

A New Learning Model on Physical Education: 5E Learning Cycle

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Abstract

In variety fields of education at the present time, most especially in physical and technological educations, 5E learning cycle is being used by many teachers as well. The process is defined as five “E”s. These represent the verbs engage, explore, explain, elaborate and evaluate [1].

The literature has been systematically reviewed and the results showed that the 5E learning cycle is an untested model in physical education. Especially, positive or negative effects of the 5E learning cycle in physical education are unknown. This study is important for relevant literatures in order to be first study about the conceptual constructive of the 5E learning cycle in physical education. Thus, the purposes of this study are to conceptualize the 5E learning cycle in physical education as a new constructivist approach and to prepare sample teaching plans for use in physical education classes.

Sample teaching plans about the 5E learning cycle have been prepared by authors and are ready to use in physical education and sport teaching. For example, a physical education teacher wants to teach basic concepts about the human physiology (like heartbeat, breath, fatigue, etc.) or skills, can use this model has 5 “E”s.

First of all, in engaging stage, to draw the students’ attention, teacher asks considerable questions about daily life, and an amazing event or they give the chance of thinking about some visual elements without making any explanation about the topic (What is the heartbeat?, Why do people get tired?, etc.).

In exploring stage, students offer activities about the physical activity and they provide to reach the information on their own.

The students require explaining what they learned by their own sentences after the physical activity, by asking the results they reached, the observations they made and their ideas as well as the things that they noticed.

In elaborating stage, the students make to solve the problems in the physical education, they provide to see new question types about the new taught subject and the students expect to give answers to these questions.

And in the last stage (evaluate), by examining the studies that students make in their school and physical activities, the students’ learning levels are observed. These observations make by considering all the learning process. Student’s physical performances and his developing degree in the process are taken into consideration.

In this context, 5E learning cycle can also be used to teach concepts on physical education and sport teaching as an applied science of education. 5E learning cycle that is being used as a different model can be applied by competent physical education teachers in the course of physical education lessons.

As a conclusion, the plans prepared may be applied by authors, teachers or independent researchers want to study on this model and this study will be a new idea about the constructivist approach on physical education.

1. Introduction

Researchers, currently studying curricula in physical education, have suggested that physical education programs today are similar to programs of past decades. Curriculum implementation may be the major catalyst in creating change in physical education [2].

As with educational reform in the wider education context, physical education has been evolved from three radical reforms and extinction in its’ history [3]. The first, up until the 1950s held the dominant view of physical education as gymnastics. Between 1950s and 1990s, the idea of physical education shifted from physical education as gymnastics to physical education as sport-techniques. The effects of social conditions



such as introduction of mass secondary education, contingent constraints of institutionalized schooling, and a greater number of male physical educators entering the profession during the 1950s marked this change [3]. Finally, reform after 1990 evolved as a result of emerging researchers who indicated that increasing non-communicable diseases, such as cardiovascular disease, diabetes, cancer, obesity rates and physical inactivity had become the most important public health issues globally [4]. The alarming rates of overweight and obese children need to be addressed by health educators and professionals. Increasing regular physical activity is widely accepted as an effective preventative measure for a variety of health risk factors across all ages and genders [5]. Considering these issues, current international and national physical education standards have stated that “regular physical activity participation”, “performing and maintaining health enhancing physical activity” and “internalizing health related physical fitness concepts” are critical to provide a guide for school physical education curricula [6].

The current Turkish curriculum is based on the principle that “every child must be physically active”. So then in physical education lesson, teacher must use an interactive learning method for the active children. In variety fields of education at the present time, most especially in physical and technological educations, a different interactive learning method named 5E learning cycle is being used by many teachers as well. 5E Learning cycle: 5E learning cycle is one of the constructivist approach models, developed by the BSCS group. It consists of five phases; engagement, exploration, explanation, elaboration and evaluation [7].

The literature has been systematically reviewed and the results showed that the 5E learning cycle is an untested model in physical education. Especially, positive or negative effects of the 5E learning cycle in physical education are unknown. This study is important for relevant literatures in order to be first study about the conceptual constructive of the 5E learning cycle in physical education. Thus, the purposes of this study are to conceptualize the 5E learning cycle in physical education as a new constructivist approach and to prepare sample teaching plans for use in physical education classes. Sample teaching plans about the 5E learning cycle have been prepared by authors and are ready to use in physical education and sport teaching. For example, a physical education teacher wants to teach basic concepts about the human physiology (like heartbeat, breath, fatigue, etc.) or any basic motor skills, can use this model has 5 “E”s. In this context, the present study can serve as a basis for future research studies on 5E learning cycle in physical education.

2. Methodology

In this section, two sample lesson plans have been prepared in order to teach the basic concepts and skills in physical education and presented by authors. In preparation phase of these plans, the authors have taken care of all phases of 5E learning cycle.

2.1 Sample Lesson Plan (Physical Activity Habit)

Learning Domain	Physical Activity Habit
Sub-Learning Domain	Relationship between Physical Activity and Circulatory System
Course Time	1 hour
Skills	Reasoning, overarching
Gains	Learning heartbeat, using in social life
Methods and Techniques	Examination and exploring, learning by doing
Engaging	
Teacher asks questions following; <ol style="list-style-type: none"> 1. “Which organs do we have and what are most important of them?” 2. “Do you know where heart is and what is the work of it?” These questions make a sensation on students. (What is the heartbeat? Why do people get tired? etc.).	
Exploring	
Teacher wants students to run 2 tours around the school garden. After than asks these questions; <ol style="list-style-type: none"> 1. “Are you feeling your heartbeat?” 2. “Do you know why your hearth beat is faster?” 	

