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FOREWORD

Rector of Universitas Negeri Padang

A very warm welcome (Selamat Datang) to all speakers and delegates of Konvensi Nasional Pendidikan Indonesia (KONASPI) to Padang, West Sumatera Indonesia and to our International Conference on Education, Science and Technology (ICESTech) 2019 with Education for Industrial Revolution in 4.0, on March, 13th - 16th 2019, organized by Universitas Negeri Padang

It is an honour to be the host of the KONASPI and ICESTech as it provides great opportunity for respectable researchers, experts, scholars, students and even policy makers to share ideas on hot issues and trending topics on Education, Sciences, and Technology.

Our sincere appreciation goes to Kemenristek, Forkom of FKIP leaders of Indonesia, Asosiasi Lembaga Pendidikan Tenaga Kependidikan Negeri Indonesia (ALPTKNI), Kemendikbud, and sponsors. We appreciate your participation in this conference.

I would like to take this occasion to express my appreciation to keynote and invited speakers of the conference, the prominent figures in their field. My appreciation should also be addressed to all co-host universities who have shared significant contribution to make this event possible. To all parallel speakers as well as all participants coming from various places, your contribution makes this conference is truly special.

I appreciate the organizing committee, the scientific committee members, and the international board for their efforts in materializing this conference.

Finally, I encourage delegates to collaborate and participate actively in interesting discussion in this conference. Have a fruitful conference, and please enjoy your visit to Padang.

Sincerely,

Prof. H. Ganefri, Ph.D.

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Keynote Speaker

Developing a Skilful and Adaptable Workforce: Reappraising Curriculum and Pedagogic for Tertiary Education

Stephen Billett Griffith University, Australia

Abstract

Changes in occupational, workplace requirements and working life prompt a reappraisal of the goals and processes of tertiary education. These changes include: addressing the specific requirements of workplaces as well as developing occupational competence; learning knowledge that is difficult to directly experience (i.e. conceptual and symbolic knowledge) required for what is often referred to as knowledge work; developing adaptive occupational capacities because the requirements for work and work performance are constantly changing and the importance of students to become active and intentional learners for their initial preparation, but also that ongoing development across working life. It is proposed here that a way forward is to adopt curriculum and pedagogic practices that are aligned with achieving these kinds of outcomes. This includes a consideration of what constitutes effective educational experiences, the use of educational institutions that can generate the kinds of capacities within tertiary education students and assisting students become active and intentional learners across their working life. To do this requires a consideration of what constitutes the existing and emerging requirements for occupational and workplace performance and then aligning these with the kinds of curriculum and pedagogic practices that tertiary education institutions need to advance and the kinds and quality of engagement that students need to adopt and practice.

Keyword	: Curriculum, pedagogic, education
Торіс	: Education Technology

Invited Speakers Technology as Learning Solution in the Digital Era

Dr. Ing Ilham Akbar Habibie Dewan Teknologi Informasi dan Komunikasi Nasional

Abstrac

Technology Innovation that supports learning will prepare the human development to compete in global markets. Innovative instructors are needed to make interesting teaching material. The are needs for ICT infrastructure to compete in the Industrial 4.0 era. The importance of a deepening oriented curriculum for understanding science (definite) as well as its application in the context of finding solutions to a problem in the form of a project. This is needed both in theory and practice, during the time of learning. Through the synthesis in the applied form carried out in the curriculum, knowledge that was originally mere information was enriched into useful experiences.

Keyword: Technology, learning, digital era 4.0Topic: Education Technology

Invited Speakers

Earthquake Ground Motion and Microtremor Observation in Padang, West Sumatra, Indonesia Yusuke Ono

Tottori University

Abstract

Ground motion observation has been conducted in Padang, West Sumatra, Indonesia, since 2008. The recorded accelerograms and the results of Fourier analyses are presented. In addition, the site amplification at each observation site is discussed based on the shear wave velocity profile evaluated by the microtremor array observation. Padang is the capital city of West Sumatra Province located on the west coast of Sumatra Island, Indonesia. The seismicity around Padang is quite active, and more than 1000 casualties occurred due to the M 7.6 earthquake of 30th October 2009. In addition, the existence of a seismic gap in the off-shore of Padang, where the plate boundary between the Eurasian and the Indo-Australian plates, has been pointed out and occurrence of an M 8.0 class earthquake is expected. Four ground motion observation stations were set up in

Padang by NPO Engineering Without Borders Japan (EWB-JAPAN) in 2008, as well as the station in Bukittinggi about 80 km northward from Padang. These four observation stations in Padang are placed so that it covers various thickness of the sedimentary layer. The ADS station in the campus of Andalas University is on the bedrock site, while the UNP station in Padang State University is on the thickest sedimentary layer site. The accelerometer of SES60 manufactured by Azbil Co. (previously Yamatake Co.) is installed at every station. The microtremor survey with array observation at the four observation sites in Padang was conducted. The dispersion characteristics of the Rayleigh wave was obtained, and the shear wave velocity structure was estimated by inversion analysis for each site. The relation between the shear wave velocity structures and the recorded ground motions are discussed. More than ten years have passed since the first observation station was set up, and it is necessary to update or repair the equipment in order to continue the observation.

Keyword	: Earthquake,	microtremor, rayleigh wave,
Торіс	: Physics	

Invited Speakers

Challenges of Vocational Teachers Facing RI 4.0

Nizwardi Jalinus Universitas Negeri Padang

Abstract

The rapid change of technology especially in Information technology bring about a great change in strategy of teaching for teachers to face RI 4.0. The aim of this research is to identify the teaching and learning strategies used by vocational teachers in Malaysia and Indonesia, and to explore the Stages of concern of vocational teachers to the implementation of Curriculum 2013 (K13).

Based on two researchs which had been conducted, first, It was a research of measuring stages of Indonesian Voational teachers in implementing New Curriculum (K13), and second research was joint research concerning strategy of teaching and learning of Vocational teachers in Malaysia and Indonesia in the era of RI.4.0. These a type of survey method, the first research in measuring Stages of teachers concern 224 teachers in west Sumatera were participated as respondents of research. Second research 200 teachers from Malaysia and 200 teachers from Indonesia were involved in the research. Two types questionaires were developed and adopted, those were teaching and learning method instrument and Stages of Concern Questionnaire.

The result revealed that Vocational teachers in both countries were changing, majority teachers (69.975%) used student centered learning in their teaching and learning strategy in class teory as well as 79.75% of teachers role as facilitator of students in classroom as well as in practical work. Most teachers have already used ICT in their teaching and learning, at least they use power point as media of learning. Especially for Vocational teachers in Indonesia (West Sumatera) The relative intencity of vocational teachers tend tobe users of K13, They were in SoC4 in implementing K13 eventhough still in category of trials. As the conclusion, its can be taken to mean that majority of vocational teachers in Malaysia and Indonesia were on the way process to be facilitators and innovators of students learning, and they are involved in process of the world changing (RI 4.0).

Keyword	: Change, Vocational teachers, Teaching and Learning Strategy, K1	3

Topic : Education Technology

[GS.AB-6]

The Difference Effect of Physical Activity Before And After School Toward Physical Education And The Ability of Social Interaction in Gajah Mada Medan Primary School Student

Rahma Dewi, Bessy Sitorus Pane, Chairul Azmi Universitas Negeri Medan

Abstract

The purpose of this study was to see differences in the influence of physical activity before school and after school on physical fitness and social ability in Gajahmada elementary school students in Medan. The analysis technique uses the T Test with a significance level of $\alpha = 0$, o5. Obtained: (1) Physical activity before school affects the physical fitness of students, (2) Physical activity before school affects students 'social skills, (3) Physical activity after school has an effect on students' physical fitness, (4) Physical activity after school affects students 'social skills (5) Physical activity before school is better than physical activity after school towards physical fitness of students, (6) Physical activity before school has the same effect as physical activity after school on students' social skills.

Keyword: Physical activity, physical fitness and social skillsTopic: Physics Education

[GS.AB-9] E-learning Quality Evaluation Instrument for SPADA Indonesia

Hari Wibawanto Universitas Negeri Semarang

Abstract

Quality evaluation of the online learning needs to be conducted before learning process. The intrinsic quality and some contextual quality are evaluated to ensure the quality of the learning object itself and its pedagogical foundation in an online learning environment. This research deals with the quality of online learning preparation, consist of quality of learning object itself, its placement and integration with Learning Management System. The measurement system consists of the items to measure the intrinsic quality of learning objects and items to measure their relation to the pedagogical aspect. Pedagogical aspect of learning objects can be seen partially by its placement and integration with Learning Management System. There were 4 (four) steps in developing the instrument : (1) evaluating the existing e-learning instrument, (2) focus group discussion to determine instrument dimension, (3) instrument try out, and (4) instrument revision. As a result, two kinds of instrument for SPADA Indonesia had been developed in this research: (1) instrument to measure the quality of learning objects and is seen developed in this research: (1) instrument to measure the quality of learning objects and is placement and assembly in Learning Management System, and (2) check list the availability of elements forming the face validity of e-learning.

Keyword : e-learning, learning object, quality evaluation

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-11]

The Needs for Development of Flash-Based Learning Media on Civics Education Study in the Junior High Schools

Tijan, Andi Suhardiyanto, Suprayogi, Yan Amal Abdilah Universitas Negeri Semarang

Abstract

Civic Education is designed as a way to develop citizen skills of 21st century. For this reason, Civic Education teachers are required to be creative and innovative in managing and developing their learning. One effort in the development of learning is done by developing flash-based learning media. This study aims to determine the needs of the Civic Education teachers at Junior High Schools in Semarang related to the development of Flash-based learning media. This study uses descriptive quantitative and qualitative methods that collect and analyze data using web-based applications. The results showed that Civic Education teachers desperately needed flash-based interactive learning media. The teacher's needs are related to these indicators: first, the teacher still has difficulty in determining Flash media that is easy to use, according to the development of students and supports the achievement of competencies, and encourage students to be involved in active learning; second, flash media designed contextually and in accordance with the needs of students, cheap, and easy to make; third, the

development of flash-based learning media that can build collaboration between students, be easily accessed individually and in groups, and can be used for learning in schools and independent assignments at home.

Keyword : flash-based interactive learning, media, civic education

Topic : Others relevant Fields

[GS.AB-14]

Addie Instructional Design Model for E-Learning Non Rice Staple Literacy With B2SA Pattern With Life Based Learning Approach

Nunung Nurjanah, Teti Setiawati, Titi Mutiara K. .Rina Rifqie Mariana Universitas Negeri Malang

Abstract

The development of information technology influences learning, changing the way students learn and how to teach teachers. Information technology can be utilized as learning media, with virtual model without having to internet face to face. A student-centered learning approach that emphasizes learning independence and responsibility, becomes an important part of designing online learning. However designing an online learning is not easy. Dietetic course converges students' needs and is based on life-based learning to gain optimal health. The use of non-rice staple food consumption becomes important lesson lesson is which entails diversity of staple foods as rice substitutes. The learning design of online dietetic course is using ADDIE design model

Keyword : ADDIE design model, e learning Dietetics, life-based learning approach

Topic : IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-15] Career Model in the Field of ICT in Informatics Engineering Students

Kasman Rukun, B.Herawan Hayadi Universitas Negeri Padang, Universitas Pasir Pengaraian

Abstract

This research in the field of Information and Communication Technologies (ICT) careers in Informatics Engineering students based on expert systems to answer the challenges in the era of industrial revolution 4.0, where this research was conducted in the final semester students to find out career profiles in the field of what is potential for students to become a reference for working in the field of Information Technology, especially Informatics Engineering and expertise in accordance with the achievement and mastery of the material field with a proven 80 to 100 according to the achievement of the Semester Learning Plan (SLP) in each course, then if the student reaches the value of 80 to 100 then it is declared successful and becomes a determinant of career profile by managing the forward chaining method on the expert system so that students can find out their profile for potential work

Keyword: Career, ICT, expert systems, Semester Learning PlansTopic: Informatics and ICT at Higher Education (IHE)

[GS.AB-16]

Communication Skill and mathematics conceptual understanding of Senior High School Students

Usman Mulbar, Said Fachry Assagaf, Arfah Universitas Negeri Makassar

Abstract

The aims of this research are to describe about mathematical communication ability either written or oral form and find the relation between mathematical communication and mathematics conceptual understanding of senior high school students. Mathematical communication is process of social interaction involve process of exchange and reflection of information, ideas, and understanding the mathematics from someone to others. Conceptual understanding of mathematics involve understanding of the basic concepts behind algorithms in mathematics. This study used mixed method, quantitative and qualitative method. Mathematical communication ability is measured by written test, and non-test with specific indicators to measure mathematical communication. In other hand, mathematics conceptual understanding is measured by written test. The number of subject in qualitative phase is four subjects categorized based on their mathematical communication ability, namely very low (VL), low (L), high (H), and very high (VH). The result of this research revealed the students in doing mathematical communication of every ability level. In addition, we find that there is no relation between mathematical communication and mathematics conceptual understanding of students.

Keyword : mathematical communication, mathematics conceptual understanding

Topic : Mathematics Education

[GS.AB-17]

The Development of Model Strategy of Theory, Application and Reflection as an Innovation on Models Strategy of Learning at Higher Education

Dr. Aisiah, S.Pd, M.Pd Universitas Negeri Padang

Abstract

This research illustrates the model development Strategy of Theory, Application and Reflection as an alternative learning models strategy at higher education. This research conducted because the lack of innovation in learning strategies and also response student complaints about monotonous learning activities. The purpose of the study is to produce a varied and innovative learning strategy model. This research focuses on the development of procedural models (syntax) of the learning strategy developed by using applied research and development methods. The syntax of the learning strategy model carried out through library research. The practicality testing of the learning strategy model conducted at history major of Universitas Negeri Padang. The participants involved students who were taken courses the Historical Learning Methods and Models 2018 academic year. The data gathered form questionnaire and analyzed by mean score. The results are; the syntax of the learning strategy model includes five steps; 1) Exploration, 2) Presentation. 3) Simulation, 4) Reflection, and 5) Report. The learning strategy model is very practical (mean score 3.3) and very effective (mean score 3.2). The advantages of the learning models strategy are able to improve students' critical thinking skills and creativity. The weakness is takes long time. It needs further research.

