# The Effects of (I.P.A.G.A) Model in Reflection Thinking and Learning Spike Skill in Volleyball for Students

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## Abstract

The aim of the current research is to prepare a scale of reflection thinking for students of the second stage, College of Physical education and sports science, and also identify the effect of the ( I.P.A.G.A) model on reflective thinking and learning spike skill of Volleyball for students. And identify the preference for learning between the control and experimental groups. The researchers used the experimental method and designing the equivalent, controlling and experimental groups with pre and post tests, the researcher community included second-stage students in the College of Physical education and sports science – Al Farahidi University for the academic year (2021-2020) and their number (201), chosen two division (A,C), division (C) represented the experimental group and (A) the control group. And (30) students were chosen as a sample of research, they were divided into two groups, experimental and control group, each group (15) students, and (10) students, as exploratory sample also in a simple random way. The results showed through the table that there are significant differences between the results of the pre- and post-test and in favor of the post-test of the experimental group in the variables under study,(reflective thinking, accuracy test for diameter spike, evaluation test for Technical performance of the diameter spike).

***Key Words:*** *(I.P.A.G.A) Model, Reflection Thinking, Spike skill.*

## Introduction

The current era is witnessing a remarkable increase in scientific knowledge and an evolution of its applications in all fields, including education. This development is reflected in the various modalities [1] and techniques teaching, including sports, it has become necessary to apply the modalities and techniques to keep pace with this rapid development, Therefore, attention has begun to diversify the models and methods used in all disciplines and in the field of teaching scientific subjects in general and sports sciences in particular [2] so that they transfer them from the established concept that may not be concerned with employing the learner's thinking and mental abilities in his teaching process and does not take into account the learner's needs and cognitive abilities represented in acquiring concepts and mental abilities supreme is like reflective thinking. [3] The I.P.A.G.A model is one of the teaching models that rely on knowledge and is based on cognitive theory and is one of the theories that tried to explain the phenomenon of learning, it cares about internal cognitive processes such as (understanding, receiving and processing information) [4], the term (I.P.A.G.A) refers to five steps, where each letter indicates one of these steps as follows:( Introduction) represented by the letter (I), (Presentation) represented by the letter(P), (Association) represented by the letter(A), (Generalization) represented by the letter(G), (Application) represented by the letter(A). On the other hand Volleyball is considered a practical subject in the College of Physical education and sports science and includes a set of technical skills that need high physical, motor and skill requirements for their performance, including spike skill which needs to make a great effort and high technique in order to perfect its technical performance. Hence the importance of the research in that it is a scientific [5] attempt to use a model of cognitive theory which may help in determining methods and styles instructions appropriate to the educational situation, leading learners to desired learning outcomes

and developing it through the development of thinking, discovery and reflection, while gaining information towards learning the skills of volleyball.

## Methodology

The researchers used the experimental method and designing the equivalent, controlling and experimental groups with pre and post tests, the researcher community included second-stage students in the College of Physical education and sports science – Al Farahidi University for the academic year (2021-2020) and their number (201), chosen two division (A,C), division (C) represented the experimental group and (A) the control group. And (30) students were chosen as a sample of research, they were divided into two groups, experimental and control group, each group (15) students, and (10) students, as exploratory sample also in a simple random way.

The scientific foundations of the scale:

**Honest of the scale**: This type of honesty was achieved when the scale was presented to a group of (15) experts and specialists in the field of (teaching methods, volleyball, tests and measurement).

**Stability of scale**: To extract the results of the stability of the scale, the researcher used the method of the (Alpha cronbache) coefficient, as this method was applied to the sample number setting of the number (134) depending on the degrees of the individuals of the sample numbers taken from the original (134) form, so the stability factor reached (0,871), which is a high coefficient,

Scientific foundations of the tests:

**Honest of the tests:** The tests were presented to a group of experts and specialists in the game of volleyball and in the areas of testing and measurement to determine their agreement on the suitability of these tests to the research sample, and the results of this were extracted kind of honesty, and the tests that got the highest agreement rate were chosen as shown in table (1).

**Stability of tests:** The researcher approved the method of applying the test and re-applying the test, the survey sample, whose number is (10) students, on days (23-24/1/2020) at ten o'clock in the morning, then the researcher found the relationship between the results of the first and second experiments using the simple correlation coefficient (Pearson), the results showed that all tests had a strong and high correlation degree of stability, as shown in table (1).

