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The Impact of Using Mind Maps Strategy on Students' Knowledge Acquisition and their Trends Development towards Teaching Methods Course at the College of Physical Education

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Abstract

The current study aims at revealing:

- *The impact of using mind maps strategy and the traditional method (lectures) on students' knowledge acquisition in physical education teaching methods course.*
- *The impact of using mind maps strategy and the traditional method (lectures) on the psychological trend towards physical education teaching methods course.*
- *The differences in the post test between the experimental group adopting mind methods strategy and the control group adopting the traditional method (lecture) in the trend towards physical education teaching methods.*

Experimental approach is used for it is appropriate with the study. The study sample consisted of (50) third year students at the College of Physical Education/ University of Salahaldeen and were divided into two groups, the first experimental group and the second control group. The experimental group adopted mind maps strategy while the control group adopted the traditional method (lecture). Equivalence of both groups variables (age, intelligence, parents academic qualifications, teaching methods grade, trend towards teaching methods) between the two groups were made. The researcher has prepared a measure for assessing psychological trend towards physical education teaching methods.

The study sums up with the following:

- *Adopting mind maps strategy is more effective in increasing students' knowledge acquisition for the experimental group compared with the control group that adopted the traditional method (lecture) in physical education teaching methods.*
- *Adopting mind maps strategy requires more time, effort and skills by the teacher and the students than using the traditional methods.*
- *Adopting mind maps strategy and the traditional method (lecture) has a positive impact in trend towards physical education teaching methods.*
- *Adopting mind maps strategy by the experimental group is better than the control group that adopted the traditional method (lecture) as related to developing psychological trend towards physical education teaching methods.*

Keywords: Mind maps, knowledge acquisition, trends development, physical education teaching methods.

Introduction

Scientific development in various fields is the main characteristic of nowadays, among which is the teaching methods. The learner has turned to be the focus of the teaching process and it is no longer acceptable to apply instructions and orders issue by the teacher, the highest authority in the teaching process. The role of the teacher has exchanged to be directed towards supervision and instruction for planning and preparing the suitable educational environment for the learners. Selecting the appropriate strategy help in creating the supporting humanitarian relations among the students themselves and the teacher, comprehending ideas by the students, encouraging the ability and creativity to solve problems and enhancing the students self confidence in addition to motivating learning and thinking. Al Samaraee (2000) pointed out that the teacher should have modern teaching methods to efficiently convey the scientific material with less time and effort thus realizing the required educational targets (Al Samaraee, 2000, 6).

However, it is difficult to state that one strategy is absolutely better than the other, rather to say that there is a suitable strategy to achieve certain targets in a certain field with certain students by a certain teacher. Other factors, including nature of targets, lesson and learners, also affect the selection of the strategy (Awad, 2000, 65).

Mind maps are among the strategies that could be used by teachers in teaching sciences. Mind map is a

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final and organizing thinking tool that evokes thinking. It is the easiest way to convey, and also to restore, information to brain and also a creative and efficient tool for notes-taking (Buzan, 2002).

Mind maps strategy depends on drawing a map or a form that resemble how the mind reads information. The centre is the main idea, from which branches are stemmed from according to classification or specialization. Mind maps could be compared with city maps where the centre of the mind map resemble city centre and represent the important idea to be examined. Main ways that originate from the city centre represent the main ideas in thinking process while minor ways represent the minor ideas (Buzan, 2007).

Mind map is a teaching strategy that increases the efficiency of learning. Literature in this field have pointed out the importance of mind maps in achievement and increasing knowledge. This agrees with Waqad (2009) study that aims at identifying the efficiency of mind maps in teaching some of biology topics at the levels of remembering, understanding, application, analysis and structuring, for junior female students. The study concluded that there are statistical differences between the group adopting mind maps strategy and the group adopting the traditional method at the levels of understanding, application, analysis and structuring. Akinoglu and Zenyep (2007) also indicated that mind maps are important in raising students' academic qualifications and their trends towards sciences and refer to their importance in learning concepts. Accordingly, the importance of the current study lies in being the first to deal with physical education at the College of Physical Education in University of Salahaldeen. It is expected that it will be of great help for the teaching staff at the college as it will be a practical guide through its experimental steps. This study will be a curriculum of physical education teaching methods course for the third year students at the College of Physical Education in University of Salahaldeen–Erbil.

Problem of the Study

Coping with the rapid developments in various fields in general, and teaching methods in particular, entail the use and adoption of modern methods that are based on the learner as the focus of the educational process instead of the teacher, that will in turn has a negative impact on students participation in implementing activities. The study aims at applying one of the teaching strategies, mind maps, to measure the students' knowledge acquisition and develop their trends towards teaching methods course. No study was made to apply this strategy in teaching physical education teaching methods and there is a persistent need to cope with the modern trends in education. There is a need for serious scientific studies to introduce new patterns and strategies to replace the traditional patterns that are not coping with the society needs.