Keyword : learning strategy, theory, application, reflection, model

Topic : Others relevant Fields

[GS.AB-18] Estimating and Monitoring the Land Surface Temperature (LST) Using Landsat OLI 8 TIRS in Makassar City

Ichsan Ali and Muh Rais Abidin Universitas Negeri Makassar

Abstract

Land Surface Temperature (LST) is Average temperature of an element of the exact surface of the Earth calculated from measured radiance which depends on the albedo, the vegetation cover and the soil moisture. LST can affect human discomfort, health problem, higher energy bill and further reduce the habitability of urban and sub urban area as Makassar city has been recently undergoing massive urban development. This study tries to monitor and estimate LST by using Landsat 8 TIRS and the data analyzed by vegetation index, urban index and temperature index in order to derive LST value. The result shows that the vegetation area declined around 3470 hectare in the last 4 years while the urban area increased approximately 1509 hectare. In addition, 2013, Makassar city experienced the highest temperature (26 - 290C) in 2017 shown that the maximum heat reached 290C. However, the moderate and high temperature (26 - 290C) in 2017 expand and cover wider area than in 2013 as the area of vegetation declined and built up area increased significantly.

Keyword : Vegetation index, Urban Index, Land Surface Temperature (LST).

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-19] Blended Learning in Vocational Education in the Era of the Industrial Revolution 4.0

Muslim, Nur Basuki

University Negeri Medan

Abstract

In the era of Industrial Revolution 4.0, blended Learning is now very important for higher education, focusing on pedagogical techniques in blended learning to utilize this teaching model. This type of research is qualitative research using interview techniques with lecturers and students who apply mixed models in vocational organizations. This qualitative study aims to determine whether blended learning is effective in CNC machining learning based on the ideas of lecturers who apply mixed models in vocational. The results of this study indicate that blended learning can play an important role in learning sessions at CNC machining subjects. The application of blended learning turned out to not only solve the problem of higher education, especially the Department of Education, Mechanical Engineering, Medan State University. Blended learning This can be used for all jobs based on student skills development. applying blended learning models in very specific fields such as vocational education shows that the blended learning model can help courses with well-designed material.

Keyword : Blended learning, vocational education, CNC machining, Industrial Revolution 4.0

Topic : Science Education

[GS.AB-20]

Teacher's attitude to using ICT for children with disabilities in Inclusive classrooms in Indonesia

Sujarwanto, Khofidotur Rofiah Universitas Negeri Surabaya

Abstract

An inclusive education approach is a new program and techniques which is needed for supporting children with disabilities (CwD) in Indonesia. Using ICT in inclusive classrooms has proved useful both n supporting the empowerment and accessing learning. There is evidence that the utilize of ICT within classrooms is significantly in influenced by teacher attitudes and beliefs. This paper examination the attitudes towards such an approach based on semi-structured interviews with 40 teachers in 16 schools in East Java and questionnaire responses from 100 teachers and educational professionals more widely located across Indonesia. The results suggest that teacher hold broadly positive attitudes to the using of ICT in their classrooms. These issues need to be considered if the development of an Indonesian inclusive approach is to proceed successfully.

Keyword : ICT in classrooms; teachers' attitudes; inclusive education

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-22] Analysis of Student Learning Results Using a Probing Prompting Learning Model

Philotheus Tuerah, Vivian Eleonora Regar Universitas Negeri Manado

Abstract

This research is an experimental research with 2 factors factorial design, conducted at Eben Haezar High School in Manado. The research subjects were Class XI MIA students consisting of two classes, where 33 students in class XI B received prompting probing treatment and 34 students in Class XI C received direct learning treatment. The purpose of this study was to describe the effectiveness of the prompting probing learning model and analyze the interactions between the prompting and direct learning probing models with numerical abilities on the mathematics learning outcomes. From all students who took part in learning activities with this model, the results were observed when presenting the results of their respective groups, of the 31 who attended the study there were 27 students or 83.87% able to answer questions well, 23 students or 74.19% could give reasons for the answers given and there are 20 students or 64.5% who have dared to give a response. Likewise for learning completeness, classical learning completeness has met the minimum completeness requirements of 80%. There is an interaction between the mathematics learning outcomes of conical slices of class XI MIA who are given probing treatment and direct learning in terms of numerical abilities.

Keyword : prompting probing, numerical ability, learning outcomes

Topic : Mathematics Education

[GS.AB-25]

Use of Rabit Tocer Toll Paper Tools to Improve The Results Of Learning Debit Materials in Basic School

Exsaris Januar, Alwen Bentri Universitas Negeri Padang

Abstract

In the context of learning mathematics in elementary schools, students do not understand the concept of debit. necessary props are needed to improve learning outcomes. this type of research is classroom action research. This research is based on the problem of whether ytpol rabit board props can improve learning outcomes in 44 middle grooves ?.While the purpose of this study is to improve learning outcomes. The conclusions of this study are that the tolls of rabit tocer can improve student learning outcomes. An increase in learning outcomes in the initial test is at the number 48 to 83 after the use of teaching aids.

Keyword : Rabit Tocer, Debit, Volume Convers

Topic : Mathematics Education

[GS.AB-27]

Development of Android-Based Integrated Science Teaching Materials with Critical Thinking Skills

Hilda Maulida, Parlindungan Sinaga, Hernani Indonesia University of Education

Abstract

The results of the preliminary study show that students have low critical thinking skills. Teaching materials have an important role in learning. Learning cannot be done without teaching materials. This study aims to (1) develop teaching materials in the form of android applications with the development model of the Teaching Material Writing Process Model (MPM2A), (2) find out the feasibility of teaching materials, (3) the effectiveness of teaching in improving students' critical thinking skills, (4) knowing the students' responses to the teaching materials developed. This study used the Quasi Experiment design using a pretest-posttest control group design in one of the state junior high schools in the city of Bandung. The results of the study are based on the size of the effectiveize that teaching is explained to be effective in improving critical thinking skills. Hypothesis testing shows that there is a significant difference in the ability of critical thinking skills in the experimental class, with each n-gain value of 0.58 and 0.67 which is greater than the control class, ie with each value of n- gain of 0.36 and 0.50.

Keyword	: Keywords: Teaching materials, Android, Integrated Science, Critical Thinking Skills
Topic	: Science Education

[GS.AB-29]

Application of Artificial Artificial Intelligence Application in Computer Troubleshooting: Media Learning Aids for Computer and Network Engineering Students

> Andri Eka Putra, Kasman Rukun dan Dedy Irfan Universitas Negeri Padang

Abstract

Vocational High School is education for work. Computer and Network Engineering is one of the expertise packages at the Vocational Middle School from the Computer and Informatics Engineering expertise program with Information and Communication Technology expertise. One of the subjects of this expertise package is Basic Computers and Networks. In this subject there is a basic competency in the knowledge of analyzing problems in computer hardware and installation of application software. The realm of students' skills is able to improve and manage improvements. Students in this material have not been able to achieve completeness and expected technical abilities. This learning aid media is made with the Codeigniter Framework and Bootstrap uses steps from the 4-D model. The website produced from this learning aid media already has an artificial intelligent algorithm that is backward chaining. This application has been successfully developed validly based on black box, white box and gray box testing, practically based on the results of quality analysis with FURPS (Functionality, Usability, Reliability, Performance, and Supportability), and effective based on the test results of the gain score.

Keyword : applications, artificial intelligence, computer troubleshooting, media learning aids, computer engineering and networking

Topic

: IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-32]

LMS Edmodo To Improve Student Understanding Of The Arithmetic Concept In Microsoft Excel

Amril

Universitas Negeri Padang

Abstract

This study aims to design and implement LMS Edmodo on Microsoft Excel applications specifically for arithmetic functions in the first semester students of AMIK Kosgoro Solok. The research and development phase refers to the ADDIE development model. The research instrument consisted of 3 instruments: (1) validity instruments (2) practicality instruments, and (3) instruments of effectiveness in the form of student learning outcomes. the results of data analysis showed that the validity of LMS Edmodo was 4.75 (very valid). The activity of LMS Edmodo from the lecturer response was 4.50 (high) and the student response was 4.60 (high). The effectiveness of LMS Edmodo based on normalized gain analysis is 0.73 (very high category). based on the results of the study it can be concluded that the developed LMS Edmodo is valid, practical and improves student learning outcomes

Keyword: Edmodo LMS, Number Processing, Arithmetic FunctionTopic: Informatics and ICT at Higher Education (IHE)

[GS.AB-33]

Implementation of the Revised Bloom Taxonomy in Assessment of Physics Learning

Cosmas Poluakan, Anetha F. Tilaar Manado State University, Indonesia

Abstract

Studies have been conducted relating to the use of representation diagrams in physics learning. This study was conducted as a didactic strategy in solving problems related to student difficulties in learning physics. The purpose of the research was to study the perceptions of students about Lower Order Thinking Skills (LOTS) and Higher Order Thinking Skills (HOTS) from aspects of one-dimensional cognitive domains transformed into the analysis in two dimensions of Revised Bloom's Taxonomy. The study was conducted on 22 pre-service teacher students who had studied Evaluation of Physics Learning courses. Tests designed only require answers in the form of drawings or diagrams related to physics topics regarding free body diagrams. The research implications are the of determination criteria LOTS and HOTS tend to be inaccurate if they are only based on the one-dimensional category of cognitive domain processes. In this case, it is necessary to develop the determination criteria of LOTS and HOTS based on two revised dimensions of Revised Bloom's Taxonomy, namely the cognitive dimension and the knowledge dimension.

Keyword : Revised Bloom's Taxonomy, Assessment, Physics Learning

Topic : Physics Education

[GS.AB-34]

Strengthening LPTK (Institute of Teachers' Education) through Internationally-Standardized Educational Journal Management

Parmin

Universitas Negeri Semarang

Abstract

The number of nationally accredited journals in Sinta as per February 2019 is 2,275 journals and 47 of them have been indexed by Scopus. The number of nationally accredited educational journals is 370; Sinta 1 (4 journals), Sinta 2 (42 journals), Sinta 3 (103 journals), Sinta 4 (129 journals), Sinta 5 (72 journals) and Sinta 6 (20 journals). Meanwhile, there are only four educational journals that have been indexed by Scopus, and Jurnal Pendidikan IPA Indonesia is only one that has been indexed by Scopus as well as recognized at Scimago (Q3 level). Generally, Indonesian journals of education are managed by the Institute of Teachers' Education or LPTK (Lembaga Pendidikan Tenaga Keguruan). An analysis performed on Sinta 2 educational journals revealed that the main problem laid on manuscripts' substantial aspects. Therefore, the LPTK is obliged to increase the number of internationally reputed journals. The analysis concluded that in achieving reputable indexation, five aspects should be highlighted: (1) novelties; (2) citations to articles of internationally reputed journals; (3) authors of international collaboration; (4) strict peer-review processes; and (4) professional website management. These five aspects require a strong commitment from leaders in each LPTK.

Keyword : educational journal, international, management

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-37]

Decision Support System Using Data Warehouse for Drop Out Rate in Indonesia Elementary School

Abba Suganda Girsang, Sani Muhamad Isa, Dhani Prayudi, Arief Widhi Pratama, Sebastianus Bara Primananda

Bina Nusantara University

Abstract

Education is a foundation towards better civilization. In Indonesia 39.213 elementary school students is dropped out from school due various factors, such as poverty and forced labour. As a policy maker, government officials need quick, concise and precise data for in order to take decision and make better education policies. This paper proposes data warehouse for supporting government officials in Indonesia to get better information about elementary school student drop out of each province for taking decision. The data warehouse development consists nine step methodology designed by Kimball and Ross. Furthermore, the data is able to be presented in dashboard using Qlik Sense Cloud or produce detail report using Pentaho Report Designer.

Keyword : Data Warehouse, Education, Decision Support System, Drop Out Rate

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-38]

Business Intelligence for Education Management System

Ahmad Syaikhoni, Aris Ariyadi, David Alfa Sunarna, Abba Suganda Girsang, and Sani Muhamad Isa, Melva Hermayanty Saragih Bina Nusantara University

Abstract

Education management system aims at bringing a total quality of education by ensuring an efficient way of dayto-day school operations. All of these operations are done through applications and can be accessed through web portal. The main function of school operations is scoring and reporting. Each of them is unique in every school and cannot be generalized although using the same curriculum. School personnel such as headmaster, teacher, and staff also not only assigned to one school location and can have multiple roles in each school location. With that complexity, a single query is not fast enough to generate a scoring report. To help teachers and school staff in each client, this paper proposed the system business intelligence which can analyse the progress of student learning. This paper used nine steps to design a data warehouse as a tool for business intelligence. The On-line Analytical Processing (OLAP) is used to analyse the data and visualize them using dashboard. By using data warehouse, each school can answer business question relation to scoring and visualize them in a dashboard to make a decision.