**Table (1). Shows the stability and objective values of the tests**

| Variables | Measuring unit | Coefficient of stability | sig | Level of significance | Objectivity | Sig | Level of significance |
|---|---|---|---|---|---|---|---|
| Test The accuracy of the diameter spike. | Degree | 0.883 | 0.001 | sig | | | sig |
| Technical performance evaluation (technical skills) for the diameter spike skill. | Degree | 0.853 | 0.002 | sig | 0.469 | 0.017 | sig |

**Objectivity of tests:** The researcher used two ( judgments) to evaluate the technical performance (technique) of the spike skill through its apparent form and a test of evaluating the technical performance of the diameter spike skill, as the correlation coefficient (Pearson) between their grades was calculated, It has been shown that these two tests are highly objective, as shown in table (1).

**Main experiment procedures:**

Pre-tests:

pre-tests were performed a scale of reflective thinking for the research sample (control and

experimental groups) on 30/01/2020 at 10 o'clock in the morning in the closed sports hall in the Faculty of Physical Education and Sports Science - Al-Farahidi University, also, pre-tests were conducted to measure the skills chosen for the control and experimental groups on 30/1/2020 at 10 o'clock in the morning, pre-tests were performed to evaluate the technical (technical) performance of the spike skill through its apparent form and its three divisions (preparatory, main, and final).

Equivalence of the two research groups:

The researcher performed the equivalence for two research groups for variables related to the research and before starting the implementation of the educational units on the main research sample, the researcher found the equivalence of the two groups (control and experimental), this is a good indication that these two groups are equal in the research variables, as the tabular value (t) reached (2,042) and under the significance level (0.05) and with a degree of freedom (28) as shown in table (2).

**Table (2): Show equivalence between the two groups (control and experimental) in the pre- tests for a scale of reflective thinking and for the technical skill performance of the spike of volleyball.**

| Variables | experimental group | | control group | | (t) value | Level of significance | Type of significance |
|---|---|---|---|---|---|---|---|
| | Mean | STD.EV | Mean | STD.EV | | | |
| reflective thinking | 46.200 | 3.931 | 45.466 | 3.113 | 0.566 | 0.576 | sig |
| Test The accuracy of the diameter spike. | 6.600 | 2.229 | 5 | 1.463 | 2.323 | 0.128 | sig |
| Technical performance evaluation (technical skills) for the diameter spike skill. | 4.462 | 1.307 | 4.174 | 0.501 | 0.797 | 0.423 | sig |

Preparing educational units according to the form( I.P.A.G.A) for the experimental group:

The researcher prepared the educational units for the experimental group according to the model (I.P.A.G.A) to improve and develop reflective thinking and learn the skillful performance of volleyball, the required number of educational units was determined by (16) units and by two educational units per week with a time of (90) minutes, The preparatory section and the main section of the educational unit were chosen to apply the five stages of the model accompanying the visual presentation methods, and the appropriate times were distributed for each of these stages.

Designing the means of presentation used in the educational units of the experimental group:

The educational units prepared according to the (I.P.A.G.A.) model included the introduction of educational (visual) aids that the researcher seeks to help students of the experimental group in learning, improving and developing their level of skill performance in volleyball, and these methods were approved in the presentation step of the model steps.

Implementation of educational units prepared according to the form (I. P.A.G.A):

Before starting the implementation of the prepared educational units, the researcher gave two introductory educational units[5] ,concerning the spike according

to the (I.P.A.G.A) model for the experimental group students, on days corresponding to (3-4/2/2020) at 10 in the morning, this is to introduce them to the new working mechanism of the (I.P.A.G.A) model , the implementation of the educational units started at the beginning of the second course for the academic year (2019-2020) starting on the day corresponding to (5/2/2020) at ten in the morning, the last educational unit was on 23/2/2020, and the educational units were given to the experimental and control groups through the same teacher in order to get away from all effects and obtain accurate results.

Post-test:

Post-test of the experimental group were conducted in the same times and places in the pre- tests after the end of the 16 educational units.

## Results

**Table (3). Shows the mean, standard deviations, and (T) value for pre- and post-test of the experimental group.**

| Variables | Pre-test | | Post-test | | f- | SE | T- test | Level of significance | Type of significance |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | STD.EV | Mean | STD.EV | | | | | |
| reflective thinking | 46.200 | 3.931 | 69.400 | 3.202 | -23.200 | 0.75719 | -30.640 | 0.000 | sig |
| Test The accuracy of the diameter spike. | 6.600 | 2.229 | 11.666 | 1.951 | -5.06667 | 0.43058 | -11.767 | 0.000 | sig |
| Technical performance evaluation (technical skills) for the diameter spike skill. | 4.462 | 1.307 | 7.729 | 0.507 | -3.26667 | 0.38503 | -8.484 | 0.000 | sig |
| significance > 0.05 at freedom degree (14) | | | | | | | | | |

The value of the tabular(T) was (2,145) below the significance level of 0.05 and freedom score 14.

