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An Experimental Study Regarding Impact of 7E's Instructional Model Based Instructions upon Student's Attitude towards Physical Education Subject at Higher Secondary School Level

Abstract

Constructivism means the realization of knowledge in mind and believes that students should construct knowledge rather than gaining it. Students should allow observing, manipulating, hypothesizing, experiencing to generate result knowledge rather than feeding. Impact of instructions based on 7E's instructional model upon student's attitude towards Physical Education and its comparison between the experimental and controlled group at both pre and post-test phase was checked by using statistical package for social sciences version (24.0). It was yielded that an instructional method using 7E's instructional model has a significant positive impact on a student's attitude towards physical education subject. The experimental group show a more positive response as compared to the controlled group.

Key Words: Student's Attitude, Physical Education, Higher Secondary School Level, 7E's Instructional Model.

Introduction

[Safdar \(2007\)](#) stated that a well developed and organized education system is the most logical and reliable tool for the progress of every nation, which depends upon the standard of instructional material and method of instruction. [Arends \(2004\)](#), student's attitude and improved teaching skills is a base for educational output. In school, students are highly affected by the teacher's encouragement. It helps in boosting up the interest of students and brings talent. Chen & Darast (2001) find out that a student's interest-based curriculum allows the learner to make a fruitful connection to learning. [Hagger et al. \(2002\)](#) a comfortable environment make the student confident, which leads towards positivity of attitude. [Harris et al., \(1997\)](#) suggested that a positive attitude of the students towards the discipline of physical education has a deep requirement for the purpose to promote the subject of physical education in schools. [Desai \(2013\)](#) claim that physical education is essential in today's world. Engagement in physical activities enables one to live a healthy and fruitful life. [Krousas \(1999\)](#) also argued, movement is the basic need of the human body, and it is characterized to move as it is a common observation that newly invented gadgets restrict the human being from movement. So keeping in view the level of decreasing in a physically active lifestyle, it is becoming our prime need to nourish our students with the asset of expertise and proper knowledge about the physical health that is necessary for an inhabitant of the society to become physically, mentally and socially active for a lifetime till the death. [Safdar \(2007\)](#) find out that all these, like students a positive attitude towards learning, subject interest, and the method of instruction, are very important in the teaching and learning paradigm. At the college level, the student's level of understanding is higher as compared to the primary and middle level. The author further added that all these have a positive impact on the motivation of the students towards the urge for learning. And continuing this motivation not only for the purpose to apply what has been learned but also to seek out further related opportunities.

There are different versions of instructional models that can be seen in the different subject's curriculum. Having different stages, which range from 4E's to 5E's to 7E's but apart from phases, all the constructed models of instructional have their own value in the same purpose. All instructional

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models are well constructed and result oriented. This particular study was carried out by using 7E's instructional model, which is modified by [Eisenkraft in 2003](#) and comprised seven distinct key elements range from eliciting to engage, explore, explain, elaborate, evaluate and to extend.

Objectives of the Study

1. To evaluate the impact of instructions based on 7E's instructional model upon students attitude with reference to physical education subject.

Hypotheses of the Study

- H₀1:** There is no significant difference in attitude mean score between the experimental group and the control group at the pre-test phase.
- H_A2:** There is a significant difference in attitude mean score between the experimental group and the control group at the post-test phase.
- H_A3:** There is a significant improvement in the post-test attitude mean score of the experimental group as compared to the pre-test attitude mean score.
- H₀4:** There is no significant improvement in the post-test attitude mean score of the controlled group as compared to the pre-test attitude mean score.

Chapter 2: Literature Review

Attitude

It is a well-known quote of Winston Churchill, *"Attitude is a little thing that makes a big difference"*. Our response to different peoples, things and events determine our attitude. That is what we can simply define as attitude. It is basically the choices we make. There are three components of attitude, and it is cognitive, affective or emotional and behavioral. Knowledge of peoples, things and events is linked to the cognitive domain; for example, the orange is a citrus fruit and very beneficial for health. The feeling is linked to an effective or emotional domain of attitude; for example, I like orange. Similarly, the way we behave or act in response to a person, thing or event is linked to behavioral domain, for example, how many times a day we eat an orange. According to [Fishbein and Ajzen \(1975\)](#), attitude is mainly linked with social psychology and defined by Louis (1928) as *"the sum total of a man's inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions about any specific topic"* modified by [Thurstone \(1931\)](#) *"attitude is the effect for or against a psychological object"*. Allport (1935) stated the attitude's definition in short as *"a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related"*. Further, Trindes (1971) define attitude as it is *"an idea charged with emotion which predisposes a class of actions to a class of social situations"*. It is not so easy to understand the concept of attitude because, in social psychology, it is a well contested and matchless concept. Most of the psychologist, social psychologist and sociologist illustrate the concept as an output in the result of the interaction. [Gurbuz and ozkan \(2012\)](#) add that attitude is not something inherited; it is actually built as a result of its repetitive experiences. So attitude is not a static quality, but it may be changed. [Keskin, \(2014\)](#) and [Zengin \(2013\)](#) opine that attitude is linked with situations where we actually exist. The base for attitude is those places where we accomplish our needs. Human beings are not independent, and all around, if we observe, human beings are dependent somewhere. Wherever human beings see the accomplishment of need, he becomes more attentive toward those sources, and this diversion of attention is further changing into attitude. So in short, all those sources from which human being accomplish their desire has a positive attitude. Ozyalvac (2010) added that school play a significant role in molding human attitude.