Keyword : business intelligence, progress student, analyse, management school

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-39]

Developing Social Competence and Teacher's Personality Model Based on Myers Briggs Type Indicator (MBTI)

Nuphanudin, Supadi, Siti Zulaikha, Winda Dewi, Evitha Soraya Universitas Negeri Jakarta

Abstract

The aim of the study was to develop a Myers Briggs Type Indicator (MBTI) Development Model of Social Competence and Teacher's Personality. It used the Research and Development method. In the first stage, the research presents a needs analysis and a model design and in the second stage, the research tests the model that has been designed, until the final results are obtained from the MBTI-based personality competency and personality development model. From the results of data analysis it can be concluded that the majority of state elementary school teachers in DKI Jakarta have extropert personality types. When viewed from the personality type, it can be said that the personal and social competencies of teachers who have extroverted traits tend to be high, while teachers who have introverted traits tend to have low personal and social competencies. Teachers with intuitive and sensing trait tend to have high personal and social competencies. Teachers with personality traits feeling and thinking; and judging and perceiving which also tend to have high personal and social competencies. The design of the MBTI-based teacher's social competence and personality improvement model

in the core research consisted of a series of trainings, including: personal grooming, multicultural learning, interpersonal

Keyword : Teacher Competence, National Qualification Standard, individual differences

Topic : Science Education

[GS.AB-41]

Pre-Service Science Teachers' Skills in Applying Guided Inquiry, Modified Inquiry, and Open inquiry in Micro-teaching Course

Parmin, Arief Muttaqiin Universitas Negeri Semarang, Universitas Negeri Padang

Abstract

The study aimed to measure the skills of pre-service science teachers in applying three inquiry models in a microteaching course. The study was conducted on 56 pre-service science teachers who joined the microteaching course. A comparative study method was adopted by comparing the research target skills in applying three different inquiry learning models. The results revealed that the pre-service science teachers scored 84 for the guided inquiry or categorized as 'very good', 79 for the modified inquiry or in a 'good' category, and 75 for the open inquiry or belonged to the 'good' category. A correlation coefficient analysis showed that the r count was 0.620 while the r table with a significant level of 5% for N = 56 and df = N-2 = 56 - 2 = 54 was 0.354. Thus, the r count > r table or 0.620 > 0.354 and Ha was accepted. The results indicated that there was a significant correlation between pre-service science teachers' skills in applying three different inquiry models. Therefore, it concluded that the pre-service science teachers achieved the highest score when applying the guided inquiry yet remained to get good scores when implementing the modified and open inquiry model.

Keyword : pre-service teachers, science, inquiry, microteaching

Topic : Science Education

[GS.AB-42]

The Effect of Supervision, Self-Efficacy, Engagement Toward Work Effectiveness of Public Junior High School Teachers in Jakarta

Anggiat Pardosi, Suryadi, Mochammad Wahyudi, Nuphanudin Universitas Negeri Jakarta

Abstract

The objective of this research was to study the effects of supervision, self-efficacy, and engagement toward work effectiveness of public junior high school teachers in Jakarta. It was quantitative research with survey method. The research samples selected as much as 230 regrouping public junior high school teachers using simple random sampling technique. Based on the research, it was founded that: (1) supervision implies a direct positive effect on effectiveness, (2) self-efficacy implies direct positive effect on effectiveness, (3) engagement implies a direct positive effect on self-efficacy (5) supervision implies a direct positive effect on engagement.

- Keyword : collaborative learning, tranformational leadership, organizational behavior
- **Topic** : Science Education

[GS.AB-46] Student Psychological Responses to English for Biology Course in Biology Department of Universitas Negeri Padang

Lufri, Relsas Yogica Universitas Negeri Padang

Abstract

Education at the university expects graduates who are able to integrate with social life, including with international life. Students who graduate become a benchmark for the quality of the place they study. So, the quality of a university depends on the quality of the individual graduates. The quality of graduates is marked by their achievement index at the end of each semester. Students who have high intelligence have the possibility of getting high scores, and vice versa. The "English for Biology" course is an effort to harmonize the world's needs

of qualified graduates with the role of the university's function as a place to prepare it. In each lecture will appear a variety of student responses psychologically to the lectures that are happening. These responses include perceptions, interests and attitudes. The response has an effect on student competence after lecturing. We have observed these psychological responses and analyzed them on Biology Department students at Universitas Negeri Padang.

Keyword	: Psychological Responses, English for Biology Course
Торіс	: Biology Education

[GS.AB-47]

Strengthening Lecturer Resources Model; the Efforts to Improve the Reputation of Universities in the Disruptive Era

Kardoyo, Ida Zulaeha, Ahmad Nurkhin Universitas Negeri Semarang

Abstract

The challenges of lecturers in the disruptive era are very high. Lecturers are faced with the development of information technology and ethical actions. This study aims to develop a model of strengthening lecturer resources that should be carried out by UNNES. Respondents in this study were lecturers to reveal three variables, namely education, training, and development; performance assessment; and management of lecturer careers. The method of data collection is a questionnaire. The data analysis method used is descriptive analysis and focus group discussion (FGD). The model of strengthening lecturer resources in the disruptive era has been successfully developed. The characteristics of lecturers in the disruptive era are (1) religious and ethical behavior; (2) quality doctoral studies in the country / abroad; (3) productive writing scientific works (articles and books); and (4) information technology literacy. The results show that the lecturers strongly agree that there is assistance for lecturers who are pursuing further doctoral studies both domestically and abroad. The lecturer considers it important training that is able to increase innovation in information technology-based learning and the ability to produce quality research proposals. Lecturers also strongly agree on ethical behavior in accordance with existing regulations.

Keyword : disruptive era, lecturer, human resources st	trengthening
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Topic : Others relevant Fields

[GS.AB-48]

Contribution of Early Ability and Welding Practicum Facilities on the Results of Following Welding Practicum Learning Students in Education Engineering Mechanical Engineering

Solichin, Ayu Nur Fitria and Widiyanti Universitas Negeri Malang

Abstract

This study uses a quantitative approach with correlational research. The variables in this study are initial ability (X1) and welding facilities (X2) as independent variables, while practical learning results (Y) are dependent variables. The data analysis used in this study is descriptive analysis and regression test. The results of this study revealed that there were differences in the results of the initial capability between offering A2 and offering A3 with a low initial ability average. There is a correlation between practicum welding facilities and practical learning outcomes, this is proved by the value of F count = 90, 093 greater than the value of F table = 4,171 and a significant value of 0,000 l smaller than the significance of 0,05. There is a significant relationship between the independent variables in the form of initial ability and welding practice facilities on the dependent variable in the form of learning outcomes of advanced welding practicum. This is evidenced by the results of multiple linear regression analysis model summary b for offering A2 shows the value of R Square of 0.751. Results of regression analysis of summary models on offering A3 shows R Square of 0.809.

Keyword : Initial ability, welding practicum facilities, practical learning outcomes.

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-50] Marketing Strategy of Educational Technology Digital Learning Product in the Marketplace

Yuli Utanto, Maskur Alfaqih, Suripto, Ghanis Putra Widhanarto Universitas Negeri Semarang

Abstract

Learning products developed by students majoring in Curriculum and Educational Technology have not been utilized for entrepreneurial capital. They can get grades from the lecturers and also earn a profit. This study aims to analyze the opportunities for entrepreneurship in digital learning products on the marketplace, as well as the utilization of digital learning products for entrepreneurship. The method used is qualitative research. The data analysis technique uses interactive models and data validity techniques using data triangulation. Learning products have the opportunity to be marketed in the marketplace. The use of digital learning products can be marketed in marketplace by registering and uploading digital learning products. Digital learning products are used to be distributed to educators to be used in learning activities. Students are able to utilize digital learning products to be disseminated (distribution) in the field of Educational Technology, especially in the dissemination of learning media.

Keyword : Educational technology, learning product, digital learning, marketplace

: Current Issues in Educational Technology (CIE)

Topic

[GS.AB-54]

Implementing Flipped Learning in Microeconomics Course

Yunia Wardi, Tri Kurniawati Universitas Negeri Padang

Abstract

E-Learning is one of the breakthroughs in education that utilizes information technology. Various online learning models began to be developed. For example blended learning, distance learning and flipped learning. Online learning basically is trying to innovate and change the paradigm in learning. One of the online learning models which is currently quite a lot of studies in educational research is flipped learning. Flipped learning is learning that combines classroom meetings with online learning. In flipped learning things that are usually done in the classroom such as explaining the material, giving assignments, exercises and homework are transferred to online learning. In the classroom, learning is really more student centered because the students will have more time to complete case studies, conduct problem-based learning, practice and discuss. This research was conducted with a two-year development research design. The results of the first year research are the learning design and lesson plan for the implementation of flipped learning in introduction to microeconomics course.

Keyword: E-Learning, Flipped learning, Microeconomics CourseTopic: Current Issues in Educational Technology (CIE)

[GS.AB-55]

Soft Skill Evaluation Management in Learning Processes at Vocational School

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Abstract

Level of unemployed vocational high school graduates reach 9.27% from the productive ages. It is because of the learning evaluation is still centered on a hard skill teaching (skills evaluation), and ignores evaluation of soft skills (Creativity, Critical Thinking, Communication, and Collaboration = 4C). The government is trying to improve the quality of graduates. The aim of this study is to develop 4C evaluation management in vocational high school productive learning. The results are expected in helping the vocational high school revitalization program. The Research and Development (R & D) approach is applied to this study and project-based learning is used to test the effectiveness of the model on vocational students in Semarang. Test-shaped evaluations are used to measure the cognitive domain (knowledge) while to measure the affective domain (4C) and psychomotor (skills) are used non-tests to evaluate performance (performance test). The results of the trial model shows that it is quite effective to improve the mastery of the competence of 4C soft skills of vocational students.

Keyword : Management Model, Evaluation, 4C

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-56] Augmented Interactive Wall as a Technology-based Art Learning Media

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Universitas Negeri Semarang; Segi University - Malaysia

Abstract

Art plays an important role in stimulating the development of the individual right brain. Art learning can improve the intelligence of individual expression, increasing sensitivity and concentration, and fostering brilliant creativity. Formal education institutions in Indonesia have not provided an appropriate portion for art learning. This causes the development of visual art in Indonesia tends to be slow and hampered. This research will reveal the potential of the Augmented Interactive Wall as a medium for expressing ideas using digital technology. This is qualitative research using observation and interviews to obtain data. The result shows that collaboration between technology and art will produce innovations that will help individuals to explore and express their ideas better, and bring them into various forms of physical, social and cultural interactions.

Keyword : augmented interactive wall, STEAM, art learning, art education, technology

Topic : IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-57]

Catalytic Transformation of 1,8-Cineole from Cajeput Oil to p-Cymene and Its Anti-Inflammatory Activities

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Abstract

Transformation of 1.8-cineole from eucalyptus oil into p-cymene as anti-inflammatory has been investigated. The method of p-cymene formation is aromatization reaction of 1.8-cineole with acetic anhydride. The purpose of this research was to determine the activity and selectivity of Fe3+-beta zeolite and Ni2+-beta zeolite catalyst and p-cymene activity as anti-inflammatory by Rat hind paw edema method. The catalyst was prepared by modifying the exchange of Fe3+ and Ni2+ ions. 1.8-Cineole was reacted with acetic anhydride using H-beta zeolite, Fe3+-beta zeolite, Ni2+-beta zeolite and FeCl3 catalysts at 80 °C. The aromatization results were analyzed by GC and GC-MS. Furthermore, the best reaction product was tested as anti-inflammatory compared to 99% p-cymene. The reaction product of Ni2+-zeolite beta catalyzed contained highest product of p-cymene 11.34% and for catalyst Ni2+-beta zeolite catalyst is relatively most selective than using Fe3+-beta zeolite and H-beta zeolite catalyst. Anti-inflammatory test the udema in rat's leg was measured by plethysmometer for four hours after the rats were induced by 1% carragenan subplantar. The obtained data was analyzed using the Shapiro-wilk test, continued by using the Levene's test and one way ANOVA with the 95% trust scale and continued with Scheffe test. The percent value of anti-inflammatory power (AIP) of positive control group, p-simena 99%, catalyzed reaction product Ni2+-beta zeolite were 72.85, 86.05 and 25.78%, respectively. The results indicate that the catalyzed reaction product Ni2+-beta zeolite has the highest % AIP.

Keyword : 1,8-cineole, p-cymene, catalytic transformation, anti-inflammatory activities

Topic : Others relevant Fields

[GS.AB-61] Algorithm K-Means for Generating Sets of Items in Educational Evaluation

Lala Septem Riza, Rendi Adistya Rosdiyana, Asep Wahyudin Universitas Pendidikan Indonesia

Abstract

In a national-scale educational evaluation system, such as the National Examination, the need for several sets of questions that have the same level of difficulty is very required to avoid cheating by students. Therefore, this research aims to make a set of questions with the same level of difficulty automatically using a machine learning approach, namely K-Means. To achieve this goal, several procedures need to be implemented, that are building training data by determining the value of each question based on Bloom's Taxonomy, item characters/types, and other parameters. Then, with utilizing K-Means, several cluster centers are obtained to represent the uniformity of the questions in the cluster members. By using several heuristics criteria defined previously, several sets or

packages of questions that have the same characteristics and difficulty levels are obtained. From the experiments conducted, the validation and analysis of results are presented. By using this system, the contents of the questions in the generated set do not need to be the same, the package of questions can be generated automatically quickly, and the level of the difficulties can be measured and guaranteed.

Keyword : Machine Learning; Educational Evaluation, Bloom's Taxonomy

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-62]

Building Performance Simulation in Design Process: A Learning Experience of Indonesian Architectural Education

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Abstract

The rapid development of digital technology recently makes the design process faster, easier and integrated. Digital studio often helps students to make more alternative ideas. Conversely, it is also interesting that only a few students are likely to use building performance simulation (BPS) in their design process. The use of BPS in India, Australia, and the US are not parallel with the design studio. Nevertheless, the sophisticated and useful digital calculation, there is a gap in architectural education while the students merely simplified the design process as a face-value only. Those phenomena drag the idea to seek the condition in Indonesian architectural education. This paper aims to look into the use of building performance simulation (BPS) as the tool to develop the design process on an architectural studio. Furthermore, this paper will provide an overview of student self-assessment of their design process compared with their score of the design studio. The questionnaire distributes via online for architectural students in Indonesia. There are 97 respondents from 19 universities. The majority of respondents are from UPI 29% and 14% from ITB. In early sampling in UPI, it was found that students use BPS because of the course mandatory, not for the design approach.

Keyword : Building Performance Simulation (BPS), architectural education, architecture design process.