<p>3. "Which other reactions did you feel like faster breathing, sweltering, warming up, etc?" And teacher wants students to discuss each other and to tell a story about these situations.</p>
Explaining
<p>Teacher wants students to run 5 tours around the school garden at this time. After heartbeats of students have been measured, teacher asks again;</p> <ol style="list-style-type: none"> 1. "How much is your heartbeat?" 2. "Did you feel reactions we talked before?" 3. "Are you tired and / or thirsty?" 4. "Do you want to play a game or do physical activity tirelessly?" 5. "Do you know how do you do that?" <p>Teacher lets them think critical and ask questions. So, teacher provides them with a clear understanding.</p>
Elaborating
<p>Teacher gives them chance to use their knowledge and asks questions for reinforcement;</p> <ol style="list-style-type: none"> 1. "What is your favourite athlete?" 2. "What do you think that these athletes are tired when they run or do physical activity as much as you are?" 3. "How do they success it?" <p>Teacher lets them think critical and answer the questions. After than teacher wants students to discuss each other about relationship between physical activity habits and heartbeat and finally teaches what is the relationship between these concepts? So, these concepts will be thoroughly learned by the students.</p>
Evaluation
<p>In this stage, the students should be realizing relationship between physical activity habits and circulation system. Teacher wants them write a composition about which activity you want to do regularly and talk about it with their families. Teacher evaluates awareness what teacher wants to raise for physical activity habits of the students.</p>

2.2 Sample Lesson Plan (Any Basic Motor Skill Learning)

Learning Domain	Any Basic Motor Skill Learning
Sub-Learning Domain	Any Motor Skill
Course Time	1 hour
Skills	Teacher must be decided according to which motor skill students should learn.
Gains	
Methods and Techniques	
Engaging	
<p>First of all, in engaging stage, to draw the students' attention, teacher asks considerable questions about daily life, sport competitions, famous athletes and an amazing event or they give the chance of thinking about some visual elements without making any explanation about the topic (Who is the fastest man in the world?, Have you ever watched a basketball match in your life?, etc.).</p>	
Exploring	
<p>In exploring stage, students offer activities about the physical activity and they provide to reach the information on their own.</p>	
Explaining	
<p>The students require explaining what they learned by their own sentences after the physical activity, by asking the results they reached, the observations they made and their ideas as well as the things that they noticed. The skill, the students should learn, must be shown clearly by the teacher in this stage.</p>	
Elaborating	
<p>In elaborating stage, the students practice and make to solve the problems about this skill, they</p>	

provide to do new activity types about the new taught subject and the students expect to give answers to these questions.

Evaluation

And in the last stage (evaluate), by examining the studies that students make in their school and physical activities, the students' learning levels are observed. These observations make by considering all the learning process. Student's physical performances and his developing degree in the process are taken into consideration.
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3. Discussion and Conclusion

While there were too many studies about 5E learning cycle in the world, in Turkey these studies were limited. In the present study includes some of the research studies on 5E learning cycle and science discipline because of no studies on 5E learning cycle and physical education. They were explained below.

Study performed by Campbell [8] investigated the fifth grade students' understanding of force and motion concepts through the use of the 5E learning cycle. Students participated in investigations about force and motion concepts weekly for a period of 14 weeks. Findings showed that students' knowledge about force and motion concepts increased although their knowledge as demonstrated on paper was insufficient. It seemed that the students were of the same opinion that learning science through text book was not the best way for them. Orgill and Thomas [9] suggested that analogies could be useful tools in each phase of the 5E learning cycle and pointed out that science classes would provide from performing the lesson with the challenging concepts that were related to everyday experiences. They gave examples about what the students and teachers could do while using analogies in each phase. Ozsevgec [10] investigated the effect of 5E learning cycle on 5th grade students' achievement and attitudes toward science and technology course. It was found that there was a statistically significant mean difference in the favour of 5E learning cycle group.

Cardak, Dikmenli and Saritas [11] aimed to investigate that the effect of the 5E learning cycle on sixth grade students' achievement during the circulatory system unit. While the experimental group and the control group were the same at first, after implementation, there was an important difference in favour of the experimental group.

The primary purpose of this study was to adapt 5E learning cycle as a new learning model to physical education. The other purposes were to conceptualize the 5E learning cycle in physical education as a new constructivist approach and to prepare sample teaching plans for use in physical education classes. Sample teaching plans about the 5E learning cycle have been prepared by authors and are ready to use in physical education and sport teaching. For example, a physical education teacher wants to teach basic concepts about the human physiology (like heartbeat, breath, fatigue, etc.) or skills, can use this model has 5 "E"s.

In this context, 5E learning cycle can also be used to teach concepts on physical education and sport teaching as an applied science of education. 5E learning cycle that is being used as a different model can be applied by competent physical education teachers in the course of physical education lessons.

As a conclusion, the plans prepared may be applied by authors, teachers or independent researchers want to study on this model and this study will be a new idea about the constructivist approach on physical education.

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