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Universal Journal of Educational Research 10(5): 311-317, 2022
DOI: 10.13189/ujer.2022.100501

7E Learning Cycle Model Implementation: Students' Activities and Critical Thinking Skills towards Online Learning

Raohul Ilhami[1], Endang Widjajanti Laksono[2,*]

[1]Department of Chemistry Education, Post Graduate Program, Yogyakarta State University, Indonesia
[2]Department of Chemistry Education, Faculty of Mathematics and Science, Yogyakarta State University, Indonesia

Received March 2, 2021; Revised June 12, 2021; Accepted April 13, 2022

Cite This Paper in the following Citation Styles

(a): [1] Raohul Ilhami, Endang Widjajanti Laksono , "7E Learning Cycle Model Implementation: Students' Activities and Critical Thinking Skills towards Online Learning," Universal Journal of Educational Research, Vol. 10, No. 5, pp. 311 - 317, 2022. DOI: 10.13189/ujer.2022.100501.

(b): Raohul Ilhami, Endang Widjajanti Laksono (2022). 7E Learning Cycle Model Implementation: Students' Activities and Critical Thinking Skills towards Online Learning, Universal Journal of Educational Research, 10(5), 311 - 317. DOI: 10.13189/ujer.2022.100501.

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Abstract The spread of the COVID-19 epidemic has changed the education system. Teachers are encouraged to continue the online teaching process through certain platforms including Skype, Zoom, and Google Meet. Therefore, this study used Zoom application to look at the 7E learning cycle model's (7E LC) effect on student activities and critical thinking skills in chemistry teaching. This study is a quasi-experiment and only has a post-test design. The sample for this study is 11th-grade students from Yogyakarta 4 High School in Indonesia selected by random sampling technique. Two classes were selected as the samples, one as an experimental class where the 7E LC was implemented and another one as the control class where the learning used direct instruction model. The student's learning activity data were collected through questionnaire and the student's critical thinking skills data were obtained through an open-ended hydrolysis problem test. According to the MANOVA model, the difference between students' learning activities and students' critical thinking ability is analyzed. The result of this study is that there are significant differences in student activities and critical thinking skills between the experimental class and the control class.

Keywords Chemistry Learning, Critical Thinking Skills, Online Learning, Students' Activities, 7E Learning Cycle Model

1. Introduction

Since the beginning of this year, the spread of COVID-19 in Indonesia has turned the education system into online learning. Online learning and teaching are carried out on digital platforms. This is related to the 2020 Circular Letter No. 15 issued by the Minister of Education and Culture of Indonesia, regarding the guidelines for organizing family study during the emergency period of COVID-19 transmission. The announcement was issued to reduce the physical distance to reduce the spread of coronavirus disease and the burden on the health system. Online learning requires a variety of facilities, such as the Internet, and electronic products such as laptops or phones. Students and teachers will live in different places. This is a supplement to normal classroom learning [1], [2]. This online learning is carried out by using various platforms (such as Skype, Zoom, Google Meets, Webex, and Microsoft Team) [3].

The teaching and learning process must still be carried out, even though it has to go through online learning, so that students can still gain knowledge in this pandemic COVID-19. One of the educational goals is to enable students to have independent, effective and creative knowledge and skill systems [4]. According to Temel [5], teachers can help students think, research, and develop solutions to problems. In the teaching process, students actively participate in searching and processing

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Table of Contents Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002

1. Understanding the eBook Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - The Rise of Digital Reading Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - Advantages of eBooks Over Traditional Books
2. Identifying Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - Exploring Different Genres
    - Considering Fiction vs. Non-Fiction
    - Determining Your Reading Goals
3. Choosing the Right eBook Platform
    - Popular eBook Platforms
    - Features to Look for in an Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - User-Friendly Interface
4. Exploring eBook Recommendations from Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - Personalized Recommendations
    - Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 User Reviews and Ratings

- Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 and Bestseller Lists

5. Accessing Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 Free and Paid eBooks
   - Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 Public Domain eBooks
   - Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 eBook Subscription Services
   - Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 Budget-Friendly Options
6. Navigating Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 eBook Formats
   - ePub, PDF, MOBI, and More
   - Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 Compatibility with Devices
   - Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002 Enhanced eBook Features
7. Enhancing Your Reading Experience
   - Adjustable Fonts and Text Sizes of Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
   - Highlighting and Note-Taking Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
   - Interactive Elements Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
8. Staying Engaged with Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
   - Joining Online Reading Communities
   - Participating in Virtual Book Clubs
   - Following Authors and Publishers Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
9. Balancing eBooks and Physical Books Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
   - Benefits of a Digital Library
   - Creating a Diverse Reading Collection Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
10. Overcoming Reading Challenges
    - Dealing with Digital Eye Strain
    - Minimizing Distractions
    - Managing Screen Time
11. Cultivating a Reading Routine Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - Setting Reading Goals Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - Fact-Checking eBook Content of Test Manager For Instrumedia And Technofor Learning 7e Cdrom2002
    - Distinguishing Credible Sources

13. Promoting Lifelong Learning
    - Utilizing eBooks for Skill Development
    - Exploring Educational eBooks
14. Embracing eBook Trends
    - Integration of Multimedia Elements
    - Interactive and Gamified eBooks

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