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-63] Microclimate Effect Toward Indoor and Outdoor Temperature Of Villa Isola UPI

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Abstract

Villa Isola is one of the heritage buildings with art deco relic of the Dutch East Indies, now became the rectorate of Universitas Pendidikan Indonesia (UPI). The building was built in October 1932 – March 1933 and changes its function into office in 1954. The changes in the spatial structure from 4 floors into five floors to meet the needs of space, it also changed the interior with a segmented room. Measurement of the globe temperature (Tg); air temperature (Ta) and the surface temperature (Ts) were performed at a point indoor and outdoor with a 15 minutes interval. The phenomenon of heat temperature difference (Δ Ts) at 0.50°C indoor, meanwhile the outdoor Δ Ts = 2.2°C. This paper then will give a description of Villa Isola, its temperature alteration both indoor and outdoor.

Keyword: microclimate, Isola Bumi Siliwangi, indoor and outdoor temperatureTopic: Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-64] Chronolux Plugin Sketch Up to Optimize The Placement of Vegetation

Beta Paramita, Pipin Alfian Universitas Pendidikan Indonesia

Abstract

This study describes the software functions of Chronolux Sketch Up plug in. This software aims to simulate insolation at some point. Insolation areas and sky view factor (SVF) which is integrated as where the initial phase of a design process at an analysis site. Chronolux is proven as the simple tool to help a designer to know

the grade of insolation, which then decided the vegetation spot based on the level insolation. Based on this experiment, it is known that north part area is an area with maximum insolation within 10 hours, and west part area is an area with the minimum insolation within 7 hours. From the SVF calculation, it is found that the north part with 77.28% later can reduce the SVF until 42.69% by optimize the placement and determine the characteristic of vegetation. After the placement of vegetation, the solar insolation then is able to reduce from the average 6h5m into 4h35m. The vegetation then is proven as an important aspect to reduce the insolation

Keyword : Chronolux, Sky view factor, vegetation optimization

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-66]

Antibacterial Test of a-pinene compounds from Turpentine oil in Hand Sanitizer Gel

Nanik Wijayati; Anisa Widiyastuti and Sri Mursiti Universitas Negeri Semarang

Abstract

Research on the antibacterial test of the α -pinene compound from turpentine oil in hand sanitizer gel has been carried out. The purpose of this study was to determine the antibacterial activity of turpentine oil gel and α -pinene gel against S. aureus and E. coli. The method used for α -pinene isolation is done by fractionation distillation with pressure reduction. Analysis of α -pinene compounds from turpentine oil using FT-IR and GC-MS. The results of GC-MS analysis show that α -pinene is a terpenoid group compound. Antibacterial activity testing uses the paper disc diffusion method. Antibacterial activity test of turpentine oil and α -pinene showed inhibition of S. aureus and E. coli bacteria. Turpentine oil has the highest antibacterial activity with a inhibition zone of 13.8 mm against S. aureus and 8.83 mm against E. coli bacteria, whereas α -pinene has the highest antibacterial activity with a 2.2 mm inhibition zone against S. aureus and 2.34 mm against E. coli bacteria. Based on the results of the antibacterial gel test showed that the turpentine oil gel gave a better antibacterial effect than the α -pinene gel, so that it can be applied in the form of hand sanitizer gel.

Keyword : antibacterial; α-pinene; turpentine oil; hand sanitizer

Topic : Chemistry Education

[GS.AB-67]

Effectivity of Online Learning Teaching Materials Model on Innovation Course of Vocational and Technology Education

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Abstract

In Indonesia, development of education was not faster than technology development (era of revolution industry 4.0), so that combination between education and technology were needed so that both of them could be balance. So that, it needed development of teaching materials on innovation course at Technical Vocational Education and Training (TVET) used Problem Based Learning by online. This study was carried out in TVET Magister Program at Universitas Negeri Padang. The type of study was Research and Development (R&D) and model of study was 4-D model (define, design, develop, disseminate). The instrument was validated by 3 of experts judgment, Aiken's validity result was 0,929 and ICC reliability was 0,811. Effectivity result was obtained of gain score, it was 0,774 that was showed from increasing of student outcomes (pretest-posttest). This study produced teaching materials that were effective and appropriate for learning in the revolution industry 4.0 era. **Keyword** : Revolution Industry 4.0, Problem Based Learning, Technical Vocational Education and

: Revolution Industry 4.0, Problem Based Learning, Technical Vocational Education and Training, Online Teaching Materials

Topic

: IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-68] Learning Tools For Motorcycle Electricity Maintenance Subjects Use Problem-Based Learning

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Abstract

The low learning outcomes, teaching methods are not in accordance with the plan, and the lack of adequate learning tools is the core problem of this study. This study addresses these problems by producing problembased learning tools (PBL) on subjects that are valid, practical and effective in Motorbike Maintenance in Vocational Schools. Research and Development (R & D) this study consisted of four stages; define, develop, design and be pessimistic. The type of primary data is taken from experts, teachers and students. Data were analyzed using descriptive data analysis techniques by describing the validity and effectiveness of this learning device. The results of this study are: (1) Creation of PBL-based learning learning devices on Motorbike Electrical Maintenance subjects, (2) Validity of PBL-based Learning Devices declared valid (value 87,70%). While the learning device is declared effective in improving student learning outcomes. Based on the findings of this study it was concluded that PBL-based learning devices are valid and effective

Keyword : Learning Tools, Problem Based Learning, Validity, Effectiveness

Topic : IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-70]

Investigating the Effect of Learning Multimedia and Thinking Style Preference on Learning Achievement on Anatomy at Universitas Kristen Indonesia

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Abstract

This study is aimed to investigate the effect of learning multimedia and thinking style preference on learning achievement of anatomy. It was done at Medical Faculty of Universitas Kristen Indonesia. It was quantitative research with the quasi-experimental design. The population were the students batch 2017 and 2018, and the sample was chosen randomly. Test (consisted of 37 test items) and nontest (a set of the questionnaire consisted of 15 items) were used as the instruments in this study. The data which was obtained through the instruments of the study were analyzed using descriptive statistics and inferential analysis through anava test 2x2. The results were; a) the student's learning achievement average when they were taught using multimedia (video) was 27.37, while student learning achievement average when they were taught using multimedia (powerpoint) was 23.6, means that H0 was rejected and Ha was accepted; b) the student learning achievement average with abstract thinking style preference was 30.89 and student learning achievement average with concrete thinking style preference was 21.01, means that H0 was rejected and Ha was accepted. As a conclusion that there is no interaction between learning multimedia and thinking style and the effect on students' learning achievement of Anatomy.

Keyword : learning multimedia, thinking style preference, learning achievement

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-71]

The role of industry partners to improving student competency in vocational high school

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Abstract

The partner industry has an important role in increasing the competence of vocational students. So that vocational students have the competencies needed by the partner industry, the partner industry must play a role in increasing student competence. This study aims to determine the relationship of the role of partner industries in improving milling machine competencies, to find out the differences in student competencies after engagement with industry. This study is an ex-post facto study and the population from 34 students of class XI in SMK N 1 Semarang. Data collection techniques in the form of observations, in-depth interviews, and questionnaires. Data analysis uses descriptive statistics. The results of the study show that there was a positive and significant relationship between the role of industry in improving student competence. Based on data analysis using IBM SPSS Statistics 20, the results of coefficient number correlation between the role of industry and increasing competency are classified as high with a value of 0.690. There are differences in student competencies before and after partnering with industry average to 8.75%. Vocational High Schools should always involve the industry in improving student competencies to be relevant to industry needs.

Keyword : The role of industry partners, competence, milling machine

Topic : Others relevant Fields

[GS.AB-72]

Science Environment Technology and Society Approach Learning to Improve Natural Disaster Mitigation Literacy

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Abstract

This research is motivated by the location of Indonesia in disaster areas. But the readiness of citizens to deal with disasters is still low. One effort to mitigate through education. This study aims to (1) develop natural disaster learning devices with the vision of the Science Environment Technique Society (SETS) which is integrated in science subjects, (2) implement disaster prepared teaching materials, (3) improve teacher understanding and skills, students about concepts, principle, the practice of saving oneself in the event of a natural disaster. The research was conducted in collaboration with teachers in primary and secondary education. A theoretical exploration and expert evaluation were carried out on the theme features and sub-themes of the disaster learning model integrated in the SETS vision science subject. Data analysis techniques with (1) descriptive percentages, (2) normalized gain test, and t test. The results of the study were in the form of five features of learning models such as: (1) Syllabus, (2) lesson plans, (3) learning methods, (4) teaching materials, and (5) techniques and types of assessment. The results of desimination show that the learning devices developed are worthy of being given to students, and can improve students' understanding of mitigation wihich includes recognizing

Keyword: mitigation; natural disaster; SETSTopic: Science Education

[GS.AB-73]

Is the use of reference managers driven by necessity or policy pressure?

Ahmad Nurkhin, Muhsin, Ade Rustiana, Hengky Pramusinto, Rediana Setiyani Universitas Negeri Semarang

Abstract

The use of a reference manager (RefWorks, Mendeley, EndNote, Zotero) has become very important in the writing of scientific papers for students and lecturers. The Faculty of Economics of Universitas Negeri Semarang (FE UNNES) has called on students to use a reference manager when composing a thesis. This study aims to analyze factors that influence the utilization of reference managers by FE UNNES students. The theories used are the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behavior (TPB). The research population was students working on their theses at FE UNNES. The data collection method used is a questionnaire distributed online through the Google platform. The data analysis method used is path analysis. The results show that performance expectancy and social influence have positive and significant effects on a student's intention to use a reference manager. Effort expectancy, performance expectancy, and social influence have a significant effect on the use of reference managers. Other results show that behavioral intention, lecturer guidance, and policy pressure do not significantly influence the use of reference managers. The results demonstrate that the use of reference managers by students is more influenced by perceptions of their usefulness.

Keyword : actual use, behavioral intention, necessity, policy pressure, UTAUT

Topic : Informatics and ICT at Higher Education (IHE)

[GS.AB-75]

Increasing Quality Test Ability of Vocational School Students of Agribusiness of Processing Agricultural Products through Virtual Laboratory Development as a Solution of Limitation the Facilities

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Abstract

One of the competencies that must be possessed by Vocational School students of Agribusiness of Processing Agricultural Products is having the ability to carry out quality tests. Quality testing cannot be separated from the competency of processing agricultural products because agricultural materials and agricultural-based products contain components of nutrients such as minerals, carbohydrates, fats, proteins, vitamins and other components. In addition, food and agricultural products may also contain dangerous components such as mercury. Quality testing has many important roles for the food industry. However, Vocational School of Agribusiness of Processing Agricultural Products is not equipped with facilities to conduct proper quality tests. Based on several studies that have been conducted, the virtual laboratory that was developed can provide an overview of quality test procedures that have not been able to be carried out in Vocational School of Agribusiness of Processing Agricultural Products. Virtual laboratories were developed by following the R & D method and validated by 3 expert validators, namely media, subject, and language experts. Based on the results of validation and large-scale trials, it was found that the virtual laboratory developed was very feasible to be used in the learning process.

Keyword: virtual laboratory, vocational, quality test, agribusinessTopic: Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-77] Effect of Porosity on Soil Permeability in the Flood Area of Padang City

M Giatman, S Haq, T Andayono Universitas Negeri Padang

Abstract

Abstract – The diversity of soil types in Indonesia causes the design of development to have to adjust its planning carefully in accordance with the type of soil, so that it is necessary to test the mechanical properties such as porosity, pore number, and density. In the city of Padang, there are several areas often flooded (flood). This associative study was conducted to reveal the relationship of the influence of porosity and permeability of the soil which is often inundated in the city of Padang. This research was conducted in May-June 2018 in the Soil Mechanics Labor Department of Civil Engineering FT UNP with soil samples in the area of Kampung Jambak Lubuk Buaya, Padang City. The analysis technique used the Microsoft Excel application to present data into simpler information and analyze the relationship using the Pearson Product Moment formula. The results of the study obtained soil porosity values of 63.53% (large porosity). Soil permeability value is 0.0000633 cm/second or 0.23 cm/hour (very slow). The effect of porosity on soil permeability in the Kampung Jambak Lubuk Buaya Padang City is 3.37% with t-count smaller than t-table or 0.324 <3.182 or insignificant.

Keyword: porosity, permeability, correlation, and flood areaTopic: Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-79] Animation For Improving Learning Results of Braking System Expertise

Hendro Maxwell Sumual, Parsaoran Tamba, Moureen Moudy Kambey, Deivy Musa Ombuh Universitas Negeri Manado

Abstract

The purpose of this study was to determine the effect of the use of animation in improving learning results braking system expertise in the automotive department of SMK Negeri 1 Airmadidi. The design of this experimental study nonequivalent control group design. The number of respondents as many as 28 people. The learning results data collection instrument was a test. Data were analyzed with parametric statistics, the t-test with techniques independent sample t-tests was calculated using the Statistical Product and Service Solution. The result is a significant influence on the results of the use of animated learning material braking system

subjects in class X Automotive at SMK Negeri 1 Airmadidi, of student learning results that are taught by the media Microsoft office powerpoint.

Keyword : Animation Media, Learning Results, Braking System

Topic : Informatics and ICT at Higher Education (IHE)

[GS.AB-80]

Implementation of Problem Based Learning to Improve Critical Thinking Skills in Entrepreneurs Learning

Hasanah; Muh. Nasir Malik Universitas Negeri Makassar

Abstract

Critical thinking skills are one of the 21st century skills in the industrial era 4.0 that are integrated in the ability of knowledge, skills and attitudes and mastery of Information and Communication Technology (ICT). The purpose of this study was to see the effect of applying Problem Based Learning to improve critical thinking skills in Entrepreneurship learning. This research method is a quasi-experimental method that will compare the results of the experimental class treatment with the control class. The design used in this study is Nonequivalent Control Group Design. The sample of this study was students of the Electronics Engineering Education study program at the Faculty of Engineering, Makassar State University who participated in entrepreneurship Learning can significantly improve critical thinking skills, (2) the application of Problem Based Learning can improve student learning activities.