The above authors indicate that in school, if a teacher teaches in such a way that accomplish the desire of a student or fulfil the curiosity of students may provide a base for a positive attitude towards the subject. So it means that the instructional method of a teacher has a deep impact on the student's attitude towards the subject. [Lee and Cranage, \(2014\)](#) and [Riemer et al., \(2014\)](#) also opine the same. According to [Avey et al \(2011\)](#) further adds that attitude may be positive or negative and depends

upon the situation. If a person has willing intentions towards a situation, then it can be categorized as a positive attitude, but if the intentions of an individual are unwilling intentions towards a situation, then it can be categorized as a negative attitude. It may vary from person to person and from situation to situation. The author further claims that if an individual has a negative attitude towards a subject, then he will fail to show his level of information, but in case he has a positive attitude, then he may willingly show his level of knowledge.

Positive Attitude

Being confident, Cheerful, Sincere, Responsible, Flexible, Determined, Tolerant, Willing to acclimatize, humble, careful and Optimistic are some of the traits that represent an individual with having a positive attitude. An individual with a positive attitude always look for opportunity rather than mourning hurdles. [Avey et al \(2011\)](#) positive attitude is positive mental and neural readiness towards any situation. [Dutton, Roberts and Bednar, \(2010\)](#) includes that a person with a positive attitude will always think positively and will attend to the situation with a willing nature.

Negative Attitude

Extreme dislike, doubtfulness, anger, Hatred, negativity, disappointment, Resentment, Jealousy and Inferiority are some of the traits that represent a person with a negative attitude. Such people always ignore the good qualities and often pay attention to the bad. Always complains rather than adapting and improving. Similarly, often blame others for their failure. According to [Luthans and Avolio \(2009\)](#), a negative attitude is something that every person should avoid. Generally, people with negative attitude ignore the good things in life and only think about whether they will fail. They often find a way out to run from tough situations. They often compare themselves with other persons and find the bad in them only. In short, he is exactly the opposite of the one with a positive mindset.

Neutral Attitude

Complacence, unconcern, lack of involvement, feeling of being cut off, unemotional unconcern and aloofness are some of the traits that may represent a person with a neutral attitude. That kind of people doesn't give due weight to a situation or happen and always ignore. Such people don't want to improve. According to [Joshanloo and Weijers \(2014\)](#), a neutral attitude is also a type of attitude. That kind of persons having a neutral attitude is very lazy peoples. They always look for help. That kind of persons ignored the obstacles in life. For example, they want to swim without jumping into the water. That kind of persons having a neutral attitude is often unemotional. They don't care about good and bad.

Attitude towards Physical Education

The authors [Balyan, Balyan and Kiremitci, \(2012\)](#) affirms that student's attitude towards physical education subject is directly proportional to student's interest in physical education subject and students motivation towards physical education subject. Conducting research in order to assess the student's attitude towards physical education subject, the researchers need to investigate the student's favorable or unfavorable responses towards the subject material. [Verbrugge, \(2012\)](#) confirms that it is observed that physical education teacher some time lose the attention towards effective domains of teaching which increase the level of apathy among the students and leads towards negative attitude to students towards the subject. It is an admitted fact that there no such subject in an educational system that is fruitless or unimportant. Then what causes students deviation from any negative subject attitude to a certain subject? So the teaching method is one of those reasons. In the classroom, students only impressed by the teacher method of instruction, and if the teacher teaches in such a way, that makes the learning environment boring for students, so as a result, the student will no longer like the subject and student will adopt a negative approach toward that subject. Similarly, if the teacher teaches the subject in such way which make the learning environment interesting and joyful for students so students will like it and this favor of student regarding the subject is basically the attitude of students towards such subject. [Davies, Dean and Ball, \(2013\)](#) affirms that

there are a bulk of research studies which indicated numerous factors, likewise technology and its integration in the educational system, teacher attitude toward teaching and teacher behavior towards students action, learning ability and thirst for a student, the environment of the classroom, understanding the student's nature, class timing, size of the class room as well as school, students attitude towards the subject and increase in interdependence in society etc. These factors are common all over the world, and the race for handling these challenges gave birth to the need for a standardized instructional method that can fulfil the desired need.