The current study is an attempt to answer the following:

1. What is the impact of using mind maps strategy on students' knowledge acquisition in physical education teaching methods course for third year students at the College of Physical Education/ University of Salahaldeen?
2. What is the impact of using mind maps strategy on developing trend towards teaching methods course for third year students at the College of Physical Education/ University of Salahaldeen?
3. Which is better in knowledge acquisition and developing trends towards teaching methods course for third year students at the College of Physical Education/ University of Salahaldeen, the mind maps strategy or the traditional method (lecture)?

Importance of the Study

1. Raising the level of knowledge acquisition and developing trends towards the course to support other strategies in achieving a better educational environment for third year students at the College of Physical Education/ University of Salahaldeen.
2. Helping the students in acquiring knowledge and skill in teaching methods course through exploring and discussions and the new acquired concepts.
3. Providing physical education teachers with a new and non–traditional teaching method that will help in improving their students' grading and develop their self–confidence.

Aims of the Study

The current study aims at revealing:

1. The impact of using mind maps strategy and the traditional method (lectures) on students' knowledge acquisition in physical education teaching methods course.
2. The impact of using mind maps strategy and the traditional method (lectures) on the psychological trend towards physical education teaching methods course.
3. The differences in the post test between the experimental group adopting mind methods strategy and the control group adopting the traditional method (lecture) in the trend towards physical education teaching methods.

Study Hypothesis

1. There are significant differences at (0.05) between means of experiment group marks adopting mind maps strategy and those for the control group adopting the traditional method (lecture) in post test as related to knowledge acquisition in physical education teaching methods course.
2. There are no significant differences at (0.05) between the pre and the post tests for the favor of the post test for both the experiment group marks adopting mind maps strategy and the control group adopting the traditional method (lecture) as related to trend towards physical education teaching methods course.
3. There are no significant differences at (0.05) between means of experiment group marks adopting mind maps strategy and those for the

control group adopting the traditional method (lecture) in post test as related to trend towards physical education teaching methods course.

Study Limits

Human Field: Third year students at the College of Physical Education/ University of Salahaldeen.
Time Field:9th October 2014–28h December 2014.
Place Field: Teaching hall at the College of Physical Education/ University of Salahaldeen.

Study Terminologies

Teaching Strategy

Al Duleimi and Al–Waeli (2003) define teaching strategy as the line to access the target or the frame to guide work and movement (Al–Duleimi and Al–Waeli, 2003, 93).

It is also defined by Ibraheem (2004) as a series of systemized and planned procedures to achieve a general target or group of targets. It is a system composed of four basic elements, targets, content, activities and evaluation (Ibraheem, 2004, 848).

Mind Maps Strategy

Buzan (1995) define mind maps as a design or a plan that combine information drawing and writing as both the teacher and the students organize what is written to be easy for the mind to comprehend.

Traditional Method (Lecture)

Abu Umeira (2000) define lecture as the teaching method adopted in most of the schools. The teaching process is usually focused on the teacher and the curriculum more than the student. Thus, the student role is a negative one while the teacher role is primarily to give the lesson according to the way selected (Abu Umeria, 2000, 24).

Knowledge Acquisition

Allam (2000) define knowledge acquisition as the step of acquisition achieved by the individual or level of success realized in certain teaching or training level (Allam, 2000, 305).

It is also defined by Al–Zayood and Eleian (2000) as the range of the learned targets or the path previously examined or trained by an individual through participating in programmed activities (Al–Zayood and Eleian, 2000, 39).

Al–Shamari (2003) also defines it as the knowledge acquired by the student in certain course according to certain targets and in a certain period (Al–Shamari, 2003, 324).

Psychological Trend

Al–Emaira (1999) defines psychological trend as an acquired emotional readiness relative stable that determine the individual feeling and behavior towards certain topics and either to be accepted or rejected. Such topics could be things, individuals, ideas, principles or social systems (Al–Emaira, 1999, 310).

Study Methodology

Experimental approach is used for it is appropriate with the study.

Study Population and Sample

Study population consisted of (141) of third year students at the College of Physical Education/ University of Salahaldeen for the year 2013–2014 deliberately selected and were distributed into four classes.

The study sample, however, consisted of two classes randomly selected and divided into experimental and control groups, (A, B) respectively.

The experimental group adopted the experimental variable, mind maps strategy, while the control group adopted the traditional method (lecture). The researcher has excluded number of both groups students including (as shown in Table I):

- Students who repeated the year and who has a background on the subject.
- Students who resumed studying.
- Female students.