Keyword : 21st century skills, Critical thinking, Problem Based Learning, Entrepreneurship

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-82] Analysis Javelin Throw Technics at Student Athletes in Central Java

Rumini Universitas Negeri Semarang

Abstract

The purposes of this study are (1) to analysis motion technique on javelin thrower from Central Java and (2) analyze errors that are often done by javelin throwers. The study subjects were male student javelin throwers in Central Java with a sample of 4 athletes. The research data was taken at the student athletic championship in Central Java in 2018. Research method with qualitative descriptive, with the method of observing javelin throw techniques (grip, approach phase, 5-stride rhythm phase withdrawal and impulse stride, delevery phase (transition, power position) delevery phase final arm movement, foot placement, recovery phase). The results showed that thrower motion errors occurred when pulling the javelin backwards, especially the balance of the left hand position below the shoulder and the throwing power position technique still carrying the point of weight with the position in front. Conclude that the throwing technique error in student javelin thrower athletes in Central Java, especially in the phase of withdrawal of javelin in the phase and impulse stride including the high category. Suggestion, basic javelin throwing exercises for student athletes is done by drill methods with various variations of repetition of high intensity movements.

Keyword : analysis, technique, javelin throw, student athletes words: analysis motion, technique throwing the javelin

Topic : Physics Education

[GS.AB-84]

Managing Environmental Higher Education towards Green University's Long Road: Case of Universitas Negeri Semarang

Rudatin Windraswara, Tandiyo Rahayu Universitas Negeri Semarang

Abstract

Nowadays, higher education institutions have been incorporating sustainable development principles into their system (for instance education, research, campus operations, and community outreach). Responding to this,

UNNES declared itself as a Conservation University which has a concept that refers to the principles of conservation (protection, preservation, and sustainable use) both conservation of natural resources, environment, art and culture integrated into education, research, and community service (Regulation of Rector UNNES No 27, 2012). Although there have been some signs of progress in the implementation of sustainable development fields in UNNES, there are still numerous challenges that need to be overcome. During stakeholder's analysis using ANP (Analytical Network Process), it can be inferred that the main barriers to the construction of a green university system lie within internal institutional decision-making processes. This lead to the financial barriers that were identified in this study ranged from negative perceptions of green university in general, the perception that green buildings incur higher initial capital costs and a lack of incentives to reduce long-term energy and maintenance costs at both the faculty and facilities level.

Keyword : green university, environmental higher education, UNNES, sustainable development

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-86] School Mapping Using Geographic Information System

Ana A, M Syaom Barliana, Danny Meirawan, Indah Khoerunnisa, Saripudin S Universitas Pendidian Indonesia

Abstract

The development of school mapping research in various countries illustrates how to improve the quality of human resources by optimizing mapping research. This article aims to explore the development of school mapping, examine the types of school mapping tools used, and explore the data presented in school mapping. The method used is a systematic literature review. The results showed that several countries had conducted school mapping research are UK, Malta, Spain, Kenya, Ghana, India, China, Malaysia, Myanmar, Chile, Canada, Minnesota, Hawaii, New Zealand, and Australia. School mapping research focuses on three topics, consisting of evaluating school policies, mapping as an infrastructure database, and school information tools. The mapping method used for evaluating school policies is a qualitative method, while as a database using geographic information system. This article provides an overview of school mapping research as a solution to improve the quality of human resources, such as mapping vocational schools with industrial availability, and their suitability for regional potential.

Keyword: Keyword: mapping, school mapping, vocational school, geographic information systemTopic: IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-87] Cultivating Growth Culture for Higher Education Leaders

Fathur Rokhman Universitas Negeri Semarang

Abstract

Leaders should grow in their capacities and characters. Growth is not an option. It is an inevitable endeavor in this ever-changing time period called disruption era. Leaders who fail to update themselves will be left behind and their organizations will suffer. I believe that leaders shall continuously upgrade themselves in order to make themselves and their organizations relevant to the disruptions. With that principle in mind, I design a leadership upgrading model for university leaders called "Kepemimpinan Bertumbuh" or Growth Leadership. This model has been trialed and administered in different occasions. Results, feedbacks and inputs have been acquired from various users and stakeholders. This paper reports the development of this model and discusses the potential future improvement of this model. Latest results show that higher education leaders need a structured model of leadership upgrading in addition to their informal leadership upgrade based on their experiences and past performances.

Keyword : higher education leader, growth culture

[GS.AB-88]

Morphological Alteration of Nike Fish from Sea To Estuary Area of Gorontalo Bay, Indonesia

Femy M. Sahami, Rene Charles Kepel, Abdul Hafidz Olii, Silvester Benny Pratasik Gorontalo State University, Sam Ratulangi University

Abstract

Nike is a term for a minuscule fish that frequently appears in Gorontalo waters. This type of fish belongs to the amphidromous gobi group. This study aims to describe the morphological alterations of nike fish from the sea to the estuary area of Gorontalo waters. The small size of this fish (larval stage/postlarva) causes it tough to analyze morphometric and meristic aspects. Therefore, melanophore pattern approach and molecular analysis using the CO1 gene was used to identify these fish species. Sampling was carried out on 5 to 11 October 2018 in the Gorontalo Bay area towards the mouth of Bone Bolango river when this type of fish appeared. Genetic investigation results showed that from several groups of samples, there were found two groups of samples identified as Belobranchus segura species. Morphological development of nike species of Belobranchus segura in the sea and estuary are indicated by changes in the melanophores pattern that perform to be more numerous and spread to all parts of the body when entering the river mouth.

Keyword : Belobranchus segura, melanophore, molecular, Nike

Topic : Others relevant Fields

[GS.AB-89]

Skills for Presenting Statistical Information with Tables and Graphs of Postgraduate Students in South Sulawesi

Muhammad Arif Tiro, Ruliana, Zakiyah Mar'ah, and Adiatma Universitas Negeri Makassar

Abstract

This study describes and examines the skills of presenting statistical information with tables and graphs of postgraduate program students in South Sulawesi. A sample of 134 postgraduate students from Makssar State University, Hasanuddin University, and Cokroaminoto Palopo University. Four basic competencies in statistical literacy: (1) understanding concepts, (2) application ability, (3) ability to make tables and graphs, and (4) accuracy of interpretation of tables and graphs receive special attention. Presenting statistical information with tables and graphs is the fifth competency of statistical literacy. The results of data analysis of these four competencies are between 51% and 80%. From this description we identified weaknesses that must be sought for solutions, especially those that would improve statistical literacy learning, especially the skills of presenting statistical literacy, which means context-based statistics for students need to be well designed.

Keyword : statistical literacy, statistical information, descriptive statistics, inferential statistics

Topic : Mathematics Education

[GS.AB-90]

"Tumbutana" As a Oral Tradition of Hospitality and Character Education For the Arfak Tribes of West Papua

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Abstract

This research is a qualitative research with an ethnographic approach to find out how Tradition can be used in Character Education. This research was conducted in the Arfak Mountains region of West Papua which has a dance tradition "TumbuTana" as a hereditary cultural heritage. the "Tumbutana" tradition is often carried out by the Arfak tribe in every joint activity involving the wider community. This is one form of politeness and friendliness from the Arfak tribes. Research with a cultural approach is very interesting with the study of digging deeper into rules, values, narration of song lyrics and so on so that understanding the tribal tradition will be able to find the key to character education to build a society that is cultured and loves diversity. Indonesia, which is inhabited by many indigenous tribes, provides a variety of regional dances that are passed down from generation to generation. Every province in Indonesia has regional dances. Character education can also be developed through traditional values for Papuans.

Keyword : Tumbutana; Oral Tradition; Hospitality; Character Education

[GS.AB-91] Development of Education Game Media For XII Multimedia Class Students in Vocational School

Kristanto, Andi; Mustaji; Mariono, Andi; Sulistiowati; Afifah Universitas Negeri Surabaya

Abstract

According to the results of interviews with teachers it is known that students experience difficulties in understanding actionscript material. This is because this material has a high level of complexity, it is proven that only 30% of students are able to achieve the learning objectives. This study aims to produce educational game media in terms of the feasibility and effectiveness of the media. The development model used is ADDIE (analyze, design, development, implementation, evaluation). Methods of data collection using interview techniques, questionnaires, and tests. From this study the results are based on validation with material experts and media experts by getting a very good category, so that the media can be said to be suitable for use in learning. The results of the post-test value of the experimental class and the control class were analyzed using the t-test obtained by tcount = 4.584 > t table = 2.038 which is a significant difference, so it can be concluded that the media is effectively used in learning.

Keyword : development; educational game

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-92] Health Related Fitness Profile of College Students: Gender Based Analisys

Nur Indri Rahayu, Adang Suherman, Kuston Sultoni Universitas Pendidikan Indonesia

Abstract

Abstract. The purpose of this research is to examine the differences of health related fitness of college student based on gender. The researchers used comparation methode and Analyzed using independent sample t-test (significance at .05) to inference the result. Fitnessgram by Cooper Institute was use to collect the data of helath related fitness included BMI, body fat percentage, flexibility, strength (upper body & core body), and Vo2Max. Sample as much as 300 college students, both of female and male are Voluntary participated in this research. Results showed that there are significance differences between female and male in Body fat percentage, Strength (upper & core body), and Vo2max. Males are higher than females on four item of health related fitness above, however, there are no differences on BMI and flexibility of students based on gender.

Keyword : Health Related Fitness, College, student, gender

Topic : Others relevant Fields

[GS.AB-93]

Softskill Needs Analysis In Industry Electronics for Expertise Operation and Maintenance for Technical Levels

Mukhidin, Sri Prihatiningsih, Bachtiar Hasan UPI

Abstract

Indonesia entered Industry 4.0. that have integrated various systems. The Electronics Industry is part of Industry 4.0. The electronics industry is built on various expertise positions including: senior engineer, engineer, supervisor, senior technician, technician and operator. Operational and Technician competency expertise in the Electronics industry is very much needed. There are people who work in the electronics industry who come from vocational high school graduates. This study is to find out what soft skills are needed in the electronics industry at the level of O & M technicians. The industry studied is at 4.0 home industry. The method used is Qualitative research methods. Softskill's research results in the electronics industry, namely the need for resilience in the work required, communication skills needed to work, responsibility required in work, precision in working very needed, caring for others needed in work, perseverance in work is needed in work, maintaining ethics and morals are needed in work, maintaining cleanliness is needed in work while being able to work safely is needed in work. Implications for vocational secondary schools should be implemented in the curriculum with soft skills in the industry so that there is continuity between soft skills in industry and vocational schools.

Keyword : electronic industry; soft skills

[GS.AB-95] Power System Analysis Course Learning A Literature Review

Zulfatri Aini, Krismandinata, Ganefri

Universitas Negeri Padang, UIN Suska Riau, Universitas Negeri Padang

Abstract

This article discusses about issues and solutions of power system course to be made as a development reference for improvement. The method used is descriptive analysis by article studying which published from year of 2001 to 2018, and from other sources. For achievement of competency and problems solving happened in this course, there are solutions offered in literature review. Based on that literature review, there are learning solutions that has been applied by previous researchers are 32% using learning model, 26% using simulation (software), 21% using combination (of simulation, experiment, and model), 21% using education or laboratories tools.

Keyword: system analysis, literature study, problem and solution.Topic: Current Issues in Educational Technology (CIE)

[GS.AB-98]

Development of Assessment Devices Science Process Skills in Learning Science of Junior High School

Enos Taruh and Muhammad Yusuf Gorontalo State University

Abstract

This study aims: (1) to develop a tool for assessing science process skills in junior high school science learning; (2) produce a tool for assessing the process of science skills that are suitable for use in science learning. The method used in this study is development research , which is developing a tool for assessing the process of science skills in junior secondary science learning. The procedure of this study refers to four-D model that is define , design , develop , and disseminate. The assessment tool developed has been tested at Gorontalo State 1 Middle School in the odd semester of the 2018/2019 academic year. The results of this study are to obtain a product for developing the assessment tools for science skills in Secondary School Science Grade VIII learning which have been validated by expert validators and users (science teachers), as well as through validity. empiric, the results of which are stated that the appraisal of science process skills in the learning of Class VIII Science in Junior High Schools that have been developed is feasible, valid, effective and practical to be used in measuring the results of junior high school science learning.

Keyword : Development of assessment tools, science process skills

Topic : Physics Education

[GS.AB-99]

Developing a Discovery Learning Model-Based E-Modules on Indonesian Language Teaching Course

Mulyadi, Atmazaki, Agustina, Syahrul, R. Universitas Negeri Padang

Abstract

This study aimed at producing a design and implementing the results of the design of the E-modules in Indonesian language teaching courses at Higher Education. The learning model applied in developing this E-module is a Discovery-Learning Model. The type of research made use of is Research and Development, henceforth R&D with the approach of the ADDIE Instructional Systems Design (ISD). The research subject was the students of the Computer Information Technology Education Study Program in IAIN Bukittinggi West Sumatra Indonesia. To find out the validity, effectiveness, practicality of the Discovery Learning-based E-Modules, the researchers distributed the questionnaires as the instruments of collecting the data. The results indicated that the developed E-module's validity based on Discovery Learning was obtained at 85.16% to 88.27% with the average value/score of the validation results being 86.47% and appraised very valid. From the results of the E-module validation, it can be concluded that the E-module validation assessment sheet is categorized very valid. The practicality of the Discovery Learning-based E-modules is very practical with a score of 88.57. Hence, it can be concluded that the practicality of the Discovery Learning-based E-modules is stated very practical and highly motivated the students to learn it. The students' activities

Keyword : Keywords: E-Module, Indonesian Language Teaching, Discovery Learning

Topic : Informatics and ICT at Higher Education (IHE)

[GS.AB-100] The Efficiency of Applying The Learning Media of "Macromedia Flash" As a General Geology Lecturing at Almuslim Aceh University

Sumanti, Z. Mawardi Effendi, Festived, Ridwan Universitas Negeri Padang

Abstract

This study aimed at assessing the effectiveness of applying the macromedia flash's learning media in general geology lecturing. The effectiveness of learning is seen from the activities and responses of students in attending lectures. This type of research is a qualitative descriptive study. According to Denzim and Lincoln in Moleong (2006: 5) explains that qualitative research uses natural background with the intention of interpreting the phenomena that occur and carried out by involving various methods that exist. The analysis of the data used in this study is the theory of the Miles and Huberman' model. The research finding signified that the students' activity in the learning process using the macromedia flash's learning media is 85% of students participating in the activities. This can be interpreted that the media is able to create a classroom situation that encourages students to ask each other questions, answer or express opinions or respond to them. Responses or impressions given by the students to this learning media in general geological learning are sensibly and positively welcomed. The students feel contented and enthusiastic in learning. In conclusion, the use of this macromedia flash's learning media can be performed well.

