



 **ABSTRACT  
COLLECTION: Art &  
Language Education**



**Paper ID: ALE 4**

## **Practicing Speaking Skills Through YouTube Video**

### **Presenter:**

Nailul Authar, Mujad Didien Afandi  
Universitas Nahdlatul Ulama Surabaya  
nailulauthar@unusa.ac.id

### **Abstract**

Since English becomes an international language, students must be able to communicate effectively in English with their partner. Speaking cannot be separated from pronunciation, because someone who wants to speak, they also learn how to pronounce the syllable. YouTube whether it is in the classroom or outside of the classroom can assist students in learning English language which cover listening, speaking and pronunciation areas. YouTube videos provide many sources or many information from many people who are expert in many subject of study. Learners can access the video everywhere they want as soon as they have an internet data connection. YouTube video introduces as a media that can be used in teaching and learning activities, therefore this study describe some particular objectives as follows investigating students responses in using YouTube video as learning activity and identifying the benefits of YouTube video for students' speaking skills. The research design used in this research is classroom action research. Data of investigating the benefits of YouTube video for students speaking skills was gained by using observation and interview. From YouTube video, students know how to pronounce words well even the words that they have never seen before and the difficult words. Hence, when the instructor ask students to read the sentences and explain the content of YouTube video, students are motivated to answer and being active in the classroom activity. Other than that, this research can help in providing materials and media for teacher or instructor.

### **Keywords:**

Speaking, YouTube, Learning, Practice

**Paper ID: ALE 8**

## **Creativity Education through Digital Technology on Cultural Art Subject at Gloria 2 Christian Senior High School Surabaya**

### **Presenter:**

Hasprita Restiamangastuti Boru Mangunsong  
Universitas Negeri Surabaya  
resti.mangunsong@gmail.com

### **Abstract**

Creativity education is a multidimensional, multidisciplinary, and fully humanizes human education. Art and Culture as an art subject in high school serves as a counterweight during most lessons that prioritize rationality. The COVID-19 pandemic and technological developments encourage distance learning to take place by relying on digital technology. This condition creates some difficulties for students, teachers, and parents. The purpose of this article is to describe a distance learning strategy for Cultural Arts subject with digital technology at SMAK (Christian Senior High School) Gloria 2 Surabaya to increase creativity. The method used is qualitative by observing learning styles, learning behaviours, interests, student needs, facilities owned by students which are then used to design distance learning. The strategies used include planning, implementation, and evaluation. Planning activities include analysing students, planning materials, methods, learning steps and assessments. Then the implementation includes the creation of learning content in the form of slides and video tutorials, assignment, and assessment through the LMS website. The evaluation activity is to make a reflective journal on the school website and ask students to fill out a digital feedback form. Student learning outcomes are quite satisfactory by displaying the development of creative abilities in making works as well as appreciation and multidimensional abilities in carrying out appreciation activities.

### **Keywords:**

Art Education, Creativity, Creativity Education, E-Learning

**Paper ID: ALE 17**

**Linguistic challenges in solving Mathematics Word Problems: A Case of EFL University students**

**Presenter:**

Namirah Fatmanissa, Maria Niayu Risma Novianti  
Sampoerna University  
namirah.f@outlook.com

**Abstract**

One of the biggest challenges English as Foreign Language (EFL) learners face in solving Mathematics word problems at the English college level is understanding the information presented through that language. This study aimed to investigate the importance of language in Mathematics word problems tests by analyzing students' performance on linguistically modified mathematics word problems. Forty-four university students were given ten Postsecondary Education Readiness Test (PERT) Mathematics word problems, along with parallel items that were modified based on a framework by Abedi and Lord (2001) to reduce their linguistic complexity. Students' written works were compiled and graded. An interview was conducted to investigate further students' linguistic challenges in solving the problems. The findings revealed that EFL students with low English ability benefited more from the modification by showing greater score gain. First, third, and fourth-year students benefited more from the modification than second-year and fast track students, while there was no difference observed based on gender. Investigation on language challenge types that appeared in students' work is recommended for further study.

