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# The effect of the self-organized learning model (Pintrich) in improving lateral thinking in tennis for female students

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***Abstract*---**Preparing educational units with the Pintrich self-organized learning model to improve lateral thinking in tennis for female students, Recognizing the effect of the self-organized learning model (Pintrich) in improving lateral thinking in tennis for female students, The research community was identified with female students of the second academic year in the College of Education for Girls (Department of Physical Education and Sports Sciences) at the University of Kufa for the academic year 2021-2022, and their number is 40. The method of a lottery was used in selecting the sample. At first, fifteen female students were selected for the experimental group, then fifteen female students for the control group, and ten female students for the exploratory experiment. Thus, the percentage of the research sample is (72.72%) of the research community, Conclusions: The experimental group that implemented the educational units according to the Pintrich self-organizer in improving the lateral thinking in tennis for female students outperformed the control group, There are significant differences for the Pintrich self-organized learning model in improving the lateral thinking of female students between the control and experimental groups in favour of the post-test.

***Keywords*---**self-organized, learning model, pintrich, lateral thinking, tennis.

## Introduction

The field of teaching has witnessed great changes in recent years, and as a result, self-organized learning has become, at present, the focus of attention of researchers and specialists focusing on self-organized learning, which is one of the modern learning models that came out of constructivist theory. Self-organized learning emphasizes the need for self-effective learning processes in which the learner exercises higher-order thinking skills and has a high level of self-efficacy and motivation to learn through analysis of the educational material. Setting the appropriate goals for their learning in a way that suits their thinking at this stage, self-organized learning is based on the principle that the learner is an individual who has a degree of maturity, knowledge, and responsibility and can teach himself by himself and control his learning process. Then he can choose appropriate educational activities, prepare them, and rely on himself in the learning process if he has a good textbook, appropriate educational materials, and an appropriate climate. For my proper teaching, which includes using effective tools and aids, based on the steps outlined by Pintrich and with the teacher's help, supervision, and planning (Al-Kazemi et al 2000). This may be reflected positively on improving the lateral thinking of female students in the subject of tennis. The subject of tennis is a course like any other subject that has its own basic skills that form the strong pillar on which it is based. The progress of any student's level and the extent of his success depends to a large extent on the degree of mastery of those skills. This can be achieved by following the correct method in effective learning. From here, and in order to achieve the goals mentioned above, it's important to study how the self-organized learning model (Pintrich) affects female tennis students' ability to think outside the box (Hassan, Abu Ghneim and alshawi et al 2020).

## Research Problem

Through the presence of researchers in teaching and their follow-up to many educational units of the subject of racket games for students of the second stage of the tennis course, they noticed that most of the students suffer from difficulty in performing basic tennis skills, fluctuation in the level of performance and accuracy, and lack of use of educational models and teaching strategies that give a great opportunity to practise. The researchers sought to use a new model, which is the self-organized learning model (Pintrich), which helps the learner to rely on himself in determining the educational goals of the lesson in improving the lateral thinking of the female students in tennis, as it is considered the highest level of mental activity. It represents one of the cognitive processes that constitute a sophisticated aspect of the human personality that distinguishes him from others, as a person can, through thinking, face all the problems he encounters, and find the appropriate solution for them.

## Aims of research

- Preparing educational units with the Pintrich self-organized learning model to improve lateral thinking in tennis for female students.
- Recognizing the effect of the self-organized learning model (Pintrich) in improving lateral thinking in tennis for female students.

**The practical part**

The researchers used the experimental method for its suitability to the nature of the research, the research community was identified with female students of the second academic year in the College of Education for Girls (Department of Physical Education and Sports Sciences) at the University of Kufa for the academic year 2021-2022, and their number is 40. The method of a lottery was used in selecting the sample. At first, fifteen female students were selected for the experimental group, then fifteen female students for the control group, and ten female students for the exploratory experiment. Thus, the percentage of the research sample is (72.72%) of the research community.

**Equivalence in the research variables**

The researchers performed parity between the two research groups in the variable (lateral thinking), as the results showed that there were no significant differences between the two groups, as shown in Table (1).

