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Students' Creative Thinking Skill in Solving Higher Order Thinking Skills (HOTS) Problems

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Abstract

Creative thinking skills one of the important aspects that must be possessed by students' mathematical thinking skills to connect mathematical concepts as well as the development of thinking processes in solving mathematical problems. The purposes of this research are to determine the level of students' creative thinking skills in solving Higher-Order Thinking questions and to investigate the students' creative thinking skills in solving Higher Order Thinking Questions. This research employed the descriptive qualitative method with 28 students who have passed the Calculus subjects the samples of the research determined through nonprobability sampling. The data were collected through tests and interviews. The research discovered that the average score obtained was 38.43%, specifically 35.71% of the students were at the very creative level, 50% of the students were at the creative level, and 14, 29% of the students were at the fairly creative level. Students' creative thinking skills were lacking in creativeness and detail indicators. They were not able to solve problems properly and correctly. The fluency and flexibility indicators were in a good category. So, it can be concluded that the level of students' creative-thinking skills in solving the Higher-Order Thinking Skills problems was at the creative level.

Keywords: Creative Thinking Skill; Higher-Order Thinking Skill Questions.

<http://ejournal.iainlangsa.ac.id/index.php/aljabar>

Introduction

The development of science and technology has changed much of the mathematics education world. Not only in the aspect of learning mathematics but also in the attitudes towards mathematics learning. Therefore, apart from mathematical content, the process thinking and attitude are also core components that must be carried out in mathematics learning at every level of education. The application of a scientific approach in the 2013 curriculum is expected to be able to create more active, collaborative, and participatory mathematics learning and be able to stimulate students to think critically, creatively, and analytically, even able to foster creativity.

Nowadays, mathematics teaching places more emphasis on enabling students to think at a higher level (HOTS) because HOTS can be considered a fundamental skill in thinking and using mathematical knowledge in completing tasks such as reasoning skills, problem-solving skills, communication skills, questioning skills, and skills conceptual. These skills are very important in learning mathematics. Learning mathematics has many problems stemming from their weaknesses in this skill. The output of learning is expected that students will be able to develop and use their skills to build their mathematical knowledge as lifelong learning.

Thinking is the skill to understand something to overcome the problems faced in the form of new knowledge. In solving problems, someone unconsciously uses various types of thinking

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Research Article

Empowering scientific thinking skills through creative problem solving with scaffolding learning

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ABSTRACT

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Keywords

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Scientific thinking is a crucial skill for students in facing 21st-century challenges. The aim of this study was to analyze the effect of Creative Problem Solving (CPS) with scaffolding learning implementation on students' thinking skills. The study employed pre-experimental design in which the sample was 96 of population was 270 students. The sampling technique used was cluster random sampling. The data obtained from the test instrument contributed from four aspects observed. The data was analyzed using dependent t-test. The results showed that there was an influence of the CPS with scaffolding on students' scientific thinking skills. Thus, CPS with scaffolding learning effectively empowered the students' scientific thinking skills.



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INTRODUCTION

The 21st-Century was marked by the development of science and technology which had new challenges in the education field (Ekram, Ekram, Ejaz, & Alim, 2010; Ogunseun, 2015). According to Griffin, McGow, & Cain (2012) students are required to have four important skills, namely way of thinking, the way of working, the tool of working, and living in the world. To meet these demands, students need higher-order thinking skills in ascending the learning process (Galei, Chisole, Chisole, Oshby, & Karmi, 2015; Jerome, Lee, & Ting, 2017). McFarlane (2013) states that students need a learning process and higher-order thinking skills that can explain the process of science such as making new discoveries by utilizing problems in the surrounding environment. One of higher-order thinking that should be possessed by students is scientific thinking skills.

Someone who could think scientifically is a person who has the ability to receive, process and evaluate information in accordance with the context of science (Bao et al., 2005). According to Ruhn (2010) the ability to think scientifically has four aspects, namely: (1) inquiry, the discovery step that involves the scientific method in the process which includes the steps of finding the main idea of the problem, formulating a problem, designing a hypothesis and finding a solution to the problem; (2) analysis, the process of confirming data obtained with existing theories so as to obtain the truth; (3) inference, the process of confirming the truth between the theories used to find the idea of completion with the data obtained so that conclusions are obtained

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"Smart Dubai 2021 is our action plan for the near future as we work to transform Dubai into a fully smart city with smart government services that make people's lives and business dealings easier," Bin Bishr said.

In an interview with Gulf News at the launch, Bin Bishr said the Dubai Pulse online platform will help relieve some of the daily stress in residents' lives by giving online visitors the ability to pay and do errands online, reducing the number of physical trips across the city.

"Imagine yourself living in Dubai, you have kids, you want to register them in school, do health checks — you can do them all online at one touch, that will make you happy," said Bin Bishr. "You become more mindful of what's happening around you. You know what are the things, events happening next week."

"What we are trying to is put people in more mindful situations so that they can plan their lives and be more happy," Bin Bishr told Gulf News.

Smart Dubai 2021 calls for intelligent use of ICT to transform the city's core components, which include six main pillars from government, companies and society to individuals, resources, and infrastructure. The initiative will digitize 100 per cent of government services and eliminate the need for physical visits to customer service centers.

Dubai Pulse, meanwhile, is the first stage of the planned Smart Dubai Platform, an interactive data board for the city of Dubai, accessible to the public, the business sector, and all decision makers.

It publishes up-to-date information about various metrics related to the city including traffic, transport, the economy, social welfare, health care, and education, in addition to innovative entertainment and tourism services, such as smart restaurants, aviation services, and traffic systems. Smart sensors distributed throughout the city will ensure these services are provided seamlessly, allowing all residents to connect with their city.