**Keywords:**

Mathematics; word problems; EFL; linguistic challenges

**Paper ID: ALE 32**

**Research Roadmap Development Cultural Arts Education Master's Program Unesa Postgraduate**

**Presenter:**

Setyo Yanuartuti  
Universitas Negeri Surabaya  
setyoyanuartuti@unesa.ac.id

**Abstract**

This research is motivated by a very basic problem, namely the unfocused research carried out by lecturers and students of the Masters Program in Arts and Culture Education in the context of the latest issues in art, culture and art education research. This phenomenon has a significant impact on the quality, relevance, and contribution of research results to the dynamics of developments in the fields of arts, culture, and arts education. For this reason, it is assumed that by developing a research roadmap, research results can be projected that are relevant to research roadmaps at the local (Unesa), regional (provincial), national, and international levels. The purpose of this research is to create a research roadmap and comprehensively explain the development process and analyze the relevance of the research roadmap to the latest issues in research in the fields of art, culture, and arts education. The benefits of a research roadmap can be used as a basic guideline, direction, and research paradigm for lecturers and students. The research roadmap is also useful for improving the quality of research, both in the context of explanatory, exploratory, descriptive, and mixed method research. Based on the concepts, theories, and development methods used, this research produces a roadmap model for art, culture, and art education research, which explains the paradigm, current issue map, fishbone, relevance, and research methods/approaches.

**Keywords:**

Roadmap, Penelitian

**Paper ID: ALE 56**

## **SASTRA PANJI DALAM TRANSFORMASI BENTUK SENI PERTUNJUKAN DI JAWA TIMUR**

### **Presenter:**

Welly . Suryandoko  
Universitas Negeri Surabaya  
wellysuryandoko@unesa.ac.id

### **Abstract**

Penelitian ini bertujuan untuk mengkaji transformasi sastra Panji dalam bentuk seni pertunjukan di Jawa Timur. Cerita Panji menjadi inspirasi bagi tumbuhnya karya-karya seni dalam berbagai bentuk, termasuk karya seni pertunjukan. Pentingnya cerita Panji dikaji, pertama, cerita klasik ini sampai saat sekarang masih terus diresepsi. Nilai-nilai yang terkandung dalam cerita Panji masih dianggap penting oleh masyarakat karena memuat nilai-nilai yang universal, apalagi dengan adanya nilai-nilai baru yang implisit dalam karya-karya transformasinya. Penelitian ini menggunakan pendekatan kualitatif dengan teknik pengumpulan data yaitu: wawancara, studi dokumen (dokumentasi) angket, dan perekaman. Validitas Data dilakukan dengan memperpanjang pengamatan, dan *focus group discussion* (FGD). Sumber data dalam penelitian ini meliputi Pakar/peneliti budaya Panji di Jawa Timur, serta bentuk-bentuk cerita Panji dalam beberapa dokumen. Hasil penelitian menunjukkan bahwa berbagai bentuk seni pertunjukan yang ada di Jawa Timur merupakan transformasi dari cerita Panji. Hal ini terlihat dari beberapa kesenian yang berkembang dewasa ini seperti wayang orang, wayang beber dan sejenisnya. Oleh karena itu, penting sekali untuk terus dilakukan kajian akademik serta pengembangan bahan ajar untuk karya seni pertunjukan bagi mahasiswa Sendratasik

### **Keywords:**

Sastra Panji, Transformasi, Seni Pertunjukan, Jawa Timur

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**Paper ID: ALE 59**

**The Design of Culturaly Responsive English Teaching Material of Fifth Grade Primary School Student**

**Presenter:**

Lesti Kaslati Siregar  
State University of Jakarta  
lestikaslati@yahoo.com

**Abstract**

This research has purpose to design a Culturally Responsive teaching materials about asking like and dislike. The method that used in this research is design research with three steps, that is preliminary design, design experiment and analysis retrospective. This study develops teaching material about asking like and dislike through a sequence of learning activities of English Teaching model of Culturally Responsive Teaching. The subject of this study is fifth grade primary school students. Data were collected by interview, observation and questionnaire. From the test results, it was concluded that the teaching material improved students' ability in asking like and dislike. The research finding shows that the Culturally Responsive Teaching material is valid, practical, and effective to be used as one of the teaching materials in the fifth grade of English subject of primary school.