Keyword : Keywords: macromedia flash, learning media, general geology

Topic : Informatics and ICT at Higher Education (IHE)

[GS.AB-101]

The Utilization of E-Learning in the Learning Proccess by the Students of Educational Sciences Faculty **Universitas Negeri Padang**

Eldarni, Fitri Maiziani Universitas Negeri Padang

Abstract

The aim of this study is to describe the use of e-learning in learning process by the students and the lecturers in the faculty of education, Universitas Negeri Padang academic year 2018-2019. Learning is a process where students can search, manage, and build the information into knowledge with the guidance of teachers whose role as facilitators, mediators, and evaluators. To create a good quality of learning, it requires learning adequate and appropriate media, materials, tools, etc. as learning resources to students. In particular, Universitas Negeri Padang implements this application to increase the learning quality and facilitate students and lecturers through website: e-learning.unp.ac.id. The lecturers can upload learning materials, modules, media, video, and etc. It applies a descriptive quantitative method and the data is collected through the spreading of questionnaires. It is found that most of the students and the lecturers have utilized e-learning.unp.ac.id as learning resources to support their learning process in the Faculty of Education, Universitas Negeri Padang.

Keyword : e-learning, learning process

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-102]

Impact of The Implementation of Problem Based Learning in Soil and Rock Mechanic Subject to Activities And Student Learning Outcomes of Study Programs Outside Domisile, Sawahlunto State **Community Academy**

> Rijal Abdullah dan Muhammad Iqbal Sy Universitas Negeri Padang

Abstract

This research was motivated by the low achievement of learning outcomes of Land and Rock Mechanics subject by students of Study Program Outside Domicile of Sawahlunto Community Academy. This study purpose was to reveal the impact of Problem Based Learning application to the activities and the learning outcomes of Soil and Rock Mechanics subject of students of Study Program Outside Domicile of Sawahlunto Community Academy. This research was in the form of Class Action Research Model Kemmis and Mc Taggart, consisting of four components (planning, action, observation, and reflection). After learning in three cycles, the results showed that the application of Problem Based Learning in Soil and Rock Mechanics subjects to Study Programs Outside Domicile of Sawahluto State Community Academy turned out to be able to increase student learning activities, reaching very high categories, and achieving student learning outcomes average 83.33, above of the Minimum Graduation Standards value (70).

Keyword : Problem Based Learning, Activities, Learning Outcomes

Topic : Science Education

[GS.AB-103]

Ethnomathematics: Formal Mathematics Milestones for Primary Education

Mega Teguh Budiarto, Rini Setianingsih, Rudianto Artiono Universitas Negeri Surabaya

Abstract

Ethnomatematics is a study of the different ways in which people solve mathematical problems and practical algorithms based on their perspectives. This study refers to various forms of mathematics as consequences which are embedded in cultural activities. Meanwhile, culture-based mathematics learning is one way that is perceived to make meaningful and contextual mathematical learning highly related to the cultural community and will be applied later in harmony with that community, as well as interesting and enjoyable learning. If this is done habituation from an early age will build the character of students. The researcher proposes possibilities for ethnomatematics to enggage the curriculum and have a relatively similar role in formal mathematics, namely; (1) substitute for school mathematics; (2) supply for school mathematics; (3) milestones into school mathematics and (5) as a local content of school mathematics and scheme to develop student's character.

Keyword : Ethnomathematics, Formal Mathematics

Topic : Mathematics Education

[GS.AB-104]

Hybrid Learning versus Traditional Course in Higher Education: Students' achievement and Students' experiences

Rudianto Artiono, Mega Teguh Budiarto, Yuliani Puji Astuti Universitas Negeri Surabaya

Abstract

This study aimed to examine the outcome of lectures conducted using hybrid learning in Integral Calculus courses. It was focus on students' achievement and students' experiences. Teaching materials were developed using the Plomp development model in the form of learning videos which met valid, practical and effective criteria. While the data analysis techniques were carried out by quantitative-descriptive and qualitative-descriptive methods. The results showed that students' learning achievement increased significantly using hybrid learning compare to traditional course. A number of students have met the mastery learning criteria. Regard to students' experiences, some students felt that lectures conducted using hybrid learning were easier to understand because the video could be played repeatedly. It helped student to understand the material. It also gave freedom for students to determine time and place. Unfortunately, some students revealed that the implementation of lectures using hybrid learning also had disadvantages.

- **Keyword** : Hybrid Learning, Students' Achievement, Students' Experiences
- **Topic** : Mathematics Education

[GS.AB-106]

Development of Mathematical Learning Tools to Promote Higher Order Thinking Skills For Elementary School Students

Rini Setianingsih, Mega Teguh Budiarto, Rudianto Artiono Universitas Negeri Surabaya

Abstract

Based on the revised K-13 in 2017, the learning tools made by a teacher must bring up and involve 4 (four) aspects, namely Character Education Strengthening (KDP), Literacy, 4C, and Higher Order Thinking Skills (HOTS). Therefore, teachers are required to have sufficient knowledge in these four points, in order to be able to grow their creativity to mix and make it happen in the form of a complete learning device. This research is a

design research that aims to describe the process and results of the development of HOTS-based mathematics learning devices that meet the criteria of valid, practical, and effective. The learning devices developed in this study are in the form of lesson plan, student worksheet, and instrument for assessing students' learning outcomes. To develop the product, the researchers implemented Plomp's development model, which includes the initial research stage, design/ prototype stage, and assessment stage. The results of data analysis show that HOTS-based mathematics learning tools for elementary school students developed by the researchers meet the criteria of valid, practical, and effective, with a mean score as the following: Lesson Plan (3.41), Student Worksheet (3.39), Learning outcomes (3.73), learning feasibility (4.03), positive student responses (94.44%).

Keyword: Design research, mathematics learning tools, higher order thinking skills, elementary school.Topic: Mathematics Education

[GS.AB-107]

Development of Skill Assessment Instruments Based on Food Hygiene Principles in Learning Food Processing Practices of Culinary Program in Vocational High School

Teti Setiawati, Lismi Animatul Chisbiyah, Nunung Nurjanah, Rina Rifqie Mariana Universitas Negeri Malang

Abstract

This study aims to produce skills assessment instruments based on the principles of food sanitation hygiene in learning food processing practices of of Culinary Program in Vocational High School in Malang City. The research approach uses development research (R and D) adapted from the procedure of developing Borg and Gall, without the last stage, namely dissemination and implementation. Data analysis uses quantitative and qualitative approaches. The development of the instruments produced is a hygiene principle-based learning evaluation instrument based on food processing practice learning. The results of the validation test from the expert validator and user validator indicate that the assessment instrument can be used by the teacher in conducting assessments to measure students' skills in implementing the principles of hygiene and food sanitation in learning food processing practices.

Keyword: assessment instruments; skills assessment, the principles of food hygieneTopic: IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-108] E-Learning Program Evaluation at the University of Pamulang

Dewi Gunherani , Wiwit Irawati, Aeng Muhidin University of Pamulang

Abstract

One form of learning at the University of Pamulang is to use a system that we call e-learning. e-learning is learning that uses technology and information. E-learning learning is a must for every lecturer at Pamulang University, where the institution has declared 40% of the overall learning is in the form of e-learning while 60% is direct face-to-face learning. The e-learning program was first launched in order to achieve one of the missions of the Pamulang University to organize education and teaching for all community groups. The study was conducted with a qualitative approach using program evaluation design. Program evaluation using a discrepancy model. Data obtained for this study by conducting interviews, observation, and documentation study. The results of the study included aspects of the design, installation process and products of the e-learning program in accordance with the criteria set by the University of Pamulang which would be compared with the realisation of achievement. Research recommendations indicate that the e-learning program must be continued and improved to meet the aspects of supervision and assessment of lecturers and students.

Keyword : Discrepancy evaluation model, Evaluation of e-learning program at Pamulang University.

Topic : Science Education

[GS.AB-110] Learning Analysis on Audio Video Electronics's Workshop Standard in Vocational School

Mukhidin, Selvi Zanita Putri, Tuti Suartini Universitas Putra Indonesia

Abstract

The purpose of this research is to find out how far applied and the learning process on audio video electronics's workshop (TEAV) in SMKN 4 Bandung by SNI ISO/IEC 17025, in Radio System and Television Engineering subject in grade XI Audio Video Electronic technique skill program. This research with use qualitative method. There are some steps in this research, starting by produce the research instrument, then construct validation with expert judgment, after that collecting the data by observing, interviewing, and documenting, the last is analyzing the data about workshop management that fitted the SNI component ISO/IEC 17025 along with the data about learning process in accordance with the process standard. The research result showed the condition of the workshop TEAV 70% is applying with the component in SNI ISO/IEC 17025, in which the condition of workshop is accordance with 17 out of 25 component of SNI ISO/IEC 17025. The learning process could be said better, in learning process plan aspect, the syllabus and lesson plan is in accordance with the demands of the curriculum 2013. Along with that, the implementation of learning process is focused in student although the lesson plan is situational. From the aspect of learning outcomes, student is rated from different aspect and learning process supervision under the supervisor.

Keyword : SNI ISO/IEC 17025, Learning process

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-113]

The Development pf Employability Skills' Diploma 3 Mechanical Engineering Students, Faculty of Engineering, Medan State University

Sumarno, Suherman, S Purba Universitas Negeri Medan

Abstract

Graduates of Diploma 3 (D3) program in Mechanical Engineering, Faculty of Engineering , Medan State University (Unimed) as labor forces face quantitative and qualitative matching problems. The qualitative matching problem that must be known and addressed immediately is employability skills. The purpose of this study is to obtain a description of the development of employability skills' D3 Mechanical Engineering students. The subjects of this study were D3 Mechanical Engineering students enrolled in 2017/2018 academic year (62 students)). This research is a cross sectional study. To collect data, the employability skills between classes used Analysis of Variance, and (b) further analysis to find out sub components of employability skills (technological skills, fundamental skills, personal management skills, and team work skills) between classes used Multivariate Analysis of Variance. The research findings: (a) there are differences between inter-class employability skills, (b) 2017 technological skills are significantly lower than class of 2016, 2015, and 2014 at $\alpha = 5\%$; 2017 fundamental skills are lower, significantly from the 2016 and 2015 classes at $\alpha = 10\%$; (c) Personal management skills and team work skills are not different from all classes.

Keyword : Employability Skills

[GS.AB-114] The Increasing of Professional Commitment Teacher Through of Self Learning in Junior High School Distric Duren Sawit Jakarta Timur

Dr. Hj. Miftachul Hidayah, M.Pd. SMP Negeri 139 Jakarta Timur

Abstract

The purpose of this study was to determine the increasing of professional commitment teacher through the enlargement self learning in junior high school disctric duren sawit. This research tried to answer problems evidence increasing of teacher junior high school. This study used a quantitative approach, the survey and the.

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

analysis techniques Variable in the analysis the consisting of endogenous. exogen variable and variable the population of the research is all teachers SMPN in duren sawit, sample in research is one of the population. The research was conducted on professional commitment teacher junior high school in distric duren sawit involving of 86 teacher junior high school had been selected from the target populations of 640 teacher junior high school by using quantitative approach with path analysis methods. The research of hypothesis testing show: the increasing of professional commitment teacher had a direct positif on the enlargement of self learning; therefore to improve the professional commitment state junior school in distric duren sawit, need to increase self learning. Of the results of the analysis and discussion that has been above it can in concluded: there has been increasing professional commitment through the development of self learning. It means self learning that suits his high price hike would indeed bring the commitment of the teaching profession

Keyword : professional commitment and self learning,

Topic : Others relevant Fields

[GS.AB-116]

The Design of Blended Learning Management Model in Civil Engineering Department, Universitas Negeri Semarang

Nur Qudus, Sri Handayani, Virgiawan Adi Kristianto Universitas Negeri Semarang

Abstract

Integration of technology into learning process is one of the key factors in learning process in the era of industry 4.0. Blended learning is one of the learning method to facilitate the integration of technology into learning process. It enables learning process by utilizing digitalization. However, blended learning alone cannot result more optimal learning outcomes. Therefore, this study aims to design blended learning management model for the students Civil Engineering, Universitas Negeri Semarang to optimize learning process. This study employed 4-D Design of Research and Development Interview and observation were used to collect the data on the initial learning blended learning model. The result of this study was the empirical design of blended learning management model used in Civil Engineering Department, Universitas Negeri Semarang

Keyword : E-learning, Blended Learning, Technology integration, learning management

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-118]

The Development of Personal Character ThroughSTEM Integration in Learning of Elementary School

Dr. Abna Hidayati, M.Pd, Dr. Alwen Bentri, M.Pd, Dr. Fetri Yeni, J. M.Pd Universitas Negeri Padang

Abstract

The current phenomena in the field indicate that most of students have not possess the 21st century skills namely the ability to creative thinking, autonomous, and hard work. The students tend to keen on the instant culture, especially in searching information. This study aims to develop the personal character by taking the interdisciplinary approaches among Science, Technology, Engineering and Mathematic (STEM) in course' content-based. This study utilized the research and development design method with ADDIE Model comprising of five stages, namely Analysis, Design, Development, Implementation, and Evaluation. This research is conducted in four regions in West Sumatra province, two areas that represent counties (Agam, Pasaman Barat), and the two regions represent cities (Padang and Padang Panjang). The four regions are chosen because the area has the number of character education programs largely in local schools. The sampling has been selected purposively and involving 78 elementary school students. The findings describe that there was a significant distinction between the student' personal character taught using STEM Approach and conventional methods.