Table I. No. of Study Sample Individuals and Teaching Method

Group	Teaching Strategy	Class	Total	Excluded No.	Remaining No.
Experimental	Mind maps	A	35	8	27
Control	Lecture	B	36	9	27

The Experimental Design

Equivalent groups with post test design, the best among all other experimental designs, was adopted as the experimental design (Bader, 1982, 86). The independent variable is included within the experimental group and the control group maintains its normal conditions. Accordingly, the difference will result from the impact of the independent variable on the experimental group (as shown in Fig I).

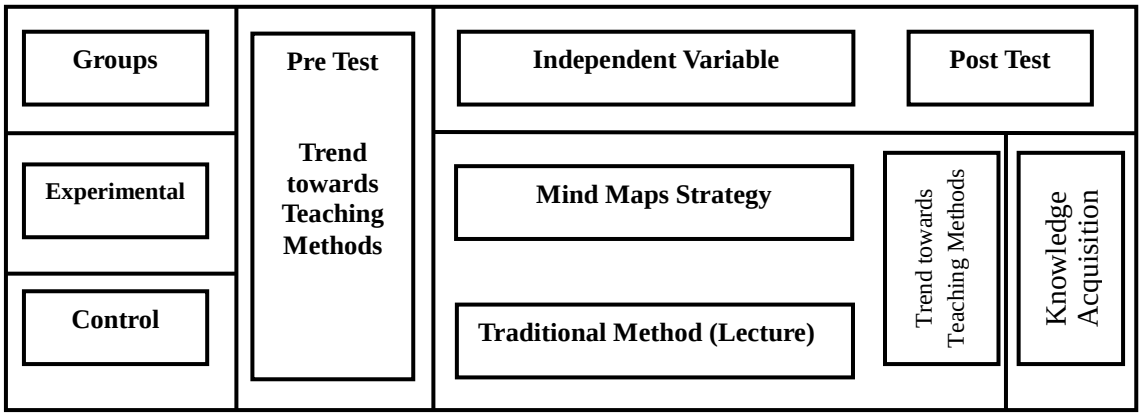

Figure I. The Experimental Design of Research

Equivalence of Study Groups

Equivalence of study groups was made to adjust the following variables:

Students Age

Students' age was calculated using months where date birth was obtained through information form. Age means for the experimental group students was (271.062) and for the control group was (271.319) T test was used to identify differences among students' ages as shown in Table II.

Table II. Means, Standard Deviations and Calculated T values for Study Groups as related to Age Variable

Variable	Mind Maps Strategy		Traditional Method Lecture		Calculated T Value	Probability Value	Significance
	X	±Y	X	±Y			
Age	271.062	0.895	271.319	0.861	1.078	0.286	Non significant

Table II shows that calculated T value is (1.078) at (0.286) and as probability values is more than the reference value (0.05) at freedom rate (52), there are no significant differences between the two groups, the experimental and the control, indicating their equivalence in age variable.

Students Grades in Intelligence Quotient

Standard progressive matrices, designed by J. C. Raven, and modified for Iraqi Environment by Dr. Fakhry Al–Dabagh et al., for 15–60 years individuals, was adopted. Raven designed his test to measure the general mind ability and supposed that his measure will cover the total range of mind growth starting from childhood till full growth (Qitami and Qitami, 1998, 11–13). Raven measure was reviewed by specialists in teaching methods and psychology (as shown in appendix 4), for assessing its adaptability. Agreement rate was (90%) and the test was adopted. It was applied to both groups to measure the intelligence grade for each student through providing each with a copy of the test and an answer paper. Based on Raven progressive matrices booklet and answers keys, answers were corrected (Al–Dabagh et al, 1983, 16). Centenary grade was adopted to measure intelligence quotient as shown in Table III.

Table III. Means, Standard Deviations and Calculated T values for Study Groups as related to Intelligence Variable

Variable	Mind Maps Strategy		Traditional Method Lecture		Calculated T Value	Probability Value	Significance
	X	±Y	X	±Y			
Intelligence	52.328	1.298	51.810	1.543	1.334	0.188	Non significant

Table III shows that calculated T value is (1.334) at (0.188) and as probability values is more than the reference value (0.05) at freedom rate (52), there are no significant differences between the two groups, the experimental and the control, indicating their equivalence in intelligence variable.

Parents Academic Qualifications

Calculating parents academic qualifications, using Q2 test, shows that there are significant differences between the two study groups as related to parents academic qualifications, as shown in Table IV & V.