**Keywords:**

English teaching; culturally responsive teaching; design based research



**Paper ID: ALE 61**

## **Education Modern Art Inculturation Oriented in Flores**

### **Presenter:**

Warih Handayani, Dwiki Nugroho Mukti, Setyo Yanuartuti  
Universitas Negeri Surabaya  
warihhandayani@unesa.ac.id

### **Abstract**

Flores is an island located in the West Nusa Tenggara Region, this island has a different artistic development from other islands in Indonesia, one of the influencing factors is the development of the art school in Flores. In Flores the first high school seminary was established in Sikka in 1926. In this seminary various modern arts cultures, such as; literature, music, performance, and fine arts are taught. The purpose of this research is to examine the inculturation of modern art in schools. This research was conducted in Flores with a qualitative approach, collecting main data, documentation of literature studies from various sources and interviews with cultural actors in West Nusa Tenggara. The discussion is carried out by linking data from interviews with relevant references. From the results of the study, the seminary education pockets in Mataloko, Ledalero, and Ritapiret in Flores, became one of the famous educational centers with traditional gymnasiums with science and humanities as the basic foundation. In the pattern of gymnasium education there is an inculturation of modern culture, which makes the seminary one of the very active institutions in bringing modern art culture into Flores.

### **Keywords:**

Art education, education history, art education in flores



**Paper ID : ALE 79**

**Author Creativity in Cyber Literature: Can it Improve Reading Literacy in Indonesia?**

**Presenter :**

Purwati Anggraini, Suyatno Suyatno, Tengsoe Tjahjono, Suhartono Suhartono  
Universitas Negeri Surabaya ; Universitas Muhammadiyah Malang  
[poer1979ang@gmail.com](mailto:poer1979ang@gmail.com)

**Abstract**

Technological developments affect many aspects, one of which is the development of literature. Cyber literature is a literary work that utilizes technology, especially the internet. Many new writers use cyber literature platforms as a medium for telling stories. One of the widely used cyber literature platforms is wattpad. The themes raised by the authors on the wattpad platform are also very diverse. One wattpad story can be read by tens of millions of readers. The question is, does the number of wattpad readers show that the Indonesian people are literate, especially reading literacy? Do wattpad authors also often read to produce stories that are loved by many people? This question is interesting to discuss, because based on the results of the literacy level survey conducted by the Program for International Student Assessment (PISA) in 2019, Indonesia was ranked 62 out of 70 countries. This shows that the literacy level of the Indonesian nation is still very low. Literacy can be built from education system. To improve reading literacy, teachers and lecturers can use cyber literature. Quality cyber literature can present stories that will broaden the reader's horizons. For this reason, it is necessary to make joint efforts to improve people's reading literacy, one of which is collaboration between cyber-literary authors, cyber-literary platforms, and also education system to jointly improve the quality of cyber-literary stories.

**Keywords :**

Cyber literature, reading literacy, creativity, author.

**Paper ID: ALE 142**

## **Learning Loss on Student Academic Performance during the Implementation of Online Learning Proses**

### **Presenter:**

Romlah Ulfaika  
Universitas Borneo Tarakan  
romlah\_ulfaika@borneo.ac.id

### **Abstract:**

The era after the global pandemic commences a new learning culture in Indonesia, where every educational activity is conducted in fully remote learning. Numerous inventions and development researches have been attempted to survive this catastrophe with at least obstacles as possible to the educational activity. However, the educational field started to receive new news as the pandemic keeps going. As the school closures have been instructed for a sufficiently long period, millions of students have been deprived of accessible learning. The self-directed way of education cannot reach or successfully cover all students' learning needs. It is found in the Borneo University of Tarakan that the number of absenteeism increased in the past year and the number of dropouts. The drop in students' achievement and participation indicates the learning loss effects on their academic performance. Based on the phenomenon observed, it is crucial to investigate the impact of learning loss on students' academic performance during the online learning process at Borneo University of Tarakan. This study highlighted some implications including the major factors on learning loss that affects the student academic performance and the students' perception about the causes of learning loss in academic performance.

### **Keywords:**

Learning Loss, Students' academic performance, Student's perception, Online learning.