Constructivist Approach

According to history, the most investigated theory for learning is the constructivist theory of learning in education. According to Matthews (2002), Pelech & Pieper (2010) states that constructivism remains the key ingredient in curriculum development. Rowlands & Carson (2001, Eggen & Kauchak, (1994), Ausubel, (1968) Bischoff & Anderson, (2001) This theory believe that the construction of knowledge in the human mind is more fruitful for an individual in his future as compare to getting knowledge from any other mean which is already prepared. Driver, Asoko, Leach, Mortimer & Scott (1994) believe that basic knowledge cannot be transmitted to someone mind, but it is actually something to build up in the mind of the learner. According to Pritchard & Woollard (2010), the interaction of an individual with his surroundings, negotiation and discussion has a deep impact on individuals learning. The findings of Pritchard's and Woollard's study were supported by Gergen (1994). There are numerous researchers likewise Driver & Bell (1986), Savery & Duffy (1995), Driver, Asoko, Leach, Mortimer & Scotti (1994), Brooks & Brooks (1999) reported many points about teaching and learning based on a constructivist approach. Brooks and Brooks (1999) compare a classroom with a constructivist approach with a classroom with a traditional approach. The researcher gave a short description given in the table, which is given below.

Table 1. Comparison of Class with Constructivist Approach and Class with Traditional Approach

Constructivist Approach	Traditional Approach
<ul style="list-style-type: none"> • Emphasis on the big concept • Students questions are valued • Activities rely upon manipulation • Teacher Interactive manners • Assessment through students concept • Students work in a group 	<ul style="list-style-type: none"> • Emphasis on basic skills • Focus upon the fixed curriculum • Activates relies upon textbook and workbook • Teacher didactic manner • Assessment through test • Students work alone

Source of information (Brooks and Brooks 1999 p.17)

The 7E's Instructional Model and its Distinguishing Phases

7E's instructional model was constructed under the guidance of Piaget's mental functioning model. According to Eisenkraft (2003), many research studies has been done in the discipline of education, especially on the process of learning mechanism. The integration of these studies into the purpose of the lesson plane also links these studies to search for such a way through which an individual becomes able to learn effectively. Therefore the requirement of development during curriculum development stresses the expansion of 5E's model into a 7E's model of instruction. According to Karplus & Their (1969) and Hanley (1997), the first edition of the model integrated three phases at the beginning called primary exploration, invention and discovery but later on revised to exploration, concept introduction and concept application for the purpose to increase the level of expressiveness. In the 7E's model of instruction, the "engage" phase of 5E's model is further divided into two phases "elicit" and "engage". Likewise, the "evaluate" phase is further expanded to "evaluate" and "extend". The objective behind the changes does not means to bring complexity to the model, but it was intended that it will be easy

for the instructor to do not skip the critical phases during planning lesson accordingly to the model for teaching.

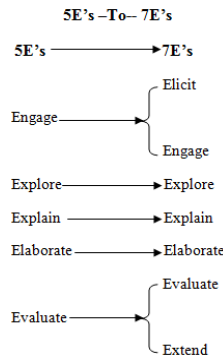


Fig 1:

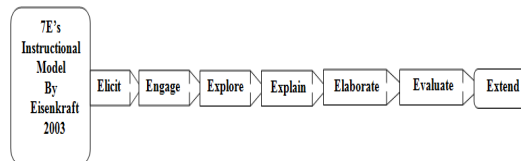


Figure 2: Alteration in 5E's model to develop the 7E's model

Elicit Phase

The pre-existing knowledge of the students plays an important role as background information. In elicit phase, the teacher first tries to make an understanding of the concept for the purpose to make the concept familiar for the students. According to [Eisenkraft \(2003\)](#), it helps to grasp the student's attention towards the lesson and prove helpful for the teacher to engage the students in the class. Through this way, students become able to assimilate the new information. According to Bransford, Brown and Cocking (2000), in cognitive science, the prior understanding of the topic is very compulsory. So the elicit phase is too much necessary to make an understanding of the topic during teaching.