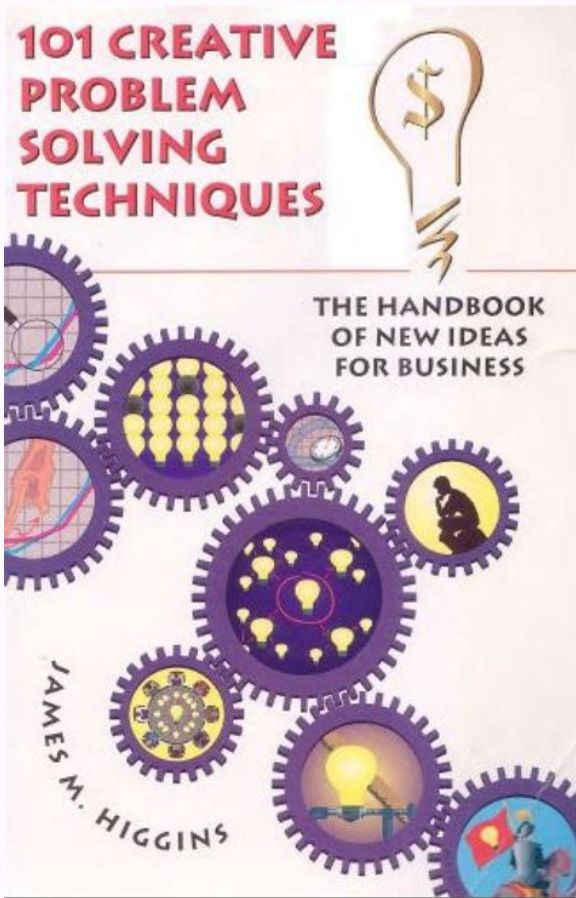
www.smartdubai.ae

Benefits that the platform will deliver for the city in the near future include:

- For a city planner, directing operational cost-savings into data-driven research and development.
- For a mother, checking health data from her child's school to determine if a flu vaccination is required.
- For a father, reviewing household energy consumption to conserve resources and save money for a family vacation.
- For a tourist, utilizing the live public transportation data to make the most out of his time spent in the city.
- And for all commuters, enjoying reduced traffic congestion as more and more services are transacted online.

Source: Smart Dubai Office

<http://gulfnnews.com/news/uae/government/dubai-unveils-plan-to-go-paperless-by-2021>



Creative problem solving skills example. Creative problem solving skills lead to dash solutions. Creative problem solving skills lead to solutions. Creative problem solving skills resume. Creative problem solving skills lead to how many solutions. Creative problem solving skills definition. Creative problem solving skills interview questions. Creative problem solving skills means.

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09/05/2021 - Problem-solving skills are skills that help you identify and solve problems effectively and efficiently. Your ability to solve problems is one of the main ways that hiring managers and recruiters assess candidates, as those with excellent problem-solving skills are more likely to autonomously carry out their responsibilities. 14/01/2022 - In my experience, the very first step in developing the valuable skills of problem solving is to learn how to look at every situation as an identifiable problem. For example, recently my students in the MDP/Global Classroom program at Al-Farabi Kazakh National University (KaZNU) were preparing their applications for a semester abroad program to study sustainably... Develop skills in information & digital literacy, problem-solving, critical thinking and communication. This Specialization is a high-level academic skills course designed to increase your level of academic preparedness prior to commencement of your studies in an English-medium university. 13/04/2021 - Problem-solving skills are important for the regular onslaught of problems. Business Managers and office Managers may find that nearly every aspect of their daily routine centers around some type of problem-solving. Alex Osborn, founder of the Creative Education Foundation, first developed creative problem solving in the 1940s. One of the terms he developed was "brainstorming". And, together with Sam Parnes, he developed the Osborn-Parnes Creative Problem Solving Process. Despite its age, this model remains a valuable approach to problem... 09/02/2024 - Examples of Creative Thinking Skills - Problem Solving, Tackling unexpected problems requires a lot of creativity. After all, employers want to hire creative thinkers not because of their creativity as such, but because they can use it to solve problems in an innovative way. Creative Writing... One of the most typical yet in-demand creative skills. Solving the Problem (Quality Progress) Brush up on your problem-solving skills and address the primary issues with these seven methods. Case Studies Refreshing Louisville Metro's Problem-Solving System (Journal for Quality and Participation) Organization-wide transformation can be tricky, especially when it comes to sustaining any progress made over time. Problem Solving courses from top universities and industry leaders. Learn Problem Solving online with courses like Creative Problem Solving and Effective Problem-Solving and Decision-Making. 13/04/2021 - Kids who lack problem-solving skills may avoid taking action when faced with a problem. Rather than put their energy into solving the problem, they may invest their time in avoiding the issue. That's why many kids feel behind and struggle to maintain friendships. This Creative Commons license allows others remix, tweak, and build upon your work non-commercially, as long as you credit us and indicate if changes were made. Using this citation format: Teaching problem-solving skills, Center for Teaching Excellence, University of Waterloo. KEVIN K. BROWN, MSW, LICSW, is the above-mentioned author of the problem-solving skills test. You should understand that the above-mentioned problem-solving skills test is not a test of your problem-solving skills. It is a test of your understanding of problem-solving scenarios. How problem solving skills tests work. Tests like TestGround's problem-solving skills test, assist organizations in finding candidates who quickly identify the key elements of the problem and work through the problem at speed without making mistakes. By presenting candidates with a wide range of questions related to typical problem-solving scenarios, hiring teams can rank...

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