**Paper ID: ALE 179**

**WORD COMPLEXITY IN BIPA TEXTBOOK LEVELS A—C AS MATERIALS FOR INDONESIAN VOCABULARY MASTERING FOR FOREIGN SPEAKER**

**Presenter:**

Agusniar Dian Savitri, Dianita Indrawati, Suyatno Suyatno  
Universitas Negeri Surabaya  
agusniarsavitri@unesa.ac.id

**Abstract**

One of the things that foreign speakers find difficult when learning Indonesian is the form of derivation. Foreign speakers, especially speakers of flexion languages, find it difficult to distinguish the use of affixed words, for example discussing by discussing, fighting over, seizing, fighting over. One of the books that is used as a reference in learning Indonesian is the A-C level BIPA textbook published by the Language Agency. In the book there are various vocabulary that can be learned by foreign speakers. The problem is, the vocabulary in the book does not always show the level of complexity that is in line with the level of the book. Based on this, it is necessary to study the complexity of words in BIPA textbooks at A-C levels as a material for mastering Indonesian vocabulary for foreign speakers. Data collection uses the documentation method so that the corpus of data is obtained from the BIPA A-C textbook. The comparative method was used for data analysis, namely comparing the complexity of words contained in A-C textbooks. In addition, descriptive methods are used to determine the complexity of words and words that tend to be used in each level. As a result, first, there is an increase in word complexity from simple words to complex words at each level of the BIPA textbook. The level of complexity is not clearly defined, meaning that there is still overlap between levels of BIPA textbooks. Second, the explanation of changing simple words into complex words is not explained in the BIPA textbook. These words are only used in the text. Third, there is morphological interference which is the influence of regional languages.

**Keywords:**

word complexity, BIPA textbook, vocabulary mastery, foreign speakers

**Paper ID: ALE 182**

## **UTILIZATION OF RECYCLED WASTE AS INNOVATION OF INDONESIAN LEARNING MEDIA**

### **Presenter:**

Yermia Nugroho Agung Wibowo, Suyatno Suyatno, Titik Indarti  
Universitas Negeri Surabaya  
yermianugroho@unesa.ac.id

### **Abstract**

Learning media has an important role in learning because it serves as a liaison between teaching materials and teachers. Through the right learning media, students can understand the material well. Unfortunately, learning media is often associated with the use of technology such as learning videos and power points. In fact, many things can be used as learning media, one of which is recycled waste. The purpose of this study is to describe the use of recycled waste as an innovation of Indonesian language learning media through project-based lectures, as well as the ability of students to develop learning media innovations. Collecting data using the method of observation and student assignments. Data were analyzed qualitatively and quantitatively. As a result, first, the types of recycled waste that tend to be used are waste paper, cardboard, and plastic bottles. Second, it produces a variety of learning media that have selling, educational, and economic values. Third, there is an increase in student creativity; Students who use recycled waste tend to be more creative than those who use finished materials.

### **Keywords:**

recycled waste, innovation, learning media, Indonesian language

**Paper ID : ALE 213**

## **Panji Literature In The Transformation Of Performing Art In East Java**

### **Presenter :**

Welly Suryandoko  
Universitas Negeri Surabaya  
[wellysuryandoko@unesa.ac.id](mailto:wellysuryandoko@unesa.ac.id)

### **Abstract**

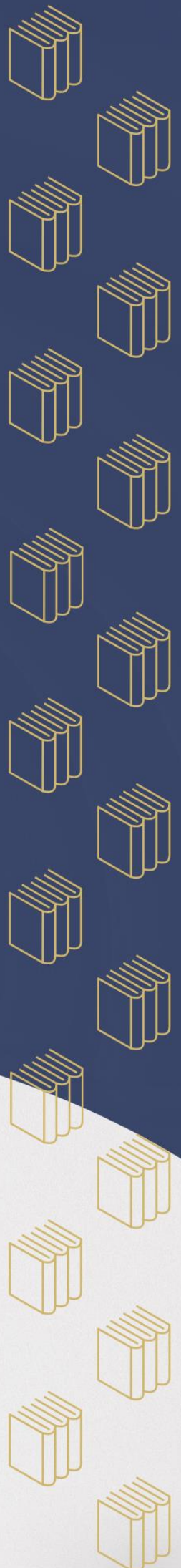
This study aims to examine the transformation of Panji literature in the form of performing arts in East Java. Panji tale became the inspiration for the growth of works of art in various forms, including performing arts. The importance of Panji's story is studied, because until now it is still being acknowledged. The values contained in the Panji story are still considered important by the community because they contain universal values, especially with the new values implicitly implied in the work of transformation. This study uses a qualitative approach with data collection techniques: interviews, documentation and recording. Data validity is done by extending observations, and focus group discussions. Sources of data in the study include experts or researchers of Panji culture in East Java, as well as forms of Panji stories in several documents. The results of the study show that various forms of performing arts in East Java are transformations of the Panji story. The transformation of the banner story in performing arts can be seen in several arts such as Wayang Topeng (Malang), Wayang Beber (Pacitan), Wayang Timplong (Nganjuk), Panji Asmorobangun Dance (Kediri), Thengul Puppet (Bojonegoro), Kethek Ogleng (Pacitan, Wonogiri), Jaranan (Trenggalek, Blitar, Tulungagung), Reyog Ponorogo, and Kentrung. Given that there are so many arts that are transformations of the Panji story, therefore, it is very important to continue to carry out academic studies and the development of arts, especially performing arts so that the Panji Culture can survive and develop.