Engage Phase

The phase of engagement of 7E's instructional model means to imprison the attention of the students towards the activity going on in the class. Capturing students attention towards the class is very important, and it takes diversion in eliciting phase. Now it is very important for a teacher to capture that attention to take advantage of it. Generate student's curiosity in elicit phase, engage phase is completely about taking advantages of the student's attention and curiosity being raised in eliciting phase. It helps the teacher in capturing the mind of students towards the class. It brings the students in the ring of thinking. Students raise different questions related to activity, and these are the signs of stimulation of thinking power. It indicates that students are stimulated and now ready to catch the information. According to [Eisenkraft \(2003\)](#), this phrase works as an assessing phase for pre-existing knowledge and in the generation of enthusiastic behavior among the students.

Exploration Phase

The phase of exploration in 7E's instructional model intends to provide an opportunity for the students to explore things by observing the phenomenon. Different types of material can be provided to complete this phase, like designs and graphs etc. According to [Eisenkraft \(2003\)](#) teacher needs to

frame some types of questions, and by asking these questions, the teacher must try to take suggestions to assess their approach towards the lesson. During this process, the teacher must provide the necessary feedback to the student. Furthermore, Bentley, Ebert, and Ebert (2007) elaborated that it is the time when students participate actively, and it helps students to construct knowledge and information through their experiences. Similarly, students working with different models are asked to make observations and investigate the questions that arise in their minds. So in this way, students work and make predictions. Students also hypothesize, defend things, and design to check their hypothesis by experimenting with it. It helps them to collect data and draw conclusions in the form of information. That information further becomes knowledge, and students will never forget it because it was generated by them. Further, students do not need to memories or rote things. Keep in mind that the teacher will continuously assist the students and will provide guideline where ever needed. The teacher will work as a facilitator throughout the scheme.

Explain Phase

According to [Eisenkraft \(2003\)](#), the founder of the seven E's instructional model debated as in this phase, the students will bring the information they collected and will show it to their teacher. The teacher will briefly study the outcomes which students reported and then will judge the scenario as students are on the right path or they are diverted from the exact line. After making assessments of the students provided results, the teacher will notice the concept of students and also the corrections to be made. In line with students results, if it is necessary to make changes, then the teacher, with the help of student's reports, will clarify the concepts and may add something more if necessary. Furthermore, Bentley, Ebert, and Ebert (2007) elaborated that in the explaining phase, the teacher will collect the findings reported by the students and discoveries they made. The teacher should give the opportunity to students in order to verbalize the findings made if there is a need to clear it more, so the teacher should explain to the students the actual concept by using books, resources like multimedia for the purpose to guide students learning in the right direction.

Elaboration Phase

[Eisenkraft \(2003\)](#) states this phase as the phase of linking the gathered knowledge with other same problems having the same nature. In this phase, the students try to implement their obtained knowledge of different new items. In this process, the student may face a new problem or difficulty and which may lead to new questions. So to bring an answer to the raised question is now a new task. Student search again and try to find a suitable answer, and when they get success in this regard, it means that they obtained more new information. Hilard & Bower (1975) and coking (2000) supported the concept.

Evaluation Phase

As it is a fact that the teacher is the best evaluator of the students. [Eisenkraft \(2003\)](#) states that according to this concept of model-based teaching teacher role is also very important. So teacher, according to his duties of teaching, also has the duty of evaluation of the understanding of the students. That the student is obtaining accurate information or not, what is the level of understanding of the students. So the teacher will evaluate the students learning in different ways, like summative evaluation or formative evolution. The teacher will evaluate the student's position in each and every stage and at the end of this cycle. This is something like summative evaluation and helps the teacher to assign a grade of the position.

Extension Phase

Similarly, [Eisenkraft \(2003\)](#), according to that model, try to explain how much it is necessary to extend the topic to the next one. This will help the student to understand the next topic easily. Because linking the lecture with coming one provide the student with a base and act like pre-existing knowledge for the next one. Similarly, it helps the students to understand the next ideas easily.