Keyword : Integrated Learning Model, Character, Elementary School.

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-119] DC Motor Control Based on Image Processing Using Fuzzy Logic

M. Khairudin, Totok THT, Herlambang S.P., Ariadi Candra, Toto S. Universitas Negeri Yogyakarta

Abstract

Image processing is a technique to process input signals in the form of an image. Images as inputs are transformed into other images through certain techniques. Several techniques used in image processing includes Intensity Adjustment, Histogram Equalization, Thresholding, Motion Blur, Canny, and Median Filtering. The image processing results can be used for conducting an object tracking. An Object Tracking is a job to track or identify the movements of objects caught on the camera. Object Tracking using image processing can be implemented in various fields including the DC motor control system. In this study, for controlling DC motor based on image processing also perform color detection. The color detected in this study is orange. In this study, DC motor speed control system follows the motion of the object in the horizontal direction. While the object is shifted to the right, the DC motor will rotate slowly, otherwise it is shifted to the left, the DC motor will rotate slowly, otherwise it is shifted to the left, the DC motor software using Visual studio 2017, Arduino

Keyword : Motor Control, Image Processing, Fuzzy, Tracking

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-121]

Conceptual Model of Pamphlet Exhibition for Literacy Acceleration for Inmate-Students

Misran Rahman and Ruslin Badu Universitas Negeri Gorontalo

Abstract

Improving knowledge is crucial after learning, including literacy education. After learning activity about literacy in Gorontalo City Penitentiary, it is necessary for inmate-students to improve their knowledge. One of the efforts made is through pamphlets contained moral messages, which is expected to "improve" the literacy education as well as the behavior. The final objective of this research is creating an effective pamphlet exhibition model in order to accelerate the literacy of inmate-students post literacy education in Gorontalo City Penitentiary. The study is planned to be carried out in two stages with the first stage is designing the conceptual model of pamphlet exhibition. The method used in this study is Research & Development (R&D) with four stages in two years. The result of the study is a design of conceptual model for the pamphlet exhibition that could be used to accelerate the literacy competency of the students in Gorontalo City Penitentiary.

Keyword : Exhibition, pamphlet, acceleration, literacy.

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-122] Student Satisfaction on Distance Education Academic Service

Rhini Fatmasari dan Zuwirna Universitas Terbuka dan Universitas Negeri Padang

Abstract

Open University is the 45th State University in Indonesia that implements open and distance education. Educational services are delivered through modules and internet-based media. Developments at technological cause internet-based electronic media to be more widely used. In the 2018.1 semesters, the number of UT students was 302,484 people at 38 UT Regional Offices throughout Indonesia and 2,099 students at 39 Countries. Generally, academic services provided by UT to students include services at 1) guidance from study programs with distance education models; 2) registration services; 3) student learning materials (modules and non-print teaching materials); 4) face-to-face tutorials and online tutorials; 5) learning assistance counseling services; and 6) evaluation of learning. The level of student satisfaction with UT's academic services needs to be measured regularly to maintain service quality. This research was conducted on UT students with a sample of 370 students from 13 UT Regional Office. Sampling is representative of students from the regions of Western Indonesia, Central Indonesia, and Eastern Indonesia. Data is processed using Importance-Performance Analysis

(IPA) and Customer Satisfaction Index (CSI). In general, the level of student satisfaction with distance education attributes is at the value of 90.20%. That is, students feel very good satisfaction with the services provided by UT include aspects of distance education study programs and models, registration, teaching materials (modules and non-print teaching materials), face-to-face tutorials and online tutorials, learning assistance counseling services, and evaluation learn. When examined in more detail, there are several aspects that are above or below the index value (90.20%), for example, the number of face-to-face Tutorial meetings 8 times in one semester and online Tutorials can be accessed easily. Analysis with CSI shows that 4 academic services are in quadrant 1, 22 services are in quadrant 2, 15 services are on quadrant 3 and 7 services on quadrant 4.

Keyword : student satisfaction, distance learning, academic services, IPA, CSI

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-123]

Analysis of Factors Affecting Student Learning Difficulties Towards Physiology Anatomy Lesson at SMK Negeri 3 Tangerang (Case Study Class X of Cosmetology at SMK 3 Tangerang).

Eti Herawati Dan Diah Ayu Hapsari Purnomo. State University of Jakarta

Abstract

This study aims to determine factors that cause learning difficulties to anatomy and physiology subjects lesson by class X student cosmetology Programs at SMK Negeri 3 Tangerang in Academic Year 2016/2017 with a survey method. The populations were 64 people from class X students and Data collection tool used is questionnaires. The trial questionnaires carried out by 25 class XI cosmetology respondents. Instrument analysis carried out on validity and reliability, with 40 statement items and reliability result r11 = 0.954. The results of this study showed that the factors affecting students' difficulties mainly on internal factors that are motivational factors indicators with sub student 88% learning persistence factor and independent learning factor equal to 94%. While external factors are indicators of teachers' involvement in students activities is equal to 91%. The hypothesis testing results were obtained through a regression equation where the results obtained Y = 101,286+879X, showing that any increase in the value of a teacher's attention every 101,286 can cause an 879 increase with learning difficulties showed the 6.1% test effect, coefficient determination while the remaining 93.9% is influenced by other factors.

Keyword	: Keywords: Factor	s of Learning Difficulties	, Physiology	Anatomy
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Topic : Others relevant Fields

[GS.AB-124]

The Relationship of Self-Confidence with The Results of Learning The Make Up Character of Class XI TP4 (Teknik Produksi dan Penyiaran Program Pertelevisian) Students of SMKN 48 Jakarta

Lilies Yulastri Dan Devi Ruth Widayanti State University of Jakarta

Abstract

The purpose of this study is to determine whether there is a relationship of self-confidence with the results of learning make up character of students of class XI TP4 (Teknik Produksi dan Penyiaran Program Pertelevisian) SMK Negeri 48 Jakarta. As a sample of the research, researchers used 30 students of class XI TP4 (Teknik Produksi dan Penyiaran Program Pertelevisian) SMK Negeri 48 Jakarta, who have followed the character make up lessons in artistic subjects. The method used is descriptive correlation with sampling technique in Total Population Sample. The instrument used in the form of questionnaire. Based on the results of research that has been done, there is a positive and significant relationship between self-confidence with the results of learning make up character class XI TP4 (Teknik Produksi dan Penyiaran Program Pertelevisian) SMK Negeri 48 Jakarta. The result obtained is KD = $rxy2 = 0,3774 \times 100\% = 37,74\%$ so it can be concluded that 37,74% result of learning make up character of student of class XI TP4 SMK Negeri 48 Jakarta determined by confidence, while 62,26% determined by other factors. Thus, the higher the students self-confidence the higher the learning achievement achieved by the students. Students who have completed character make up learning are expected to have knowledge and insights that are appropriate to the lessons at school as well as in the industrial world so as to add student ideas and creativity.

Keyword : Keywords: Relationship, self-confidence, result of learning make up character

[GS.AB-126] STEM Based Learning to Overcome Math Anxiety

Ghenny Aosi, Metrianis, Rifma Universitas Negeri Padang

Abstract

Quality learning can be interpreted as learning that achieves learning goals through an effective, efficient, interesting and fun learning process. Low-quality learning is unpleasant learning so that the learning objectives are not optimally achieved. Math anxiety impacts students as early as the first grade by affecting their working memory. Working memory is like a 'mental scratchpad'. This study is qualitative research that aims to determine the level of decreasing of mathematics anxiety (MA) in students' perspective at Elementary School level in Bukittinggi after they have learned with STEM-Based Learning. The subject of this study is 58 elementary school students. This research uses a qualitative descriptive method. The data collected by observation and using a questionnaire. The results showed that after applying STEM-Based Learning, the most decreased in students mathematical anxiety were anxiety about mathematical tests and anxiety about numerical calculations.

Keyword: Math Anxiety; STEM-Based Learning; Elementary SchoolTopic: Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-127]

The Characteristics and Nutrients Concentrated Leaves Of Vegetable Fern (Diplazium Esculentum (Retz.) Swartz) Live In Different Locations

Yuniarti Koniyo, Cyska Lumenta, Abdul Hafidz Olii1, Rose O.S.E. Mantiri. Gorontalo State University, Sam Ratulangi University

Abstract

The vegetable fern (Diplazium esculentum(Retz.) Swartz) is the types of plant that have a high economic value, used as a medicine ingredient, for consumption, and a lot of benefits. The purpose of study to identify the characteristics and nutrients concentrated of the vegetable ferns. The Research is done at the FMIPA biology lab and the testing hall for the fisheries quality of the gorontalo province. The research stage is Material preperation, determination, simplisia test characterization and chemical nutritional analysis. The taking of the sample was done on two places in the lowland area and the hills in bone bolango district of gorontalo province. Based on the results of the characteristics analysis are suspected have a macroscopic different location. The nutritents concentrated of vegetable fern in lowlands indicate a result of 8.30% proteins, water levels 3.08%, ash content 2.11%, fats 0.51% while in plateau indicate a result of 6.20% Proteins, water levels 2.70%, ash content 1.90%, fats 0.69%.

Keyword: Characteristics , Nutrients Concentrated, Vegetable FernsTopic: Biology Education

[GS.AB-128] E-Supervision Using Web: Elementary School Teachers' Reaction

Gantino Habibi, Kasman Rukun, Hadiyanto, Mellati Mandasari Universitas Negeri Padang

Abstract

The aim of this study is to analyze in depth the perceptions of teachers in Bukittinggi city towards e-supervision using web. This type of research is descriptive research. The sample of this study was all teachers at SD Al-Azhar Bukittinggi consisting of 28 people. The instruments of this study were interviews and questionnaires. The results showed that 75% of teachers positively responded the development of this e-supervision using web. There are some positive responds conducted by teachers. First, e-supervision using web can be done anywhere and anytime. It will be easier for the teachers to interact and discuss with the principal and colleagues about the problems faced in the learning process. Second, the principle announce and analyze the feedback on the results of instructional supervision effectively and steadily. Third, e-supervision is a good means to avoid miss-communication between principals and teachers in communicating the results of supervision, and fourth, teachers will get clear supervision results because of this systematic supervision which integrated with

technology. In addition, e-supervision also faced several problems. First, the teachers is still face the difficulties in using technology devices, such as computer. Second, the lack of training to develop teachers' capabilities in implementing technology and information.

Keyword : Instructional Supervision, E-supervision, Web, Teachers of Elementary School

Topic: Current Issues in Educational Technology (CIE)

[GS.AB-129]

The Feasibility Study of Production – Based Learning Model with 21st Century Learning Skills Integration to Improve Mechanical Engineering Competence

Heri Yudiono, Pramono, Basyirun Universitas Negeri Semarang

Abstract

The improvement of the students' learning experience and performance of vocational education graduates in 21st century can be achieved by the implementation of sustainable innovation. This study aims to examine the feasibility of the production – based learning model with 21st century learning skills integration in improving the competence of mechanical engineering. The research approach used in this feasibility study was quantitative research through limited testing. Each subject was measured and given the treatment twice for the development of the mechanical engineering with the basis of individual and group. The research subjects consisted of 33 students. The research data collection employed learning product instruments in these following aspects: dimension conformity of the workpiece, the workpiece profile accuracy and workpiece surface flatness. The data analysis technique used the paired samples t test. The results of the study revealed that the production based learning model with the integration of 21st century learning skills is appropriate to be implemented to improve mechanical engineering skills. Feasibility was indicated by an increase of 32.23% in the final score of group learning products compared to individual products. The workpiece dimension aspect of the group – based learning increased by 119.44% compared to individual – based learning, the workpiece profile accuracy aspect of the group learning product profile increased by 0.852% compared to individual groups .

Keyword : Feasibility of the model, Production based learning, Learning 21st century

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-130]

Development of Trainer Instructional Media at Vocational High School And Technology: Need Analysis Description

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Abstract

This study aimed to analyze various needs in the Electronic Power Base learning process. Those are 1) Analysis of Core Competencies and Basic Competencies, analysis concept and analysis of students; 2) To analysis what the constraint was faced by the teacher in the learning process; 3) To analysis what was the instructional media that need to be developed on Electronic Power Base. This study was Research and Development (R&D), the model was 4D (four-D) model. Need analysis was conducted in the define stage, with the analysis' instrument of the questionnaire. Subjects of the study were teachers and students of vocational high school and technology. The results of this study followed: 1) Trainer instructional media was conducted on voltage and current measurement, and Basic competencies were the implementation of electrical current and voltage measurement and conducting the electrical and current measurement. Subjects of the study were teachers and students of vocational high school and technology. 2) Electronic Power Base was a difficult material to been taught because it was abstract material. So, teacher needs trainer to teach effectively; 3) Instructional media that need to be developed on Electronic Power Base was trainer, so that students could learn independently and effectively.

Keyword : Need Analysis, Trainer Instructional Media, Electronic Power Base

Topic : IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-131]

The Urgency of Entrepreneurship Learning in the Industrial Age 4.0

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Abstract

This study was aimed to provide information on the urgency of learning entrepreneurship in the era of industrial revolution 4.0. The 4.0. Industrial revolution not only provides opportunities but also challenges for the millennial generation. The developments of science and technology as a trigger for the industrial revolution cause some implications such as unemployment, human vs. machine competition, and increasingly high demands on competency. It is estimated that in the next five to ten years it will eliminate 35 - 75 percent of the work. As a result, the production process becomes faster and easier to distribute. Then what about human energy? New business opportunities will stimulate the emergence of young entrepreneurs. This is what encourages the emergence of the spirit of entrepreneurship along with changes and developments in the times. The purpose of this study is to explain the importance of learning entrepreneurship in the industrial era 4.0 from elementary to university. The method used in this study was literature and scientific journals studies through a theoretical descriptive approach. The finding of this paper is: In order to be able to compete in the industrial revolution era 4.0, the early creative and innovative entrepreneurship learning is and innovative.

