and tools used in the research*

1. Mini handball court measuring 20 x 13 meters (legal).
2. Miniature handball goal measuring 2.40 x 1.60 meters (legal number 2).
3. Regular handball court 40 x 20 meters (legal).
4. The regular handball goal is 2 x 3 meters (legal number 2).
5. Zero size handballs (number 10).
6. Handballs of one size (number 10).

7. Basketballs.
8. Signs (12 pcs), chalk, collars (12 pcs).
9. Wooden box, terraces.
10. Measuring tape (40 meters).
11. Fox whistle.
12. Sony H90 camera of Chinese origin.
13. Stopwatch number (2).
14. Computer type (HP).

### ***Field research procedures***

The experiment was implemented after prior planning and preparing all the requirements for the experiment by defining the work steps as follows:

- Obtaining official approvals.
- Determine the tools and requirements for applying the experiment.
- Preparing and planning the mini and regular playground.
- Preparing a set of special exercises in some basic skills (handling - plumping - shooting).
- Conducting exploratory experiments to special tests and exercises to see how appropriate they are to the research sample.
- Extracting the scientific foundations of the tests (honesty - reliability - objectivity)
- Conducting pre-tests for the three research groups with the skills under study.
- Applying the main experiment to the two experimental groups.
- Conducting post-tests for the three research groups with the skills under study.
- Conducting a retention test for the groups under study.

### ***Tests of basic handball skills2***

#### ***Handling and receiving***

- Selection name: Test of measuring and speed of handling on a wall for a distance of 3 meter.
- The aim of the test: To measure the compatibility and speed of handling on the wall.
- Tools: (handball, wall, stopwatch).
- Performance method: The student stands at a distance of (3) meters from the wall, and at the signal he passes the ball to the wall and continues to pass for the maximum number possible in a specified time of (30) seconds.
- Scoring method: The number of passes is counted in the specified time (the number of times the ball is received is counted).

#### ***Correction***

- Test name: Accuracy of aiming with handball
- The aim of the test: Measuring the accuracy of aiming with a handball
- The tools used: (a handball goal drawn on a wall with dimensions of (2 x 3) m, so that the shape of the players is in contact with the line where the wall meets the ground and is divided into nine rectangles, and a line of nine meters long is drawn from the drawn goal as in Figure No. (3)).
- Method of performance: Shoots from behind the line with the pivot step, while recording whoever hits his ball with rectangle No. (9, 7, 3, 1), which represents angles and its dimensions (60 x 100) cm, gets 4 degrees, while whoever hits (8, 2) and represents The corners and their dimensions are (60 x 100) cm gets (3) degrees, and the

one who hits (6,4) which represents the area of the goalkeeper's arms and whose dimensions are (80 x 100) cm gets two degrees, and whose ball hits the middle rectangle that represents the player's chest and torso, whose dimensions are (80 x 100) cm and deserves one mark, and if it is outside the goal, it is given zero marks.

### ***Preparation of special exercises***

To achieve the objectives of the scientific research, the researchers prepared the exercises under discussion according to the source of the International European Federation of Mini Handball .<sup>3</sup> The researcher prepared a questionnaire form to take the opinions and directions of experts and specialists in the field of handball.

- Taking into account the principle of learning steps for motor skills.
- Taking into account the contents of the exercises in terms of their inclinations, abilities, and stage of development.
- Taking into account the principle of gradation from easy to difficult.
- Take into account the time allotted for the lesson of physical education.
- The exercises focused on the main part of the lesson.
- The exercises were used for the two experimental groups.
- The use of these exercises improves the suspense and excitement of acquisition learning.

### ***Pilot study***

Scientific research experts emphasize the importance of conducting the exploratory experiment, which is "a practical training for the researcher to find out the negatives and positives that he meets during the test in order to avoid them" <sup>4</sup> and for the purpose of identifying obstacles when implementing the main experiment, the researchers conducted two exploratory experiments as follows:

#### ***The pilot study of skill tests***

The researchers conducted the first exploratory experiment on Sunday 13/1/2022 at exactly nine o'clock in the morning on a sample of physical education and sports science students outside the main research sample of ten students. The aim of the first exploratory experiment was as follows:

1. Knowing the appropriateness of the tests for the sample.
2. Knowing and identifying the difficulties and problems that the researcher may encounter when implementing the tests under study.
3. Determine the time taken to implement the tests.
4. Ensuring the efficiency of the assistant work team, and what it needs during the experiment.
5. Testing the validity of the tools and devices used in the research.
6. To identify the students' understanding and comprehension of the vocabulary of skill tests in handball.
7. Identifying the difficulties and obstacles and developing appropriate solutions based on the results of the first pilot experiment.