Materials and Methods

This particular research study was conducted in Islamabad Model College for boys Bhara Kahu federal area Islamabad, in the vicinity of Islamabad capital territory of Pakistan. A purposive sampling technique was used to select the sample from the accessible population. The researcher randomly selected 50 students as a sample and randomly distributed them into two groups. Each group comprised 25 participants, the experimental group (25) and the controlled group (25). The most frequent tool often used for the collection of requisite information or data in research studies in the discipline of social sciences is a questionnaire. The researchers always try to use a valid and reliable tool for data collection as it has a deep impact on results. So the accuracy of the testing tool and consistency of the tool in giving results is a very important and significant aspect of research study that is known as validity and reliability. Physical Education Attitude Questionnaire was developed by taking into account the available literature regarding student's attitude towards the subject and different attitude scales for different subjects already used in different studies Likewise Prokop et al. (2007), Usak et al., (2009), shaheen (2015), Corbin (2004). Further, the scale was discussed with eleven qualified and experienced professors in the discipline of sports sciences, physical education and education for the purpose of face validity, contents validity and construct validity. Similarly, the items which were accepted by the panellists were considered as it was. The items which were accepted by the panellists with minor changes were changed with suggested changes of panellists, and the items which were rejected by the panellists were expelled from the draft. Furthermore, the content validity ratio of each item included in the scale was then calculated by using Lawshe (1975) method. The validation process of the test was entirely carried out under the kind consideration and value able guidance of the research supervisor. For reliability, Cronbach's Alpha, correlation and reliability coefficients were checked. The Cronbach's Alpha obtained was 0.87, which shows moderate reliability but in an acceptable range. The final version was used for data collection at the pre-test phase. Similarly, the same procedures were also revised in the post-test phase. PEAQ (Physical Education Attitude Questionnaire) was used to evaluate the student's attitude towards physical education subject. Different item was designed in such a way that enables the researcher to snap the true picture of a student's attitude level towards physical education subject. The main purpose of the Pre-test was to assess student's attitude level towards physical education subject. Further, it was also aimed to select the participants for this particular study having the same level of attitude considering the normality threat. The results obtained from the Pre-test of both groups, experimental group and controlled group, were kept as a record. A similar route was adopted at the Post-test phase, and the results were kept in record. Furthermore, the gained results were used for statistical analysis.

Presentation of Data and Analysis

Descriptive Statistics Related to Physical Education Achievement Test and Physical Education Attitude Questionnaire, Pre-Test and Post-Test

Table 1. Descriptive Statistics Related to Physical Education Attitude Questionnaire (PEAQ), Experimental Group at Pre-Test Level.

Test	N	Min	Max	Mean	SD	Skewness	Kurtosis
Pre-PEAQ	25	1.83	2.55	2.268	.192	-.804	.191

The above table is showing the Pre-test results of the physical education attitude questionnaire test (PEAQ), scores of students in the experimental group. The scores showed ranging from 1.83 to 2.55, with a mean of 2.268. The said table further represented that Skewness of the test score was found -.804, and also Kurtosis of the test score was .191; this indicated that the data were normally distributed. Histogram showing pre-test physical education attitude questionnaire test results with a normal curve.

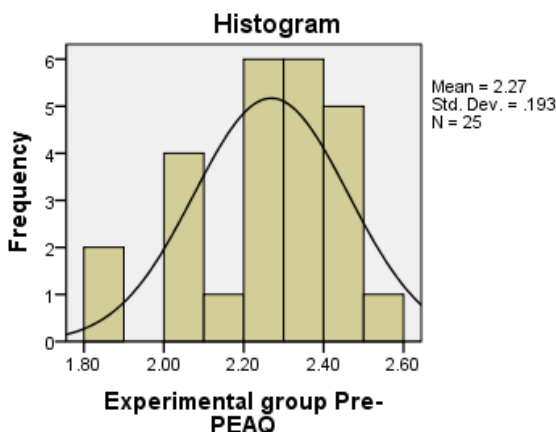


Table 2. Descriptive Statistics Related to Physical Education Attitude Questionnaire (peaq), taken by Controlled Group at Pre-Test Level.

Test	N	Min	Max	Mean	SD	Skewness	Kurtosis
Pre-PEAQ	25	1.93	2.74	2.360	.190	-.556	.417

The above table is showing the Pre-test results of the physical education attitude questionnaire test (PEAQ), scores of students in the controlled group. The scores showed ranging from 1.93 to 2.74, with a mean of 2.360. The said table further represented that Skewness of the test score was found -.556, and also Kurtosis of the test score was .417; this indicated that the data were normally distributed. Histogram showing pre-test physical education attitude questionnaire test results with a normal curve.

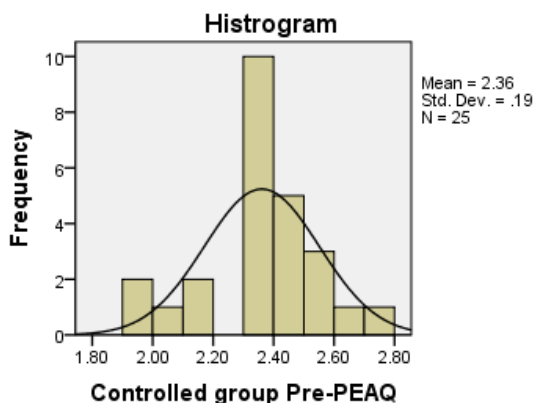


Table 3. Descriptive Statistics Related to Physical Education Attitude Questionnaire (PEAQ), Taken by Experimental Group at Post-Test Phase.