### **Keywords :**

Panji Literature, Transformation, Performing Arts, East Java



 **ABSTRACT  
COLLECTION:  
Educational Science**



**Paper ID: EDS 18**

## **Designing Siri' na Pacce Values-Based Learning Model: Nurturing Local Wisdom in Elementary Schools**

### **Presenter:**

Abdul Azis, Kokom Komalasari, Sapriya Sapriya, Rahmat Rahmat  
Universitas Pendidikan Indonesia  
abdul.azis@upi.edu

### **Abstract**

The aim of this study was to propose an appropriate model that promotes siri' na pacce, the local wisdom of the Bugis-Makassar tribe, to strengthen the character of elementary school students. This study was educational design research. Designing this learning model applied three steps, specifically (1) needs and context analysis, (2) review of literature, and (3) development of first blueprint for the model. Those steps were included in the preliminary study phase of educational design research. The result of this study was a prototype of a siri' na pacce values-based learning model consisting of five steps: acquiring initial knowledge, thinking, discussing, communicating, and reflecting. The prototype needs to be put into practice and evaluated before being widely implemented in elementary schools.

### **Keywords:**

siri' na pacce; local wisdom; learning model; elementary school



Paper ID: EDS 26

## **Improving Reading Comprehension of Simple Reading Text Using Directed Reading Thinking Activity (DRTA) Strategy For Deaf Students**

### **Presenter:**

Reza Akbar Fauzan, Asri - Wijastuti, Yuliati  
Universitas Negeri Surabaya  
reza.20004@mhs.unesa.ac.id

### **Abstract**

The purpose of this study was to describe the steps in using the Directed Reading Thinking Activity (DRTA) strategy to improve reading comprehension skills of simple reading texts in class VII deaf students of SMPLB Karya Mulia Surabaya. This research is a Classroom Action Research (CAR) which was carried out in two cycles. Each cycle consists of 2 meetings. The subjects used were students of class VII SMPLB Karya Mulia Surabaya with a total of 10 students. While the object used is a simple reading text. The data sources of this research are students and teachers. Data collection techniques using tests, observations, interviews and documentation. Test the validity of the data using triangulation techniques. And for data analysis used is qualitative and quantitative data analysis techniques. The results of this study indicate that this DRTA strategy can improve students' reading comprehension skills with reading steps that have been made in a structured manner and students can actively respond positively in participating in learning.

### **Keywords:**

DRTA Strategy; reading comprehension

**Paper ID: EDS 27**

## **The Role of Guidance and Counseling in Enhancing Student Well-Being in Junior High School During Covid-19 Pandemic**

### **Presenter:**

Widya Aska Audina, Ipah Saripah, Yusi Riksana  
Indonesia University of Education  
widyaaska@upi.edu

### **Abstract**

This study conducted based on the phenomenon of Covid-19 Pandemic faced by students all around the world of school closures. The primary role of the counsellor during the Covid-19 pandemic is expecting to be able helping for counselling services that are under the needs of students today. Changes and the learning transition period because of the COVID-19 pandemic can bring up complex emotions in students' mental health. Student well-being is important to implement in school to make students still feel prosperous even during the Covid-19 Pandemic. Student well-being is a positive emotional feeling that result from the harmony between environmental factors, personal needs, and student expectations at school. Student well-being includes the objectives of implementing guidance and counseling services, as helping the students to achieve a meaningful and happy life both personally and socially. The primary focus of implementing guidance and counseling service is the growth and development of autonomous learners. The purpose of guidance and counseling services is to provide helping the students in order to have a positive relationship between their environment to achieve happiness, meaningful life, and prosperity. Counselor helps to enabling students to develop social and emotional skills to grow into happy, respectful, balanced and successful individuals. When students can accept themselves positively, manage the environment effectively and be responsible for their actions, conceptually, students' well-being achieves.