Table IV. Academic Qualifications for Fathers and Q2 Calculated Value

Group	Fathers' Academic Qualification											Total	Q2 value	
	Illiterate	Reading & writing	Primary	Intermediate	Total	Secondary	Diploma	Bachelor	Master	Ph.D	Total		Calculated	tabulated
Experimental	1	-	3	5	9	7	4	4	3	3	21	30	0.53	3.84
Control	1	-	4	3	8	3	1	8	-	-	12	20		
Total	2	-	7	8	17	10	5	12	3	3	33	50		

Table V. Academic Qualifications for Mothers and Q2 Calculated Value

Group	Mothers' Academic Qualification											Total	Q2 value	
	Illiterate	Reading & writing	Primary	Intermediate	Total	Secondary	Diploma	Bachelor	Master	Ph.D	Total		Calculated	Tabulated
Experimental	6	-	5	11	8	4	3	4	-	-	19	30	5.68	3.84
Control	5	-	4	9	1	3	3	4	-	-	11	20		
Total	11	-	9	20	9	7	6	8	-	-	30	50		

Trend towards Teaching Methods Course

Trend towards teaching methods course measure, prepared by the researcher (appendix 2), is applied for the purpose of equivalence between the two study groups. Means for the two groups students marks are shown in table VI.

Table VI. Means and Standard Deviations for Study Groups as related to Trend towards Teaching Methods Course Variable

Variable	MInd Maps Strategy		Traditional Method Lecture		Calculated T Value	Probability Value	Significance
	X	±Y	X	±Y			
Trend towards teaching methods course	50.049	1.318	49.346	1.287	1.982	0.053	Non significant

Table VI shows that calculated T value is (1.983) at (0.053) and as probability values is more than the reference value (0.05) at freedom rate (52), there are no significant differences between the two groups, the experimental and the control, indicating their equivalence in trend towards teaching methods course variable.

Means of Data Collection

1. Analysis of some references contents.
2. Knowledge acquisition test.
3. Use of modified intelligence test for the purpose of two groups equivalence.
4. Preparation of certain form to obtain individuals age.
5. Preparation of questionnaire form to be viewed by teaching methods and psychology specialists.
6. Preparation of teaching plans for each group, where mind maps strategy teaching plan was prepared for the experimental group and traditional method (lecture) plan was prepared for the control group.

Study Tool

Knowledge Acquisition Test

The study requires a test for measuring the grading of both study groups upon finishing the experiment. The purpose is to identify the impact of both mind maps strategy and the tradition method (lecture) on students' knowledge acquisition.

Questions and Items of Acquisition Test

Teaching Material

Teaching material to be adopted within the six weeks experiment was prepared by the researcher in accordance with the curriculum adopted for teaching methods course for the third year at the College of Physical Education/ University of Salahaldeen. The teaching materials consisted for eight topics as follows:

1. Physical exercises.
2. Order: types and divisions.
3. Method: definition, targets and characteristics.
4. General methods of teaching physical education.
5. Specific method of teaching physical education.
6. Grading in teaching mobile skills.
7. Physical education teacher.
8. Teaching units.

Behavioral Targets

The behavioral targets for each of the teaching units for both the study groups were established and implemented through accurately following the teaching items.

Summative Assessment

In order to identify the impact of the mind maps strategy on the study sample (experimental group), there has been a need to make a summative assessment. This is defined as a regular tool to measure what the students have learnt in one teaching unit or curriculum and deals with a sample of the behavior acquired by the students through interacting with certain experiences and making defined activities in the teaching process (Abo Jaddo, 2000, 46). The summative test prepared by Al–Rahawi (2006), consisting of (30) items, of the quaternary multi alternatives type, is adopted in the current study. Despite that test was characterized by reliability, consistency and psychometric properties, the researcher validated the test as follows:

Test Reliability

Test reliability refers to measurement of scores or the characteristic to be measured and it is reliable if it measures the designed targets (Dawood and Abdul Rahman, 1990, 119). Reviewing the test by a number of judges was adopted to measure its reliability where agreement among judges is an indicator of that type of reliability (Ooda, 1999, 370).

As shown in appendix (4), the test was reviewed by a number of specialists in the field of teaching methods and measurement to assess its reliability and agreement was (100%). Bloom states that the researcher could use all the test items if agreement is (75%) or more.

Characteristics of Summative Assessment

1. Items of the summative assessment are based on curriculum adopted for the first semester.
2. Items of the summative assessment are of quaternary multi alternatives type for each question.
3. Content of the summative test question is of the easy and suitable type for third year students and in accordance with the curriculum.
4. Such type of tests, with high reliability and validity, is selected, easy to be corrected and inclusive of all the material (Mulhem, 2000, 216).

Measure of Trend towards Teaching Physical Education

Due to non availability of a readymade measure for physical education students' trend towards teaching methods, the researcher has prepared a measure to measure third year students at the College of Physical Education/ University of Salahaldeen in Erbil towards teaching methods course as follows:

Collection of Measure Items

Measure items were collected from literature and other studies dealing with trend topic. In order to select the appropriate items for constructing the measure, a closed questionnaire (appendix 1), was circulated among number of teaching methods and educational psychology lecturers (appendix 4) and upon analysis of the questionnaire answers, a measure consisting of (33) items was adopted. Measure items were intended to be brief, understood, expressive of one idea and positive not negative (Al–Ani, 1994, 72). The researcher then equally distributed the positive and the negative items.