Test	N	Min	Max	Mean	SD	Skewness	Kurtosis
Post-PEAQ	25	3.49	4.61	4.203	.257	-.846	1.142

The above table is showing Post-test results of the physical education attitude questionnaire test (PEAQ), scores of students in the experimental group. The scores showed ranging from 3.49 to 4.61, with a mean of 4.203. The said table further represented the Skewness of the test score, and it was found -.846, and also Kurtosis of the test score was 1.142, this indicated that the data were normally

distributed. Histogram showing post-test physical education attitude questionnaire test results with a normal curve.

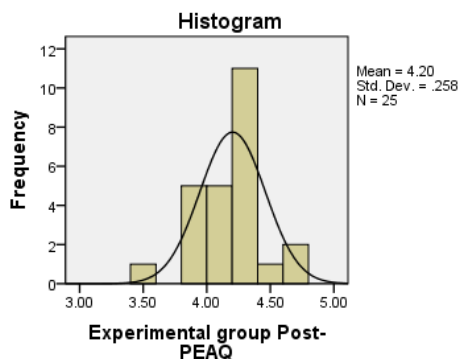
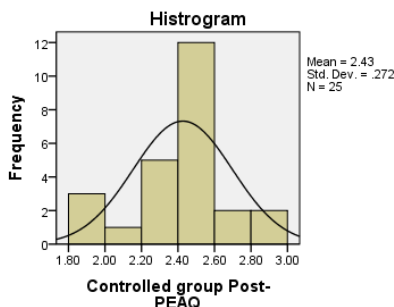


Table 4. Descriptive Statistics Related to Physical Education Attitude Questionnaire (PEAQ), taken by a controlled group at Post-Test Level.

Test	N	Min	Max	Mean	SD	Skewness	Kurtosis
Post-PEAQ	25	1.80	2.93	2.426	.272	-.677	.804

The above table is showing Post-test results of the physical education attitude questionnaire test (PEAQ), scores of students in the controlled group. The scores showed ranging from 1.80 to 2.93, with a mean of 2.426. The said table further represented that Skewness of the test score was found -.677, and also Kurtosis of the test score was .804; this indicated that the data were normally distributed. The histogram is showing post-test physical education attitude questionnaire test results with a normal curve.



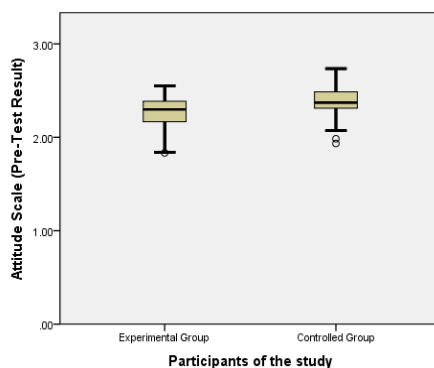
Inferential Statistics (Testing of Hypotheses)

H₀1: There is no significant mean difference in pre-test student's attitude between the experimental group and control group, with reference to physical education as a subject.

Table 5. T-Test Showing Pre-Test Attitude Mean difference between Experimental group and Controlled group

Testing variable	Groups/Test	N	Mean	SD	df	F	Sig.	T	Sig.
Attitude	Experimental Pre-test	25	2.2686	.19289	48	.206	.652	-1.703	.095
	Controlled Pre-test	25	2.3609	.19036					

$\alpha=.05$, n =respondents, $S.D$ =Standard Deviation, df =Degree of freedom, T =Calculated, Sig =Significant value



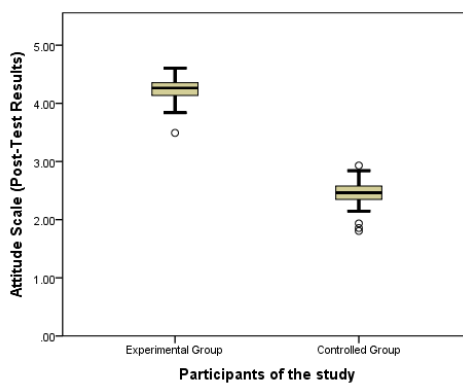
The above table and box plot shows the pre-test mean differences in the attitude of the participant between the experimental group and the controlled group. Here $t(48)=-1.703, P(.095)>.05$. It indicates that there is no significant difference in the attitude mean score of both group's participant's (experimental group and controlled group). The experimental group ($M=2.2686, SD=.1928$) and the Controlled group ($M=2.3609, SD=.1903$) are statistically and significantly the same. The claim can be seen in the above table and figure also. The result indicates that the null hypothesis is accepted.