### **Keywords:**

Student well-being, Guidance and Counseling, Covid-19

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**Paper ID: EDS 38**

**Teacher Interpersonal Communication With Autist Students In Inclusive School**

**Presenter:**

Faiqotul Himmah, Wiwik Widajati, Budiyanto Budiyanto  
Universitas Negeri Surabaya  
faiqotul.20002@mhs.unesa.ac.id

**Abstract**

In teaching and learning activities, communication is the most important factor as the main source in conveying knowledge. The purpose of this study was to describe the interpersonal communication of autistic students with teachers. This research uses qualitative research methods with qualitative descriptive research. Data obtained through: observation and interviews. The data obtained were then analyzed using the membercheck technique. The results showed that interpersonal communication between teachers and students with autism was quite good. Some aspects that affect interpersonal communication between teachers and students with autism include openness, empathy, support, a sense of positivity and equality.

**Keywords:**

interpersonal communication, autism student, inclusive school

**Paper ID: EDS 39**

## **Implementation of Fading in E-Learning Social Behavior and Expressive Language of Autist Children**

### **Presenter:**

Nur Ramadhani Ash Siddieqy  
Universitas Negeri Surabaya  
nurramadhani.20005@mhs.unesa.ac.id

### **Abstract**

Communication has a relationship with language skills, it is impossible for a human being to communicate if he does not have language skills or language skills. Language is a means of communication that gives symbols and meaning to thoughts and feelings to convey messages or information to others, but children with autism have difficulty in expressive language communication. This happened to children with autism in one of the special schools in the city of Sidoarjo who felt it was necessary to intervene with fading stimulus to reduce expressive language and behavior disorders in children with autism. Identification of the subject, The subject in this study is a boy aged 12 years who has autistic spectrum disorder with reference to DSM V. The research instrument used was a behavior tally observation technique and a rating scale to measure the behavior of autistic children who had expressive language barriers. Observation guidelines were prepared based on the characteristics of autism contained in DSM V. The research method used a quantitative approach with experimental methods and used an experimental single case design. Experiments were carried out by giving Fading intervention to autism subjects who had behavioral and expressive language disorders. The intervention was carried out in 5 sessions (1-2 hours per session, depending on the response the subject gave) over a period of 10 days. So that it can be concluded. Based on the results of the descriptive analysis, it can be concluded that the fading stimulus can provide a positive response to children with autism who experience expressive language behavior disorders. In this study, after being given the intervention for approximately 10 days, the subjects showed a decrease. Suggestions This research has limitations in its implementation, namely the teacher is less cooperative in conducting the intervention process. Even so, this study showed positive changes experienced by the subjects after the intervention for 5 sessions. Therefore, it can be suggested to parents/teachers to apply stimulus fading strategies to children with autism. Suggestions This research has limitations in its implementation, namely the teacher is less cooperative in conducting the intervention process. Even so, this study showed positive changes experienced by the subjects after the intervention for 5 sessions. Therefore, it can be suggested to parents/teachers to apply fading stimulus strategies to children with autism. Suggestions This research has limitations in its implementation, namely the teacher is less cooperative in conducting the intervention process. Even so, this study showed positive changes experienced by the subjects after the intervention for 5 sessions. Therefore, it can be suggested to parents/teachers to apply stimulus fading strategies to children with autism.

### **Keywords:**

Autism, PECS, and Expressive Language

Paper ID: EDS 42

## **Implementation of Differential Reinforcement of Other Behavior (DRO) with Digital Video Assistance To Reduce Maladaptive Behavior in Deaf Children**

### **Presenter:**

Sibi Dyah Novialassafitri, Siti Masitoh, Endang Purbaningrum  
Universitas Negeri Surabaya  
sibidyahn@gmail.com

### **Abstract**

This study aims to find out the influence of differential reinforcement of other behavior (DRO) programs to reduce maladaptive behavior or behaviors that should not appear in children with disabilities that occur during home learning due to online. The research approach uses quantitative research with this type of experimental research. The experimental approach used is the Single Subject Research approach. The design used is the A1-B-A2 design. The study subjects were students with disabilities in class II SDLB – B Karya Mulia II in Surabaya. Data collection through descriptive statistics and displayed in graph form. The components analyzed are analysis under conditions.