Instructions were then provided by the researcher to guide the students on how to accurately and objectively answer the questions. Three alternatives were provided, agree, neutral, disagree, depending on Likert method.

Measure Reliability

The draft measure was reviewed by a number of judges in the field of education and physical education to judge the items validity and reliability. They all agree to keep the test items with some linguistic modifications and the final measure consisted of (15) positive items and (18) negative items (appendix 1).

Statistical Analysis of the Measure Items:
Discrimination:

The measure was applied to (50) of third year students at the College of Physical Education/ University of Salahaldeen to verify the items discrimination. Upon correcting answers, final scores were descending arranged where 50% of the highest scores and 50% of the minimum scores were taken and the total number of both the highest and the minimum groups was (25).

Using T test for two independent samples, among scores of the highest and the minimum groups, six items were discarded and the measure consisted of (27) items (appendix 2).

Measure Correction:

The tool was corrected using triple Lekert method, as shown in table VII.

Table VII. Correction of the Trend Measure

Items scores / Alternatives	Agree	Neutral	Disagree
Positive	3	2	1
Negative	1	2	3

Accordingly, trend measure scores were (27–81) with a theoretical average of (54).

Measure Consistency

Measure consistency refers to same or similar results in case the measure is applied again for the same individuals and in the same conditions. It is also defined as calculation of coefficient correlation among students' test scores when applied again after a period of time where the character is supposed to be the same (Ooda, 1999, 345). Thus, the measure is applied on a random sample consisting of (20) of third year students at the College of Physical Education/ University of Salahaldeen on 22nd October, 2014 and then applied again after one week on 29th October, 2014. Erefej and Musleh (1985) indicated that the period between the first application and the second one should not exceed one week (Erefej and Musleh, 1985, 177). Pearson correlation coefficient among the students' scores in the two groups was also found and was (0.81) and this is a high and reliable consistency variable (Samara et al., 1989, 120).

Identification and Control of Study Variables

Due to interference of some non-experimental variables that result in mistakes for such kinds of designs, identification and control of these variables is important for the sake of design safety (Best, 1970, 150). The researcher has adopted the following procedures to control such variables.

Independent variables represented by

- Mind maps strategy.

Subordinate variables represented by

- Knowledge acquisition.
- Trend towards physical education teaching methods course.

Non experimental (internal) Variables

There are variables that are not within the core design of the researcher and not under the researcher control but have undesirable impacts on the study results. These are the internal variables that the researcher is unable to notice or measure but suppose to be there and taken into consideration when discussing results; thus, it will be important to identify and control such variables (Ooda and Malkawi, 1987, 137). Safety of the experimental design consists of two aspects, one of them is internal while the second is external (Al–Zoobaee and Al–Ghannam, 1981, 95). Among the variables that are of risk for both the internal and external safety:

The Internal Safety of the Design

Experiment Conditions

Despite the difficult conditions faced by the country when implementing the experiment, no obstacles were faced.

Processes Related to Mature

These refer to all variables of biological and psychological students' growth within this period that affect their response (Al–Zoobaee and Al–Ghannam, 1981, 95). Both study groups students are exposed to psychological growth process. Random distribution and equivalence in age and intelligence were also used.

Tools Used in Measurement

The same tools used in the study were also used to for the purpose of control.

Experimental Extinction

It refers to the impact resulting from students absence within experiment affecting learning level of the students (Al–Etwi, 1998, 34). None of the students, in both groups, were absent from the experiment.

External Safety

External safety of the design is achieved when the researcher could generalize the study results in similar experimental conditions to other populations (Ooda and Malkawi, 1987, 172). In order to verify external safety the experiment should be clear of the following mistakes:

The Experimental (Independent) Variable Interaction with Test Partialities:

This factor has an impact as sample selection was random and equivalence was made between the two study groups.

Impact of the Experimental Procedures:

The teaching program was applied without informing the students about the study aims, in agreement with the lecturer. There was a need to control other factors related to experimental procedures for the safeguard the experimental design of the following:

Teaching Material

Teaching material was selected based on the

third year curriculum of teaching methods at the College of Physical Education/ University of Salahaldeen that consist of (8) topics distributed among six weeks and include:

- Physical exercises
- Order: types and divisions.
- Method: definition–targets–characteristics.
- General methods of teaching physical education.
- Specific methods of teaching physical education.
- Grading in learning kinetic skills.
- Teacher of physical education.
- Teaching units.

Teacher

Teacher of teaching methods course for the third year at the College of Physical Education/ University of Salahaldeen taught both the study groups after agreeing on the teaching strategy to avoid the impacts of factors related with the teacher and their reflections on students' scores and their psychological trend towards the course.