H_{A2}: There is a significant mean difference in post-test student's attitude between the experimental group and control group, with reference to physical education as a subject.

Table 6. T-test showing Post-Test attitude means the difference between the experimental group and the controlled group

Testing Variable	Groups/Test	N	Mean	SD	df	f	Sig.	T	Sig.
Attitude	Experimental Post-test	25	4.2031	.25757	48	.000	.982	23.701	.000
	Controlled Post-test	25	2.4260	.27240					

$\alpha=.05, n=$ respondents, $S.D=$ Standard Deviation, $df=$ Degree of freedom, $T=$ Calculated, $Sig=$ Significant value



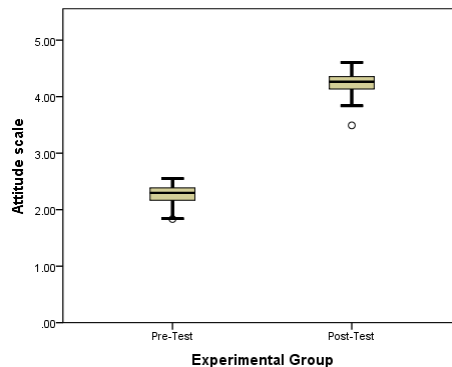
The above table and box plot shows post-test mean difference in student's attitude between experimental group participants and controlled post group participants. Here $t(48)=26.249, P(.000)<.05$. It indicates that there is a significant difference in the attitude of both group's participant's (experimental group and controlled group). The experimental group ($M=4.2031, SD=.575$) is statistically and significantly greater than the Controlled group ($M=2.426, SD=.2724$). The results in the figure also clear that the instructional model is effective. The result indicates that the hypothesis is hereby accepted.

H_{A3}: There is a significant mean difference in student's attitude between experimental group pre-test and experimental group post-test, with reference to physical education as a subject.

Table 7. Paired t-test showing mean the difference in student's attitude between experimental group pre-test and experimental group post-test results

Testing Variable	Group/Test	N	Mean	SD	df	R	T	Sig.
Attitude	Experimental Pre-Test	25	2.2686	.19289	24	.885	-27.165	.000
	Experimental Post-Test	25	4.2031	.25757				

$\alpha=.05$, n =respondents, **S.D**=Standard Deviation, **df**=Degree of freedom, r =Relation, **T**=Calculated, **Sig**=Significant value



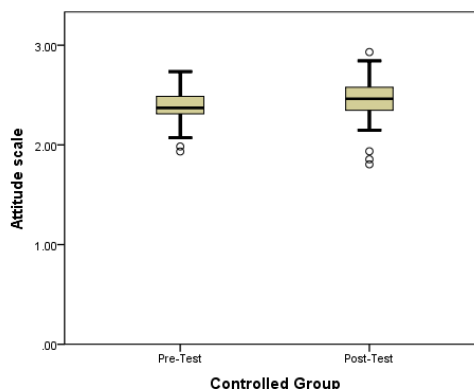
The above table and box plot show that $t(24)=-.335$, $P(.000)<.05$, which means that there is a significant difference in the Experimental group participant's pre-test attitude and post-test attitude. The post-test ($M=4.324$, $SD=.237$) is statistically and significantly greater than the pre-test ($M=2.217$, $SD=.248$) and ($r=.088$). This shows that participants of the experimental group shown a more positive attitude in the post-test, as compare to the pre-test. Therefore the hypothesis is accepted.

H₀₄: There is no significant mean difference in student's attitude between controlled group pre-test and controlled group post-test, reference to physical education as a subject.

Table 8. Paired t-test showing mean the difference in student's attitude between Controlled group Pre-Test and Controlled group Post-Test Results

Testing Variable	Group/Test	N	Mean	SD	Df	R	T	Sig.
Attitude	Controlled Pre-Test	25	2.3609	.19036	24	.895	-2.437	.023
	Controlled Post-Test	25	2.4260	.27240				

$\alpha=.05$, n =respondents, **S.D**=Standard Deviation, **df**=Degree of freedom, r =Relation, **T**=Calculated, **Sig**=Significant value



The above table and box plot shows that $t(24)=-2.437$, $P(.023)<.05$, which indicates that there is no significant difference in the attitude of the controlled group in pre-test and post-test towards physical education as a subject. The post-test ($M=2.4260$, $SD=.2724$) is statistically greater but not significantly than the pre-test ($M=2.360$, $SD=.1903$), ($r=-.895$). The result shows that participants of the Controlled group shown a positive attitude in the post-test as compared to the pre-test. Therefore the null hypothesis is rejected.