Keyword : learning, entrepreneurship, industrial revolution era 4.0.

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-132]

The Rate of Change in the Quality of Herbal Skin Cream Using Gelatin Extracted from Tuna Bone as Stabilizer Agent

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Abstract

Changes that lead to product damage can be caused by intrinsic or extrinsic factors which will then react in the product in the form of chemical reactions or other physical processes such as air or gas absorption from the environment. The purpose of this study was to assay the rate of change in the quality of herbal skin cream using gelatin extracted from Tuna bones through physical, chemical and microbiological parameters during storage. The herbal skin cream product tested was formula using 7% gelatin. Data analyzed were vitamin C, viscosity, antioxidant activity, sensory values, and total bacteria during storage at room temperature, temperature 35 ° C, and 45 ° C. The method used was experimental methods which is Linear Regression and Arrhenius Equations to compile the rate of change in the quality of the product. The results show that the longer the storage, vitamin C increases but the sensory values, antioxidant activity and viscosity decreases. The rate of change in antioxidant activity, vitamin C, viscosity, and sensory values respectively, ie 104.8 / day, 0.87 / day, 2044 / day, and 7.04 / day.

Keyword : Fishbone, gelatin, stability of product quality

Topic : Others relevant Fields

[GS.AB-133]

The Effect of Mosaic Activity toward the Fine Motoric Skills of Children in Group a in Kindergarten of Makassar

Muhammad Yusri Bachtiar & Wahyuni Ulpi Universitas Negeri Makassar

Abstract

The Effect Of Mosaic Activity Toward The Fine Motoric Skills Of Children In Group A In Kindergarten Of Makassar ¹ Muhammad Yusri Bachtiar Universitas Negeri Makassar, Indonesia. ² Wahyuni Ulpi Universitas Negeri Makassar, Indonesia. Abstract: This study aimed at finding out the effect of mosaic activities on the fine motoric skills of children in the Kindergarten of Makassar. The type of the study was Pre-experimental research. The study took 15 children as the study subjects in which 5 boys and 10 girls. Data collection techniques use observation techniques. The Data were analyzed by uses the Wilcoxon different test analysis technique. The findings showed that there was an increase in the acquisition of the value of fine motor skills of children after

being given treatment compared to before being given treatment with a value of Z (16) $Z\alpha / 2$ (0.4). Thus the hypothesis is accepted. Thus it can be concluded that there was an effect of mosaic activities on fine motor skills in group A children in the Kindergarten of Makassar. Keywords: Fine motoric skills, Mosaic.

Keyword : Fine motoric skills, Mosaic

Topic : Others relevant Fields

[GS.AB-134] Bridging Literacy and Curriculum: Development of a Thematic Children's Book

Anak Agung Istri Ngurah Marhaeni; Nyoman Dantes, Dewa Gede Firstia Wirabrata, Dewa Ayu Puteri Handayani, Dewa Gede Purwitha Ganesha University of Education

Abstract

The study aimed at facilitating and promoting meningful learning in the current thematic learning approach in elementary schools through developing a K-13's content-based thematic children's book. The study used ADDIE research and development model. Product of the research was a children's book entitled Mencar (going fishing) which was meant to be used as a supplementary reading material for four graders on the subtheme Occupations Around Me. To make the book contextual, cultural aspects of Bali were also included. After completion, four reviewers containing two teachers, a writer, and an illustrator were asked to assess the quality of the book. Further, the book was tried out to twenty six students to see whether the book - when used together with the subtheme's textbook - had an effect on students' attitude, reading interest, and learning outcome. Results of the study show that the children's book Mencar was proven effective in supporting learning, including children's reading interest which is the primary goal of our national literacy movement or GLS.

Keyword : Key words: children's book, literacy, thematic learning

Topic: Current Issues in Educational Technology (CIE)

[GS.AB-135] Impact of the Use of Gadgets on the Development of Language and Socio-Emotional in Children with Speech Delay

Fitriyani, Mohamad Syarif Sumantri, Asep Supena Universitas Negeri Jakarta

Abstract

This research was conducted to describe the language development and socio-emotional behavior caused by the use of gadgets in speech delay children, early detection of language and speech problems, intervention programs, academic development and socio-emotional development children with speech and language disorders. The study was based on observations of a 9-year-old child, conducted since September 2018 until January 2019, with some data acquisition since 2012 when early detection of language and speaking disorders. The study was conducted using a qualitative approach with a case study method. Data collection through observation, interviews and document studies. The purpose of this study was to determine the impact caused by the use of gadgets in children who experience problems of speech delay and language, judging by the parenting style of the family environment and the surroundings that affect their socio-emotional behavior. The findings in this study are the socio-emotional behavior caused by the influence of the use of gadgets that have a major influence on the development of a child with language delay problems, for which an intervention program is needed that is in accordance with the support of the family and the environment.

Keyword : Speech Delay, Gadgets, Parenting, Social Emotional

Topic : Science Education

[GS.AB-136] A Feasibility Study on a Partnership Model between Vocational Schools, Industry and Workplace Based Core Strategies

Purnamawati, Muhammad Yahya, Syahrul Universitas Negeri Makassar

Abstract

This study aims to examine the feasibility of the partnership model of vocational high school (SMK) with the Core Strategies-based Business and Industry (DUDI). The research method uses Plomp stages development of Research and Development (R & D) approach. The research site is Makassar City Public Vocational School in industrial electronics specialization. The collected data are analyzed using descriptive statistics. The results of the research are: (1) description of DUDI partnership model activities in curriculum development, industrial practice, in house training, on the job training for students and teachers; (2) Analysis of the problems in partnering: (a) the program has not run optimally, (b) the work unit is not yet appropriate, (c) the contents of the MoU have not been fully realized, (d) the partnership activities are unclear, (e) graduate competencies have not been traced, f) there is no legal basis yet; (3) The partnership model design has 7 (seven) components including (1) government policy, (2) core strategy, (3) Vocational school policy, (4) industrial management, (5) service principles, (6) graduate competency, and (7) the employability of vocational school graduates. In addition, the feasibility study results of the partnership model has met the validity

Keyword : Feasibility study, Vocational Partnership Model with DUDI, Core Strategies

Topic : Others relevant Fields

[GS.AB-138]

Variations in the Number of Layers and Variations in the Number of Neurons in Artificial Neural Networks: Case Study Pattern recognition of Alphabetic and Shape

> Fatchul Arifin, Thia Anissa, Habib Robbani Yogyakarta State University

Abstract

Artificial neural network (ANN) is a network system consisting of a group of small processing units that work like a human nervous system. In general, the ANN has 3 layers, namely input layer, hidden layer and output layer. In the hidden layer, the number of neurons and the number of layer were used to improve network ability to solve problems. So far the users still find it difficult to determine the ideal number of hidden layers and the number of neurons on ANN. This paper presents research aimed at analyzing the amount of layers and the amount of neurons in the hidden layer. In this study, case studies were taken in alphabetic pattern recognition, as well as shape patterns recognition. First, the amount of layers is varied to get the best number of layers. Furthermore, the number of layers is 1-5 layers in the hidden layer, with the validation value of the 96-100% recognition system. While the best number of neurons was obtained by the number of 19 neurons, with an average percentage accuracy of 81%.

Keyword : Artificial Neural Networks; Number of layers; Number of neurons

Topic : Science, Technology, Engineering, and Mathematics (STEM) Education

[GS.AB-139]

Model of Industrial Work Practice in Improving Psychomotoric Ability Graduates of Vocational School in Industry

> *Tuti Suartini* Universitas Pendidikan Indonesia

Abstract

The process of professional expertise education in Vocational High Schools cannot only be obtained from education in schools. The problem is that the psychomotor abilities of students without work practices in the vocational school industry are no different from those of senior high school graduates. This research was conducted to examine the model of work activities directly in the world of work on students' psychomotor abilities as a reflection of industrial work practices. The research method used in the study was ex-post facto

descriptive with a comparative approach. Psychomotor abilities of students who have carried out work practices in the industry 75% of the total sample achieve increased psychomotor abilities. With an effective model of industrial work practices, the model can be recommended in the vocational education model in Indonesia.

Keyword : model of work practice, industry, vocational school, psychomotor

Topic : Science Education

[GS.AB-144]

Needs Analysis Competence Pedagogy Project Management Of Technology and Vocational Education Whit The Approach Of Project Based Learning In Higher Education

M. Giatman, Iqra Natun Nafsiah, Fahmi rizal, Aldo Leonanda Universitas Negeri Padang

Abstract

This study aims to analyze the needs of pendagogi in project management courses in building education engineering in Universitas Negeri Padang. This needs analysis is an in depth look the importance of project management in building engineering education from the aspect of curriculum, pendagogy and teaching materials needs based on current conditions, a standard process and priorities in learning. This type of research is descriptive with survey method. Data collection techniques questionnaires and interviews. Sample from this studi are the students of building engineering education and lecturer. Data analysis techniques qualitative and quantitative. Based on the results of the analysis it can be concluded that (1) there is a gap in the needs of the students and lecturers of project management to models of learning related to the method, learning approach, teaching materials used, the assessment and evaluation of learning (2) students require the development of learning models to increase knowledge, skill and attitude

Keyword : Need Analysis, Pedagogy, project management

Topic : IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-145] Analysis on computer self-efficacy instruments

Nurhikmah H Universities Negeri Makassar

Abstract

This study aims to investigate computer self-efficacy of students in online education sociology courses at the Department of Educational Technology, Universitas Negeri Makassar. This paper reports analysis of an instrument used in our study. The instrument developed to measure computer self-efficacy of students in online education. It is adapt from Cuse (Computer User Self-Efficacy Scale). The instrument be measured by weighting the scale, testing the validity and the reliability. The measurement result show that 15 items are dismissed because it has no fixed scale intervals. The validity score of the instrument is above 0.30 which are valid. The research scale is moving from 0.336 to 0.747. Furthermore, all items in computer self-efficacy instrument are reliable since the Cronbach's Alpha coefficient (0.930) is 0.7.

Keyword : Instrument Analysis, Computer Self-efficacy, Instrument development, Cuse scale

: Current Issues in Educational Technology (CIE)

[GS.AB-146]

Development of Online Project Based Learning Models in Graphic Media Development Courses

Utari Dewi, Rusijono, Miftakhul Jannah, Fajar Arianto Universitas Negeri Surabaya

Abstract

Topic

Current learning patterns require synergy with technology. In the era of disruption of online-based learning answers the challenges of the time, learning without being bound by space, distance and time that requires the active role of students in the learning process itself. Integrating project-based learning models and online learning methods, the purpose of this research is to produce a Online Project Based Learning model in the subject of Graphic Media Development that has feasibility aspects for students of Educational Technology. This research is a development research using the development model of Borg and Gall which has ten steps. The results of this study indicate that the Online Project Based Learning model has been validated by learning design

experts and material experts. Learning design experts and material experts have assessed and stated that this model is feasible. Thus, it can be concluded that the Online Project Based Learning model is declared suitable for use in learning subjects in Graphic Media Development

Keyword : Model, Online, Project Based Learning

Topic : Current Issues in Educational Technology (CIE)

[GS.AB-147]

Designing of Enactive-Iconic-Symbolic Problem Based Learning Model (PBM-ENIKSI) for Elementary School

Siti Mas'ula, Ahmad Fauzan, Ellizar, & Darmansyah Universitas Negeri Padang, STKIP Muhammadiyah Muaro Bungo

Abstract

The aim of this study was to develop an enactive-iconic-symbolic problem-based learning model (PBM-ENIKSI) in elementary school students so that students have a strong foundation when entering higher behaviors. This type of research is village research which was developed by Plomp to have three stages, namely preliminary research, development phase or prototyping, and the assessment phase. This study produced a system model of PBM-ENIKSI consisting of 6 stages, namely 1) initial debriefing of problem solving, 2) finding solutions to problem solving through concrete objects, 3) representing problems in tables / pictures / diagrams / graphs, 4) Resolving Problems using Mathematical symbols, 5) Re-assessment of Problem Solving Solutions, and 6) evaluation. This model will produce models in the form of books, student books and teacher manuals as a support system that can assist users in their application.

Keyword : Enactive-Iconic-Symbolic Problem Based Learning model, Plomp, syntax

Topic : Mathematics Education

[GS.AB-149] Simulation of a Prototype D-Statcom for Voltage Sag Mitigation

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Abstract

This paper presents Simulation of a prototype distribution static compensator (D-STATCOM) for load compensation in an unbalanced distribution system. The D- STATCOM is intended to replace the widely used static var compensator (SVC). The compensation scheme of the D-STATCOM is derived using the symmetrical component method. In this work, the 12-pulse D-STATCOM configuration with IGBT has been designed and the graphic based models of the D-STATCOM have been developed using the PSCAD/EMTDC electromagnetic transient simulation program. Accordingly, simulation is first carried out to illustrate the use of D-STATCOM in mitigating voltage sag in a distribution system. The D-STATCOM has been developed using SPWM controller to achieve excellent overall performance. Simulation results prove that the D-STATCOM is capable of mitigating voltage sag by controlling SPWM of the system using SPWM board.

Keyword : Simulation, D-STATCOM, SPWM, load compensation, voltage sag.

Topic : IT-Professional and Vocational Education in Information Technology (IVET)

[GS.AB-151]

The Implementation of Systematic Approach to Solving Problem (SAP) Learning Model to Improve The Students' Learning Outcomes in Soil Mechanics Course at Civil Engineering Department of State University of Malang

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Abstract

The purpose of this study is (1) to improve the students' learning outcomes in Soil Mechanics course through the implementation of SAP learning model, and (2) to improve learning process in Soil Mechanics course through the implementation of SAP learning model. The research design is classroom action research. This study is