Duration of Experiment

The duration of experiment for both the study groups was equal. It started on 9th October, 2014 and finished on 28th December, 2014 for eight weeks with eight units for each group.

Pre–Test

The pre–test was made on Sunday, 2nd November, 2014 before implementing the teaching program for the study groups, the experimental and the control, through applying measure of the trend towards physical education teaching methods.

Time Plan of the Teaching Program

The teaching program consisted of (16) teaching units distributed between the experimental and the control groups with (8) units for each group as follows:

- (8) teaching units → experimental group (mind maps strategy)
- (8) teaching units → control group (traditional method, i.e. lecture)

The implementation of the experiment lasted for (8) weeks with one unit for each of the two groups and the time for each unit was (90) minutes.

Implementation of the Main Experiment

Upon completing the experiment requirements, establishment of the two study groups and equivalence between them in addition to completing the teaching material, the study experiment started on 9th October, 2014. The same course teacher taught the two groups to avoid the resulting impact of changing the teacher. The experimental group adopted mind maps strategy while the control group adopted the traditional method (lecture). Teaching the two groups lasted for the first semester of the year 2014–2015 in accordance with the teaching plan prepared by the researcher with one unit in a week, with (8) units all over the experiment. The experiment finished on 28th December, 2014.

The Experimental Group (Mind Maps Strategy):

Experimental group was taught according to the following steps:

Introduction (10 minutes)

The teacher starts by activating students' minds and thinking through:

Briefly discussing the pervious lesson and raising questions:

1. What are the physical exercises?
2. What are the types of exercises?
3. How could simple physical exercise be written?

Presentation (50–60 minutes)

The teacher guides the students' attention towards the lesson topics written on the whiteboard and the lesson will start as follows:

Our lesson for today will deal with two subjects: 1) types of order and how to write complicated and complex exercises; 2) difference between order and term, general rules and conditions of order and types of order.

Q) What are the types of order?
A) order + verbal order + numerical verbal order + numerical order
Q) What are the components of combined movement?
A) original movements + complementary movements
Q) What are the complex movements?
A) when moving three parts of the body at the same time (head + arm+ foot)
Q) What is the difference between order and terminology?
A) terminology refers to term of movements and postures like sitting, etc.
order refers to implementation of such movements and postures
Q) What are the general rules of order?
A) 1. The teacher should be unmannered when giving orders.
2. The teacher should direct the speech to all the students.
3. The teacher should not raise his/her voice.
4. The teacher should take into consideration the voice direction.
5. The teacher should take into consideration sun direction.
6. The teacher should take into consideration the students' abilities.
Q) What are types of order?
A) 1. Informative type.
2. Interval type.
3. Implementing type.
Q) What is the informative type?
A) It refers to words uttered by the teacher that indicates movement and then direction.
e.g. Arms high … high

Informative type

Q) What are the conditions of informative type in order?

A) 1. The informative type of order should be clear and easy.

2. The moving parts of the body should be mentioned in sequence.

3. It should be brief and athletic terms to be used.

4. It should not start with an order or infinitive but it should starts with the part to move.

Q) Is it possible that the informative type of order to start with infinitive or imperative?

A) Yes, the informative type could start with an infinitive or imperative if the exercise will be continuous and informative word or order is in brackets (start)

e.g. little jumps on the spot … start

↓ ↓ ↓ ↓

infinitive informative interval implementing

Q) What is the interval section?

A) It refers to the stopping period that follows the informative part of order and precedes the implementing part to be referred to as (…)

e.g. arms high (…)

↓ ↓

Informative Interval

Q) The interval should not be long, why?

A) In order that students will not forget the information learned.

e.g. knees … leaning (false)

knees … leaning (true)

Q) What is the implementing section?

A) It refers to order to start exercise after the interval and called the implanting section

e.g. arms high **…** height

↓ ↓ ↓

Informative interval implementing

Q) What are the conditions of implementing part in order?

A) 1. The implementing part should be an order to start exercise.

2. There should be no letter extension and no splitting.

e.g. ready … str … oll (false)

ready … stroll (true)

3. The implementing phrase should be suitable with the exercise.

The teacher draws a mind map for the first subject (types or orders and how to write complicated and complex exercises) and also a mind map for the second subject (difference between order and term, general rules and conditions of order and types of order). The teacher use colored pencils to draw the mind map to be clear for the students.

Summary (10 minutes)

The summary is a brief repetition of the main topics that is already written on the white board.

Assessment (7 minutes)

The teacher will ask some questions to assess whether the lesson has met the targets and also to help the teacher to identify the weak points. Such questions could include:

1. What are the simple exercises? Give an example.
2. Can you identify the implementing part of the exercise?
3. Give an example on the informative part starting with an infinitive or a verb.

Homework (3 minutes).

