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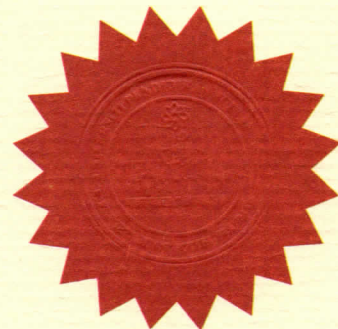
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International Post Graduate Conference on Science and Mathematics 2013

Research in Science and Mathematics Catalyse Sustainable Future

IPCSM2013

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OR-081

THE DEVELOPMENT OF JAVA 2 MICRO EDITION BASED MOBILE
CHEMISTRY ENCYCLOPEDIA "CHEMISTCLOPEDIA" AS INDEPENDENT
LEARNING MEDIA
FOR SENIOR HIGH SCHOOL STUDENTS

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This research is a development research in Chemistry education aiming to produce a learning media using Java 2 Micro Edition called *Chemistclopedia* as an independent learning medium on the topic of Macromolecule for students of XII grade of senior high school. The development method contains nine main steps which are in line with the ADDIE model. Research and Development model. The development product was reviewed by senior high school students. The media was reviewed and assessed by chemistry teachers and students. The products was then measured on quality as an independent chemistry learning media. Data were collected using a set of Lykert scale (strongly agree, agree, disagree, strongly disagree) analyzed using descriptive statistics. *Chemistclopedia*, a Java 2 Micro Edition based Chemistry encyclopedia on the topic of Macro-molecule was well developed and can be used as independent learning.

OR-082

THE DEVELOPMENT OF MOBILE GAME "SCIENTIST ACADEMY"
AS CHEMISTRY LEARNING MEDIA FOR INDEPENDENT EXPERIMENTS

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There has been a major issue dealing with education in order to improve the quality of learning. One of the solutions is to use mobile apparatus and the connection are easily accessed by Indonesian students. This research developed independent learning would be essential for students to be able to use mobile based media facilitating independent learning "Scientist Academy" as learning media on the topic of acid-base solution, reaction kinetic, and chemical equilibrium for senior high school students. The media was reviewed and assessed by chemistry teachers and students. The development product was reviewed by senior high school students. The development method was reviewed by chemistry teachers and students. The products was then measured on quality as an independent chemistry learning media. Data were collected using a set of Lykert scale (strongly agree, agree, disagree, strongly disagree) analyzed using descriptive statistics. *Scientist Academy*, a mobile game based on the topic of Chemistry was well developed and can be used as independent learning media. The development product was reviewed by senior high school students. The development method was reviewed by chemistry teachers and students. The products was then measured on quality as an independent chemistry learning media. Data were collected using a set of Lykert scale (strongly agree, agree, disagree, strongly disagree) analyzed using descriptive statistics. *Scientist Academy*, a mobile game based on the topic of Chemistry was well developed and can be used as independent learning media.

THE DEVELOPMENT OF JAVA 2 MICRO EDITION BASED MOBILE CHEMISTRY ENCYCLOPEDIA "CHEMISTCLOPEDIA" AS INDEPENDENT LEARNING MEDIA FOR SENIOR HIGH SCHOOL STUDENTS

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ABSTRACT

This research is a development research in Chemistry education aiming to produce Chemistry learning media using Java 2 Micro Edition called *Chemistclopedia* as an independent learning medium on the topic of Macromolecule for students of XII grade of Senior High Schools. The development method contains nine main steps which is in line with Borg and Gall's Research and Development model. The development product was reviewed by two experts, multimedia and Chemistry contents as well as peers. After the revision based on the reviews, the products was then measured on quality as an independent chemistry learning medium by 5 Chemistry teachers. Data were collected using a set of Lykert scale Questionnaire, and analyzed using descriptive statistics. Chemistclopedia, a Java 2 Micro Edition based mobile Chemistry encyclopedia on the topic of Macro-molecule was well developed and was eligible to be used as independent learning.

Keywords: Chemistry encyclopedia; independent learning media; mobile media; macromolecule.

Introduction

Learning media is needed by teachers and students so that the teaching-learning activities would be effective and efficient, but the learning media hasn't been maximally used yet, because of the assumption that using those media would be troublesome, expensive, difficult, and only taken as entertainment (Thomas W. A. S., 2005: 76-81).

Whereas if students' learning source were only their teachers, they will stuck in memorizing learning, where those memories could easily be erased when they stop learning about that. This learning method tends to make students bored, or worse dislike science learning (Widodo, 2008: 24).

Schramm stated that media can be categorized into complicated, expensive and simple media. Schramm also categorized media based on its coverage, which is (1) wide and all at once, i.e. TV, radio, and facsimile; (2) limited to certain room, i.e. movie, video, slide, poster, and audio tape; (3) media for individual learning, i.e. books, modules, computerized learning programme, and telephones. Kozma (1991: 2) described the distinct characteristic of learning media were technology, mechanical and electronic aspect which determined the function, shape, and other physical characteristics.

Technology evolution and the availability of large number of electronic media, the idea of matching e-media with appropriate teaching and learning styles has been explored since the late 90's. There are many studies on the effectiveness of combining multimedia and hypermedia with learning styles in educational systems (Najjar, 1996). Various kinds of learning media with various functions and shapes have been the proof of the evolution of technology; one of them was mobile learning. The usage of mobile phone which increased to 54% in 2010 with the majority users were