Table 1
Shows the equivalence of the members of the research sample for the control and experimental groups

| Variables | Control group | | Experimental group | | (t) calculate | Significant | Statistical Result |
|---|---|---|---|---|---|---|---|
| | Mean | STD.EV. | Mean | STD.EV. | | | |
| lateral thinking | 3.26 | 0.84 | 3.21 | 0.44 | 0.147 | 0.178 | Non sig. |

**Field Research Procedures**
**Lateral Thinking Scale**

After briefing the researchers on a number of tests related to lateral thinking. They found that the (Ahmed Allawi Saadoun) scale (Abdul Hussein et al 2020) is the most appropriate for the research, which originally consists of (20) items aimed at measuring the lateral thinking of female students, and the answer to them is through (zero, 1), the total score of the scale ranges from (0-20) degree.

**Determining the validity of the lateral thinking scale items**

This procedure requires obtaining the approval of a group of experts and specialists in the sports field about the validity of the paragraphs of the scale. Therefore, the researchers prepared a form of the Lateral Thinking Scale, which was presented to a group of experts and specialists. After that, a (chi-square) was used to determine the differences between agreeing and disapproving experts and keep all the paragraphs according to the opinion of experts, all (20) paragraphs were accepted because the chi-square value was greater than the tabular value of (3.84) at the degree of freedom (1) and the level of significance (0.05).

**Preparing the instructions for the Lateral Thinking Scale**

The scale was developed in its final form, where the researchers prepared the instructions for the scale's paragraphs in the same manner, and the instructions were based on the Lateral Thinking scale that explained to members how to answer the paragraphs, as the instructions were easy, clear, and understandable. The name of the scale to ensure the validity of the answer to the paragraphs objectively. The answers to the questions were given weights (0-1).

**The exploratory experiment of the Lateral Thinking Scale**

The Lateral Thinking Scale was applied to a sample of ten players on 10/24/2021 for the purpose of ensuring the clarity of the instructions and the suitability of the paragraphs to the research sample, as well as to avoid the difficulties and obstacles that the researcher might face during the application of the scale. The response time took about 15–20 minutes, and thus the scale was ready to be applied to the research sample.

**The scientific basis of the Lateral Thinking Scale**
**The validity of the scale**

Validity is one of the most important and basic ways to judge how well a measurement tool works, and researchers have relied on how honest the test seems to be to figure out its validity. The apparent honesty of the test was calculated by presenting it to experts and specialists, and all of its statements obtained the approval of all arbitrators, except for two paragraphs through the statistical significance of the chi-square between agreeing and disapproving.

**Scale stability**

Researchers used the method of testing and retesting to figure out how stable the scale was: The researchers extracted the stability of the lateral thinking test by conducting an exploratory experiment on the students of the exploratory experiment, which numbered (10) students. The scores of the students in the first and second applications amounted to (0.86), which is a very good correlation degree when compared with the tabular value of (0.361) at the level of significance (0.05) and the degree of freedom (28) and thus they obtained an acceptable correlation coefficient for the lateral thinking scale.

**The main experience**
**Pre-test**

Two introductory units were given to the research sample about the technical performance of tennis by the subject teacher, as well as the practical performance of (10) strokes for each student before commencing the pre-test. I will be conducting a pre-test on the sample members (beginners) by distributing the Lateral Thinking Scale form to the female students, on Monday, October 25, 2021.

**Implementation of the educational units**

The nine educational units were implemented for the experimental group for the period from 10/26/2021 to 12/21/2021, and the educational units were different in the educational part (from the main section) and similar in the preparatory section and the closing section.

**Educational Units with the Self-Organized Learning Model (Pintrich)**

After the researchers reviewed a number of sources and scientific research in the field of teaching methods, it became clear that there was no source or study that dealt with the Pintrich model in the field of physical education, so the researchers will prepare educational units that include eight (8) educational units to be implemented in all parts of the educational unit of the tennis course. This model assumes that there are four stages of self-organized learning that are applied in organizing knowledge, motivation, behavior, and context, which are:

- Scouting phase: it includes the processes of planning, setting goals, understanding and realising the task and linking it to previous self-knowledge. (defining tools and multimedia; defining scientific material; defining exercises to support lateral thinking and learning skills performance).
- The executive phase: It is the set of efforts exerted to control and organise the different aspects of the process of knowledge, motivation, behavior, and context. The start of learning in the main section (the educational part) is by dividing students into small cooperative groups (3–4) of individuals. giving them a summary sheet of the learned skill reinforced with pictures and an explanation of the steps for implementing a tennis skill).
- Monitoring phase: It is a set of orientation and observation processes represented in awareness of the different aspects of knowledge, motivation, behavior, and context. To practise and pay attention to the right way to do things, and try to give feedback through a summary sheet or an educational poster with pictures of common mistakes made when using the skill.
- Reflection and emotional reactions: in the learner's relationship with the task and the context together or with each one of them separately. (The evaluation process through students' tests at the end of the lesson in a theoretical form (a set of questions about the learned skill and the benefits that each group applied individually) as well as what difficulties they faced in the process of organising work and how they were overcome. A practical test and evaluation of the performance of the skill subject of the lesson according to a test set by the teacher. to ensure that the learning process goes well.