#### ***Through the pilot study, the researcher concluded***

1. The validity of the tools and devices used in the research.
2. The efficiency of the assistant work team in carrying out the tests under discussion.
3. Conducting scientific transactions with sincerity, reliability and objectivity.

### ***Pre-test***

After the tests were determined by the experts and specialists in handball, tests and measurement, the researchers conducted pre-tests for the research sample to evaluate the skillful performance of the tests (handling, shooting), on Sunday, 1/27/2022 at exactly nine o'clock in the morning and at Hall of the College of Physical Education and Sports Sciences, University of Diyala, and for the two groups, the experimental and control, and the researchers fixed the conditions, the method of conducting the tests, and the auxiliary work team in order to achieve the same conditions as possible when conducting the post-tests, and the researcher promised a results registration form according to specific conditions and specifications for each test.

### ***The main experiment***

After the special exercises were determined by the experts and specialists and their opinions were taken, as the start date of the experiment was on Tuesday, corresponding to 1/2/2022, and it was finished on Sunday, corresponding to 1/4/2022 in the hall of the College of Physical Education and Trauma Sciences, Diyala University, a group was used. Of the handball exercises, the number of exercises implemented under the research was (38) exercises, gradually from easy to difficult, taking into account the researcher's level of students and their ability to learn skills, and the last three units were in which some of the exercises were repeated, and the researchers chose them according to the desired goal. They were applied during (16) units Educational for a period of (eight) weeks, at the rate of two educational units per week, according to the schedule of classes for the weekly lessons.

As work was done with the experimental group during the first four weeks with a small ball of size (zero), and the second four weeks with ball No. (1), all educational units were applied in the handball playground, where the gradation in this group was with the ball and the playground is fixed in order to facilitate the process Learning to students using the principle of gradual learning from easy to difficult and from simple to complex.

Work was done with the control group during (eight) weeks, according to the curriculum followed by the teacher in the regular court in handball and ball No. (1) for all educational units.

The exercises were applied to the experimental group to achieve the goal of the research. The duration of each exercise was six minutes and two minutes, which were divided into half a minute to rest for each of the three exercises and a half minutes to move from one exercise to another by three exercises in the educational unit, which is the applied activity time (twenty) minutes, which It is part of the main section in which the researcher's work was focused, and its duration was (twenty-five) minutes. As for the control group, it was given the curriculum of the physical education teacher, and with that, the time of the educational unit reached (forty) minutes.

1. The preparatory section: - Its duration is (ten) minutes and it includes:
  - A. Introduction and warm-up: Its duration is (five) minutes in which the students stand in a coordinated manner and take absences, give warm-up exercises and jog for all parts of the body from top to bottom for the purpose of preparing for the main section.
  - B. Physical exercises: Giving physical exercises for (five) minutes.
2. The main section: - Its duration is (twenty-five) minutes, and it is the one in which the experiment was applied.

### ***It is divided into two parts***

- A. The educational activity: - through which the skill implemented in the educational unit is explained by the teacher and then presented to clarify the method of performance correctly, and its duration is (five) minutes.

- B. Applied Activity: During which the students apply the special exercises by three exercises, the duration of each exercise is (six) minutes, thus the duration of the applied activity is (twenty) minutes (two minutes) to move from one exercise to another with correcting errors for the skillful performance by the teacher.
1. The concluding section: Its duration is (five) minutes. In this section, a small game is given for the purpose of escalating the effort of the members, and spreading excitement, suspense and enthusiasm among the students.