The teacher will ask the students to complete the following activities:

1. Review of the lesson.
2. Draw a mind map for the next lesson.
3. Reading the method subject: definition–targets–characteristics

References:

Teacher References

1. Waleed Abdullah Al–Etwi and Qussay Hazim Al–Zubeidi (2009). Practical Teaching Methods of Physical Education. University of Mosul, Iraq.
2. Zeinab Ali Omer and Ghada Jalal Abdul Hakeem (2008). Physical Education Teaching Methods: Theoretical Bases and Practical Applications. Dar Al–Fikr Al–Arabi, Cairo, Egypt.

Student References

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The Control Group (Traditional Method: Lecture):

Control group experiment was implemented as follows:

1. As for the first teaching unit, students were randomly seated without teacher intervention.
2. The teacher then started the lesson traditionally with a short introduction to prepare the students for the lecture on teaching methods.
3. The lecture started by teacher explanation of the topic and then questions were raised and students were encouraged to answer by providing them with feedback and the available teaching aids.
4. Briefing ideas and writing them on board while asking the students to discuss them to make sure they comprehend and understand.
5. Students are orally and writing assessed and they are asked to do homework on a new subject.

Post Test:

Post test was made upon finishing the learning program for both the experimental and the control groups as follows:

Application of Trend towards Teaching Methods Course Measure:

Upon finishing the teaching of the curriculum

according to experiment time, trends towards teaching methods course measure was applied on Sunday, 4th January, 2015 by distributing measure forms for the students. The researcher explained measure instructions and how to answer with confirming that no item to be left, the same as in the pre test.

Application of Summative Test

Upon finishing the teaching of the curriculum, the researcher applied post summative test to measure the study variables. The researcher informed the students of the test date and it was applied on Monday 5th January, 2015. Examination halls were monitored by teachers and the researcher himself monitored the examination.

Statistical Processing

SPSS software was used to process means, standard deviations, chi–square test and T test for numerically equal samples. Comparison was made between the pre–measure and the post measure and T test for numerically equal non–correlated samples. Comparison was also made between the two post measures for the two experimental groups, the first and the second.

Results and Discussion

Results and Discussion of the 1st Hypothesis

There are no significant differences at (0.05) between means of experiment group marks adopting mind maps strategy and those for the control group adopting the traditional method (lecture) in post test as related to knowledge acquisition in physical education teaching methods course. In order to verify this hypothesis, T test was used to identify statistical differences among means of knowledge acquisition for both study groups as shown in Table VIII.

Table VIII. Means, Standard Deviations and T calculated values of Differences for Experimental and Control Groups in Post Test as related to Knowledge Acquisition

Variable	Mind Maps Strategy		Traditional Method Lecture		Calculated T Value	Probability Value	Significance
	X	±Y	X	±Y			
Knowledge acquisition	15.472	0.621	13.826	0.398	11.141	0.000	Significant*

* significant at false rate ≥ (0.05) and freedom mark (52)

Table VIII shows significant differences at (0.05) among study groups means for knowledge acquisition test for the favor of the experimental group. Accordingly, the first hypothesis is rejected and the alternative one, stating that there are there are significant difference between means of experiment group marks adopting mind maps strategy and those for the control group adopting the traditional method (lecture), is accepted. The researcher thinks that this difference is due to the efficiency of using mind maps strategy, one of the modern learning strategies of teaching scientific knowledge that could be used to help students to organize data and information in their mental and knowledge construction. The use of this strategy is more successful in easily comprehending information than the traditional method (lecture) as it is more efficient in increasing the student concentration. In addition, it moves the written material into a structure easily comprehended through the design of mind map and also convert the verbal material into drawings, symbols and pictures. The student, accordingly, is mentally interacting with the scientific material. It also help in organizing and arranging the student ideas and information as it is a planning organizer where the scientific material is technically and visually organized to enable the student to interact with the scientific material. The students are efficiently interacting with the process of constructing mind maps mentally and peripherally where they sense a change of the usual routine (Ambo Saeedi and Suleiman, 2009, 73). The results agree with most of the literature dealing with mind maps including Taliaferro (1998), Holland, Holland, Davies (2003), Waqad (2009) and Hoorani (2011).

Results and Discussion of the 2nd Hypothesis

There are no significant differences at (0.05) between the pre and the post tests for the favor of the post test for both the experiment group marks adopting mind maps strategy and the control group adopting the traditional method (lecture) as related to trend towards physical education teaching methods course.

In order to verify this hypothesis, T test was used to identify statistical differences among means of pre and post tests as related to trend towards physical education teaching methods as shown in Table IX.