The results showed a decrease in the duration of time and frequency of maladaptive behavior shown by the subjects. Based on the duration and frequency of the appearance of the subject's behavioral targets it is known that the estimated results of the directional slack increase during the baseline phase 1, decrease during the intervention phase, and decrease in the baseline phase 2. It can be concluded, the use of differential reinforcement of other behavior (DRO) program can reduce maladaptive behavior.

### **Keywords:**

students with disabilities, Differential Reinforcement Of Other Behavior (DRO), maladaptive behavior, behavior modification

**Paper ID: EDS 43**

## **A Study Accessibility of Deaf Students During The Covid-19 Pandemic (Case Study of Online and Offline Learning)**

### **Presenter:**

Melania Safirista Sofiarti, Murtadlo Murtadlo, Endang Pudjiastuti Sartinah  
Universitas Negeri Surabaya  
melania.20007@mhs.unesa.ac.id

### **Abstract**

The COVID-19 pandemic has changed various sectors and some vital things. One of the vital things is the education sector; in this case's education for Deaf students. In this qualitative research, the researcher invites some informants to explore various things since the problem that occurs among Deaf students is about access to Sign Language Interpreters.

The result of this research revealed there were two inverse answers between two informants from Brawijaya University and two others from Dinamika University and Widya Mandala Surabaya University. The researcher chose multiple universities considering the different campus backgrounds. Two informants from Brawijaya University revealed that offline learning is more comfortable due to access and a supportive atmosphere of inclusion. Meanwhile, two informants from Dinamika University and Widya Mandala Surabaya University preferred online study because of the enjoyable web texts access, comparing with offline studies where they do not have interpreter access.

So the problem that appears is the access is the right of all people with disabilities. All colleges should conduct comparative studies, review & improve their access for disabled students. With the purpose, the individuals with disabilities will enjoy the learning in college, by means inclusiveness will be implemented well, and deaf student better enjoy with interpreter access.

### **Keywords:**

Accessibility, web texts access, Deaf Students

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Paper ID: EDS 45

## **User Interface and User Experience Design of Home based Therapy Applications for Parents of Children with Autism**

### **Presenter:**

Luqyana Dhiya Amira, Wagino Wagino, I Ketut Budayasa  
Universitas Negeri Surabaya  
luqyanadhiya22@gmail.com

### **Abstract**

Children with autism need optimal and consistent intervention at school and at home. Parents need an application as a guide for implementing interventions at home. This study aims to develop a home based therapy application design so that it is easy to use by parents and in accordance with the intervention needs of children with autism. This research method is design thinking. Several stages of the design thinking method are empathy, define, ideate, prototype, and test. The test through usability testing using the Maze platform, 93% results were obtained. Then in data analysis using a usability test questionnaire, the learnability aspect was obtained a value of 90% and the memorability aspect was obtained a value of 80%. The whole test shows good and successful results, so the prototype can be continued on the implementation of the application.

### **Keywords:**

Autism, Applications, Home Intervention, Parents, User Interface, User Experience



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**Paper ID: EDS 58**

**Competency Assessment of Spiritual Attitudes of Christian High Schools Based on the 2013 Curriculum: Literature Review**

**Presenter:**

Richan Sinur Simangunsong, Yuli Rahmawati, Wardani Rahayu  
Universitas Negeri Jakarta  
richanmangunsong@gmail.com

**Abstract**

The assessment of spiritual attitudes in the 2013 curriculum has indicators found in Core Competencies (KI 1) and Basic Competencies (KD 1). However, the assessment emphasizes more on general things, such as being grateful to Allah, respecting others, praying, worshiping, and so on. When compared with Christian spiritual understanding, the indicators for assessing the spiritual attitude of the 2013 curriculum are still not comprehensive enough in their assessment, there are still several sections that need to be added, by adjusting the context of the age of the students. The purpose of this study was to find the dimensions and indicators of spiritual attitude assessment based on Christian spiritual concepts, spiritual assessment research journals, KI KD 1 curriculum 2013, and the results of interviews. This research was conducted using qualitative methods by conducting literature studies and interviews with three religion teachers and four students from several Christian schools. The technique of qualitative data analysis using content analysis. The results show that there are five main dimensions that can be applied to the assessment of spiritual attitudes: Relationship with Transcendent/God, Relationship with Self, Relationship with Others/Communal, Relationship with Environment/Created Nature, Relationship with State/Government/ Constitution. It is hoped that this research can provide input and suggestions, on the assessment of spiritual attitudes in Christian schools.