**Post-test**

The post test was conducted on the research group after the completion of the implementation of the educational units, in order to determine the extent of improvement in the lateral thinking variable according to the tribal tests that were used by researchers in tennis and on Tuesday, December 28, 2021, as lateral thinking was measured by distributing forms. The scale is applied to the students of the research sample and collects data for the purpose of statistical analysis.

**Statistical means**

A computer system (spss) was used to process statistical data.

**Results**

The obtained data was statistically processed to verify the validity of the research hypotheses according to the answers of the experimental and control groups on the lateral thinking scale, and compared to the t-test and according to the experimental design of the research, the data was analysed statistically for the linked samples of equal numbers. Presentation and analysis of the results of lateral thinking, before and after among the research groups. Presentation and analysis of the results of lateral thinking, before and after the control group.

Table 2
Shows the statistical parameters of the control group

| Variables | Pre-test | | Post-test | | calculated (t) | significant | Statistical Result |
|---|---|---|---|---|---|---|---|
| | Mean | STD.EV. | Mean | STD.EV. | | | |
| lateral thinking | 3.26 | 0.84 | 5.79 | 1.12 | 9.61 | 0.000 | sig. |

Table 1 shows that the arithmetic mean of the results of the pre-test for lateral thinking was (3.26) and the standard deviation was (0.84), and the value of the arithmetic mean in the post-test was (5.79) and the standard deviation was (1.12), and the calculated (t) value was (9.61) and the value of ( sig) (0.000), which is a value less than (0.05), which indicates that there is a significant difference between the two tests in favour of the post test.

**Presentation and analysis of the results of lateral thinking, before and after the experimental group**

Table 3
Shows the statistical parameters of the experimental research group

| Variables | Pre-test | | Post-test | | calculated (t) | significant | Statistical Result |
|---|---|---|---|---|---|---|---|
| | Mean | STD.EV. | Mean | STD.EV. | | | |
| lateral thinking | 3.21 | 0.44 | 7.41 | 1.69 | 12.61 | 0.000 | sig. |

Table 3 shows that the arithmetic mean of the results of the pre-test for lateral thinking was (3.21) and the standard deviation was (0.44), and the value of the arithmetic mean in the post-test was (7.41) and the standard deviation was (1.69), and the calculated (t) value was (12.61) and the value of ( sig) (0.000), which is a value less than (0.05), which indicates that there is a significant difference between the two tests in favour of the post test.

**Discussing the results of the lateral thinking scale in the pre-posttests of the experimental and control groups**

Through the results presented in Table (6.5), it was found that there were significant, statistically significant differences between the pre and post tests in the results of the lateral thinking test. The group that studied with the Pentrich model preferred it because teaching using the Pentrich model made the lesson full of activity and effectiveness. It created an atmosphere of intimacy and cooperation among the students through their participation in the search for information to carry out the duties themselves in a lively and serious manner. The motive was the presence of other groups of students carrying out what was planned, and this increased their understanding of the material, consolidated it in their minds, and then increased the feeling that they were searching for information, analysing it, and knowing the reasons behind good performance. It was collectively planned and executed collectively. In addition, we see that the sample is at an appropriate age to understand the stages of the model and work within groups that can harmonise in teamwork and succeed in achieving the goals and attributing the results. To understand and practise scientific thinking with maturity "(Pintrich et al 2000). The researchers also think that one of the reasons for these differences is that other factors, like repetition and practice in exercises on the device, got in the way of the learners' getting better at what they were doing. This is because repeating the performance and giving the learner feedback helps the learner, which has positive effects on the learning process.

**Conclusions**

- The experimental group that implemented the educational units according to the Pintrich self-organizer in improving the lateral thinking in tennis for female students outperformed the control group.
- There are significant differences for the Pintrich self-organized learning model in improving the lateral thinking of female students between the control and experimental groups in favour of the post-test.

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