Conclusion

After the analysis of the data, it was concluded that both groups were of the same capacity. The descriptive analysis result and histogram indicated that data was normally distributed as the curve rested no normal. Furthermore, the hypothesis testing indicated that there was no significant difference in attitude mean score found at the pre-test phase between both the experimental group and the controlled group. But in the post-test phase, a significant difference in attitude means the score was found between the experimental group and the controlled group. The results further declared that experimental group participants showed a more positive attitude as compared to the controlled group. It shows that the 7E's instructional model based instructions have a positive impact on students attitude. The results further indicated that instructions assembled through 7E's instructional model have a vital role in enhancing students attitude level towards the subject of physical education as compared to the traditional instruction method of instruction.

Discussion

It was observed that the instructional plan, according to 7E's instructional model, brought a significant improvement in the experimental group attitude towards physical education as a school subject as compared to the controlled group. It means that students showed interest. In line with findings regarding attitude, numerous studies also indicated the effectiveness of 7E's instructional model in improving student's attitude towards the subject. Likewise, Cavallo & Laubach (2001) discovered considerable effectiveness of instructions based on an instructional model in encouraging student's sense of creativity, student's sense of critical analyzing; improving student's understandings about the concepts, cultivation of logical reasoning and all the listed qualities directly link to developing a positive attitude towards the subject. [Balcikanli et al. \(2005\)](#), [Lawson et al. \(1988\)](#) Lawson, (1995) also support the findings of (Cavallo & Laubach 2001). Similarly, Campbell (1977) reported that participants of the experimental group shown more positive attitudes towards subject concepts. It was also noted that the experimental group participant scored higher on an attitude scale as compared to participants of a controlled group. Another example of the same results noted from a study carried out by Lawson's (1995), who noted the facts that instructional model based instructions reduces the level of difficulty and helps in making the teaching-learning session joyful as it is observed during the study that participants in experimental group faced no difficulty and enjoyed the whole period as compared to that one who was in the controlled group. Comparable findings were found in a study conducted by Shaheen & Kayani (2015). Turgut et al.(2016) instructions followed accordingly, and material assembled accordingly, then it gives more fruitful results in achieving expected educational goals like high achievements and positive attitude. There is a positive contribution of the constructivist approach on which 7E's model is constructed, towards improvement in strong communication skill, strong hand skills, strong self-confidence, strong thinking skills, and it gives fruitful outcomes in student's attitude. Further, [Bailey et al. \(2009\)](#) also added that the attitude of students at higher secondary school level towards physical education is mainly determined by a few things, which are outline or curriculum, class atmosphere, teacher's behavior, and self-perception.

Recommendations

The main findings and conclusion of the study stated that 7E's instructional model based instructions are more effective as compared to the traditional lecture method in enhancing student's attitude

towards physical education subject. Following recommendations were suggested by the researcher and can be offered;

1. Teachers may try to adopt 7E's instructional model for teaching physical education subject because it fulfils the expectations of both teacher and students. To promote fruitful teaching and learning environment and to yield more positive results, teachers may arrange the study material accordingly by following all steps of 7E's instructional model and adopt the method of instruction as expressed in 7E's instructional model.
2. To avoid misconceptions in the study material, physical educationists, curriculum developers, textbook writers may follow the pattern of 7E's instructional model. Further training programs and workshops may be arranged in order to equip the physical education teachers with new invented modes of instructions, serving in a different institution under the umbrella of the federal directorate of education. It will also help the teachers or trainers to enhance their level of instruction.
3. Furthermore, such kind of studies which based on the findings of this study may be initiated. Similar studies can be conducted in different types of high schools or grade levels with a larger sample size to increase the generalization of results.
4. Studies may be conducted to investigate the effectiveness of instruction based on 7E instructional model on retention of concepts.
5. Studies may be conducted to investigate the effect of instruction based on 7E instructional model on motivation and self-efficacy other than attitude.
6. The author further recommends that adequate incentives and adequate facilities may be provided to physical education teachers that they may put their best contributions to encourage student's interest in learning. Similarly, the teacher may keep exposing their students to different physical activities, intending their attitude towards physical education subject to be more positive.

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