**Table 4.** Shows the sections of one educational unit and the percentages during the educational curriculum of the experimental group

| S     | Sections of the teaching unit  |                   | time during the educational unit / Min. | time during the educational curriculum / Min. | Percentage % |
|-------|--------------------------------|-------------------|---|---|--------------|
| 1     | Preparatory section<br>10 Min. | Provided warm-ups | 5 Min.                                  | 80 Min.                                       | 12,5%        |
|       |                                | physical exercise | 5 Min.                                  | 80 Min.                                       | 12,5%        |
| 2     | Main section<br>25 Min.        | Educational side  | 5 Min.                                  | 580 Min.                                      | 12,5%        |
|       |                                | Applied side      | 20 Min.                                 | 320 Min.                                      | 50%          |
| 3     | Concluding section<br>5 Min.   | little game       | 4 Min.                                  | 64 Min.                                       | 10%          |
|       |                                | leave             | 1 Min.                                  | 16 Min.                                       | 2,5%         |
| Total |                                |                   | 40 Min.                                 | 640 Min.                                      | 100%         |

### Post-tests

The researchers conducted the post-tests for the research sample groups on Monday, 4/4/2022, after performing (sixteen) educational units over a period of (eight) weeks, taking into account all the circumstances, conditions, and procedures of the pre-tests and the auxiliary work team.

## Results

Presenting and analyzing the pre and posttests of handball handling and shooting skills for students and discussing them for the experimental group

**Table 5.** Shows the means and standard deviations of the pre and posttests of handling and shooting skills in handball for students of the experimental group

| Skills   | Units  | Pretest |          | Posttest |          | (t) value<br>Calculated | Significance of differences |
|--|--------|---------|----------|----------|----------|-------------------------|-----------------------------|
|  |        | mean    | STD. EV. | mean     | STD. EV. |                         |                             |
| Test measurement and speed of handling on the wall for a distance of 3 meter | Number | 18.5    | 3.45     | 24.750   | 4.34     | 9.45<br>2.09            | Sig.                        |
| Handball shoot accuracy test   | Degree | 1.9     | 0.98     | 3.35     | 1.90     | 2.99                    | Sig.                        |

Presentation and analysis of the pre and posttests of handling and shooting skills in handball for students and discussing them for the control group

**Table 6.** Shows the mean and standard deviations of the pre and posttests of handling and shooting skills in handball for students of the control group

| Skills   | Units  | Pretest |          | Posttest |          | (t) value  |           | Significance of differences |
|--|--------|---------|----------|----------|----------|------------|-----------|-----------------------------|
|  |        | mean    | STD. EV. | mean     | STD. EV. | Calculated | Tabulated |                             |
| Test measurement and speed of handling on the wall for a distance of 3 meter | Number | 18.500  | 3.45     | 24.750   | 4.34     | 9.45       | 2.09      | Sig.                        |
| Handball shoot accuracy test   | Degree | 1.90    | 0.98     | 3.35     | 1.90     | 2.99       |           | Sig.                        |

Presentation and analysis of post-tests for the skills of handling and shooting in handball for students and discussing them for the experimental and control groups:

**Table 7.** Shows the means and standard deviations of the posttests of the handling and shooting skills of the experimental and control groups

| Skills   | Units  | Experimental group |          | Control group |          | (t) value  |           | Significance of differences |
|--|--------|--------------------|----------|---------------|----------|------------|-----------|-----------------------------|
|  |        | mean               | STD. EV. | mean          | STD. EV. | Calculated | Tabulated |                             |
| Test measurement and speed of handling on the wall for a distance of 3 meter | Number | 24.75              | 4.34     | 20.55         | 3.45     | 7.76       | 2.09      | Sig.                        |
| Handball shoot accuracy test   | Degree | 3.35               | 1.90     | 2.65          | 1.970    | 2.86       |           | Sig.                        |

## Discussions

It is clear from the tables (5,6,7) that there are significant differences in the results of the skill tests, in favor of the posttests, and the researchers attribute it to the effect of the educational approach using the Keeler strategy and the good application of the components of this strategy, in addition to that giving enough time to the gifted in learning up to the stage of mastery Which is one of the basic principles and components of this performance strategy and agrees with what was indicated "The availability of knowledge and information for the learner about movements and skills helps speed up learning, and it can also be said that readiness is the learner's desire to acquire new knowledge and skills." He also states, "The learner's enjoyment of experience, knowledge, and readiness will help him to be more effective in acquiring new knowledge and skills and using them in the new situations he is exposed to."<sup>5</sup> In addition to the educational units planned by the researchers and the process of distributing the vocabulary of the basic rules of the law of volleyball as well as the mechanism of using Keller strategy in dividing the work of skill exercises in one unit and how to gradually transition and link between the rest of the skills to make the most of the period of repetition and the



effectiveness of sensing the level of the talented and the amount of What the learner has achieved in terms of educational goals in a particular subject, or the amount of knowledge and skill that the individual learner has acquired.