Table (3) shows the results of pre- tests, their mean, and their standard deviations for reflective thinking, through the inference of the significance of the difference between the two means using the test (t) of the correlated samples, it appeared that the mean of the post and pre differences (23.200-) with the standard deviation of the post and pre reached (0.75719), while the calculated value of (T) (30.640), It is greater than the tabular under the significance level (0.05) and the degree of freedom (14), and this indicates a significant difference between the pre and post- tests, and in favor of the post test, as for testing the accuracy of the diameter spike, and by inferring the differences between the two arithmetic means, the mean of the post and pre differences was (5.06667-), while the standard post and pre deviation was (0.43058), ش the calculated value (T) reached (11.767-), it is greater than tabular under the significance level (0.05) and with a degree of freedom (14) this indicates a significant difference between the pre and post tests and in favor of the post test, upon inference about the significance of the differences between the two arithmetic modes for the test (evaluation of technical performance (technical) for the diameter spike) in the pre measurement (4.462) and (1.307), respectively ,s for the mean value and the standard deviation of the post- tests, it reached (7.729) and (0.507), the results showed the calculated value (t) was (-8.484) which is greater than its tabular value at the significance level (0.05) and the degree of freedom (14) this indicates the significance of the differences between the pre and post tests and in favor of the post tests.

**Table (4) Shows the arithmetic mean, the standard deviations, and the (T) value of the pre- and post-test of the control group.**

| Variables | Pre-test | | Post-test | | f- | SE | T- test | Level of significance | Type of significance |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | STD.EV | Mean | STD.EV | | | | | |
| reflective thinking | 45.466 | 3.113 | 56.600 | 3.224 | -11.13333 | 0.69602 | -15.996 | 0.000 | sig |
| Test The accuracy of the diameter spike. | 5 | 1.463 | 8.200 | 2.242 | -3.20000 | 0.57900 | -5.527 | 0.000 | sig |
| Technical performance evaluation (technical skills) for the diameter spike skill. | 4.174 | 0.501 | 5.173 | 0.547 | -0.99867 | 0.20827 | -4.795 | 0.000 | sig |
| significance > 0.05 at freedom degree (14) | | | | | | | | | |

The results of table (4) show differences and variations in the values of the arithmetic mean and the standard deviations between the pre and post -tests of the researched variables among the students of the control group in the pre and post -tests and when inferring the significance of the difference between the two arithmetic means through the use of the (T) test of the interconnected samples, it showed that the value of (T) Calculated (15.996), which is greater than the tabular, this indicates that there is a significant difference between the pre and post- tests in favor of the post- test for reflection thinking, in the test (the accuracy of the diameter spike.) when inferring the significance of the differences between the two arithmetic means, the results of the calculated (T) value of (-5,527) showed that it is greater than its tabular value and this indicates the significance of the differences between the pre and post- tests and in favor of the post- tests, when inferring the significance of the differences between the two arithmetic means, the results of the calculated (T) value (-4.795) showed greater than the tabular value at the significance level (0.05) and the degree of freedom (14), this indicates the significance of the differences between the pre and post-tests and in favor of the post- tests in the evaluation technical performance (technical) of the diameter spike skill, the results showed through table (4) that there are significant differences between the pre and post- test of the control group and in favor of the post- test, the researcher attributes this development to the students of the control group to the teaching method used by the teacher in reflective thinking and learning the spike skill of volleyball, this is through his theoretical information, explanations, and explanatory presentations of the educational material

and the application of special exercises to develop the variables under discussion and [8,9] the use of all tools and means available to him during the educational units, this is consistent with what was mentioned in that "Giving organized and scientific exercises a significant impact in developing performance.[7]

## Conclusions

By presenting, analyzing and discussing the results in the fourth chapter, the researchers reached the following conclusions: The (I.P.A.G.A) model has a positive impact on the superiority and upgrading of the experimental group students in reflective thinking and spike skill of volleyball. The I.P.A.G.A model provided ample opportunity for students to interact collectively, and work in the spirit of one team, because it is based on providing an educational environment collectively in teaching volleyball that gives excitement, excitement and focus by linking ideas and concepts, as well as increasing the level of interaction of students and increasing their motivation towards the lesson, it has contributed to removing the boredom and stagnation of students and this through their use of methods Various educational methods and methods were not familiar to them before.

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**Conflict of Interest:** None to declare.

**Ethical Clearance:** All experimental protocols were approved under the College of Physical Education & Sport Sciences and all experiments were carried out in accordance with approved guidelines.

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