Table IX. Means, Standard Deviations and T calculated values of Pre and Post Tests for Experimental and Control Groups in Post Test as related to Trend towards Physical Education Teaching Methods

Group / Test	Pre Test		Post Test		Calculated T Value	Probability Value	Significance
	X	±Y	X	±Y			
Experimental	50.049	1.318	57.767	2.530	15.337	0.000	Significant*
Control	49.346	1.287	53.703	1.322	11.181	0.000	Significant*

* significant at false rate ≥ (0.05) and freedom mark (26)

Table IX shows significant differences at (0.05) among pre and post tests means for both study groups for the favor of the post test. Accordingly, the second hypothesis is accepted indicating that mind maps strategy and the traditional method (lecture) have a positive impact on both groups' individuals towards physical education teaching methods.

The researcher thinks that this is due to the following:

1. The use of mind maps strategy is new for the physical education students and the new is always attractive which could positively affect students' trends.
2. The two groups, adopting mind maps strategy and traditional method (lecture), allowed the students to have the role of both teacher and learner at the same time irrespective of their levels and such role could also have a positive impact on the students' trends.
3. These two methods have enables the students to learn and raise their abilities without feeling shy or worried due to wrong answer. They feel unembarrassed in raising questions whatever the nature of these questions are.

Al–Zayood and Hindi (1999) confirm that trend largely affect learning level. The trend which is characterized by violence and severity is more effective than that characterized by weakness and quietness and anyone who has a positive trend towards learning will continuously attempt to explore or learn new methods to realize learning targets (Al–Zayood and Hindi, 1999, 46). Students' trend towards learning is of the necessary things that should be taken into consideration by the teacher. The teacher has to use more acceptable methods by the students and attract their attention for learning and acquire new skills. Al–Zayood and Hindi (1999) states that trends are due to acquired factors of human behavior, meaning that their formation is not inheriting but acquired through experience and practice, through learning. The teacher could face some positive or negative trends towards learning, imposing the need to reveal these two types of trends for the students to enhance their positive trends and replace those negative ones with positive trends. Positive trends facilitate learning process and negative trends block them (Al–Zayood and Hindi, 1999, 113).

Results and Discussion of the 3rd Hypothesis

There are no significant differences at (0.05) between means of experiment group marks adopting mind maps strategy and those for the control group adopting the traditional method (lecture) in post test as related to trend towards physical education teaching methods course.

In order to verify this hypothesis, T test was used to identify statistical differences among means of post tests of psychological variable as related to trend towards physical education teaching methods as shown in Table X.

Table X. Means, Standard Deviations and T calculated values of Differences between Experimental and Control Groups for Post Test in Psychological Trend Measure towards Physical Education Teaching Methods

Group / Test	Pre Test		Post Test		Calculated T Value	Probability Value	Significance
	X	±Y	X	±Y			
Psychological trend towards physical education teaching methods	57.767	2.530	53.703	1.322	7.395	0.000	Significant*

* significant at false rate ≥ (0.05) and freedom mark (52)

Table X shows significant differences at (0.05) among means of both the study groups for trend measure towards physical education teaching methods and for the favor of the experimental group. Accordingly, the third hypothesis is rejected and the alternative one, stating that there are significant differences between the means of experimental group marks adopting mind maps strategy and the control group adopting the traditional method (lecture) in post test of psychological trend towards physical education teaching methods, is accepted.

The researcher thinks that this result is due to the use of mind maps strategy in physical education teaching methods which could affect students' interest in this course. The concepts are no longer difficult but more implicit as they are connected with image, which in turn develop positive trends towards teaching methods. In

addition, the use of mind maps strategy might reduce students' boring in physical education teaching methods course. This agrees with Al–Foori (2009) that aimed at identifying the efficiency of mind maps strategy in social studies course in Oman. It also agrees with Al–Jarf (2009) that identified the impact of using mind maps on writing skills for English language preliminary stage students and students' trends towards developing writing skills and results indicated positive trends towards mind maps.

Conclusions

1. Teaching according to mind maps strategy is more efficient in increasing knowledge acquisition for experimental groups students compared with the control group adopting the traditional method (lecture) as related to physical education teaching methods course.
2. Teaching according to mind maps strategy need more time, effort and skill by the teacher than other methods and means.
3. Teaching according to mind maps strategy and lecture method have a positive trend impact towards physical education teaching methods.
4. The experimental group adopting mind maps strategy is better in developing psychological trend towards physical education teaching methods compared with the control group adopting the traditional method (lecture).

Recommendations

1. Emphasizing the adoption mind maps strategy in teaching physical education teaching methods for the third year students at College of Physical Education/ University of Salahaldeen.
2. Emphasizing the use of summative test in measuring knowledge acquisition for third year students at College of Physical Education/ University of Salahaldeen.
3. Preparing a practical guide for the teacher to explain the use of mind maps strategy.
4. Using mind maps strategy in teaching physical education as it raise knowledge acquisition and develop psychological trends for third year students at College of Physical Education/ University of Salahaldeen.

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