The researchers attribute the adoption of innovative methods based on the diversity of presentation methods such as pictures or watching video clips from the state of competition in a way that depends on suspense and increases motivation for learning among the gifted, and a change occurred in the desire to learn in a better way than relying on the presentation of the skill from the teacher through the explanation and direct application of the skill only. The adoption of technological means or the presentation of the educational material through these means makes the gifted more willing to learn by involving more than one sense in the learning process and helped to accelerate the process of learning basic skills in volleyball and emphasizing the immediate reinforcement of the talented in increasing repetition on the ideal response, and in this Domain Remember when the learner has the opportunity to learn at his own pace, it is considered a means to eliminate individual differences among learners .<sup>6</sup>

The researchers emphasized the nature of the work of the Keeler strategy, which enables the talented person to rely on himself and then gain experiences through the many observations of effective game cases presented in the educational section of the educational unit and the continuation of the presentation even in the applied section, which helped the talented person to gain good experiences about effective performance as well About the organized planning in presenting the educational material and sequencing and diversifying the sources of information. The idea of the educational curriculum using Keller scientific and logical strategy in planning and implementation on which the educational curricula are built inevitably leads to learning events, and the researchers attribute the reasons for these to other variables that interfered in the learning process, including following the principle of gradualism in learning motor skills through gradual giving exercises from the simple To the complex after being explained and presented by the teacher as well as the continuous clarification with videos of the cases of playing to the continuous training on the skill and providing the learner with feedback, and that the learning process for any skill, especially in the sports field, cannot reach the required stage of proficiency and the desired efficiency except through continuous training And the correct practice of performance, and the increase in scientific knowledge and self-motivation for learning are enough for the learner to reach the right mechanism to understand how to perform this or that skill.

And what was mentioned above agrees “The educational strategy in which the educational program replaces the teacher leads to a set of behaviors that make follow-up and increase the desire to learn more likely, that is, the educational program offers the learner what the teacher is unable to do.”<sup>7</sup>

## **Conclusions**

1. The emergence of a clear improvement in the skill performance of the research variables in the basic skills of handball (handling, shooting accuracy) and for the experimental and control groups in the pre and posttests and posttests in favor of the post test.
2. Keller strategy has a clear effect on the skillful performance of the research variables in the basic skills of handball (handling, shooting accuracy) in terms of significant statistically significant differences in the results of the post-tests conducted for the experimental group.

## Recommendations

1. Emphasis on the use of Keller strategy in other abilities and the skillful performance of the research variables in the basic handball skills
2. Adopting self-learning in all its forms in the field of the educational process, as it works to take into account individual differences among learners on the one hand, and provides learners with the necessary time for learning on the other hand.
3. Conducting studies similar to other sports skills and games.
4. Conducting a comparative study between Keller strategy and other educational strategies.

## References

- Abdel Fattah Lotfy. Methods of teaching physical education and motor learning, Alexandria: University Book House, 1972.
- Muhammad Hassan Allawi. The Psychology of Training and Competitions, 4th Edition, Cairo: Dar Al-Maarif, 1987.
- Aziz Hanna and Anwar Abdel-Ridha; Scientific Research Methods, Edition 1: (Baghdad, Dar Al-Hikma for Printing and Publishing, Baghdad, 1990.
- Lamia Hassan Al-Diwan: effective methods in teaching physical education and motor learning: (Iraq, Al-Nakhil Press, Basra, 2009.
- Dhafer Hashim Ismail; The overlapping teaching style and its impact on learning and development through spatial organizational options for the tennis education environment: (PhD thesis, College of Physical Education and Sports Sciences, University of Baghdad, 2002.
- Muhammad Mahmoud Al-Haila; Instructional design - theory and practice. 1st Edition: (Amman, Dar Al Masirah for Publishing, Distribution and Printing, 1999.
- Elham Abdel Rahman Mohamed; Some important requirements in the sporting excellence of volleyball among the schools' sports teams. Scientific Journal of Physical Education and Sports. Cairo: 1997.