**Keywords:**

Spiritual Attitude Assessment, Christian Spirituality, 2013 Curriculum, Core Competencies (KI), Basic Competencies (KD)

**Paper ID : EDS 102**

## **The Development of the Theory Book and Practice Manual of the Counseling with Solution Focused Brief Therapy (SFBT)**

### **Presenter :**

Endang Pudjistuti Sartinah, Budi Purwoko  
Universitas Negeri Surabaya  
[endangsartinah@unesa.ac.id](mailto:endangsartinah@unesa.ac.id)

### **Abstract**

This development research adapted the Borg & Gall model with the main objective to develop and test the effectiveness of the product. Products that were developed on this study including (1) SFBT counseling theory books, (2) SFBT counseling practice manuals, (3) SFBT counseling competency measurement instruments. The rationale for developing this product is based on several reasons including: (1) empirically SFBT is effective in overcoming psychological problems, (2) SFBT can be used as an alternative method of counseling to overcome students' psychological problems, (3) School counselors need to master SFBT counseling competencies adequately, (4) the limited sources of theoretical reference books and SFBT counseling practice manuals that can be used as learning materials for increasing SFBT counseling competence. This study was done in three stages which included pre-development, development, and post-development. The first year of research focused pre-development and development. The post-development stage in the form of product effectiveness testing is carried out in the second year. The preliminary stage has been carried out in a preliminary study, in the form of a theory book content framework, a framework for the contents of the SFBT counseling practice manual, and the SFBT counseling competency instrument. At the development stage the product has been developed and product validation by experts and users. Based on expert validation and user validation, it was concluded that the development research products which included SFBT theory books, SFBT practice manuals, and evaluation instruments of SFBT training results met the acceptability criteria based on aspects of usefulness, accuracy, appropriateness, and appropriateness.

### **Keywords :**

Development, theory book, SFBT counseling practice

Paper ID : EDS 108

## **Pedagogical Skills Exercise as an Alternative to Increase The Teaching Ability of Pre-Service Chemistry Teachers at Field Experience Practice**

### **Presenter :**

Mohan Taufiq Mashuri  
Universitas Islam Negeri Mataram  
[mtmashuri@gmail.com](mailto:mtmashuri@gmail.com)

### **Abstract**

This study aims to determine the effect of providing Pedagogical Skills Exercise (PSE) on the teaching ability of pre-service chemistry teachers in the Field Experience Practice (FEP). The PSE used in this study consist of three different aspects, namely the skill of developing teaching materials, the skill to manage the classroom, and the skill to carry out the evaluation process. The FEP program is created as part of student teachers' curricula created by university in collaboration with random schools at specific area. This study was carried out in two different phase, first the PSE process was given to the pre-service chemistry teacher, second the FEP program conducted by pre-service chemistry teacher at random school selected by the university (rular, urban, or remote schools). Eighteen pre-service chemistry teachers of Islamic University of Kalimantan Muhammad Arsyad Al Banjari Banjarmasin was participated in this study. This study start from the second semester of the 2016/2017 school year until the first semester of the 2017/2018 school year. The data were collected through observation, interview, and test. The results showed that the implementation of PSE could improve the teaching ability of pre-service chemistry teachers in FEP. The average score of all participant in all aspects is increased from 60.5 to 82.5.

### **Keywords :**

Pedagogical skills; pre-service teacher; field experience practice

**Paper ID: EDS 113**

## **The Effects of Sample Size and Number of Options on the Item Validity of Students Environmental Personality Score**

### **Presenter:**

Rahmirini Datau, I Made Putrawan, Wardani Rahayu  
Universitas Negeri Jakarta  
rahmirinidatau0@gmail.com

### **Abstract**

Personality shares a close bond with character building. Students who are learning about character building may be able to apply the principles of environmentally friendly behaviors on everyday life. Personality instrument is one of the most common ways to measure environmental personality, and one of the most important attributes on a test/instrument is validity. Item validity is used in item analysis to improve on the measurement, where accurate measurement is not only achieved through the function of the item description but also through the effects on the number of options and sample size. This study aims to discover the difference in item validity on the students environmental personality. The variable used in this research is the number of options (3 and 5) and sample size (175 and 215). The data is analyzed using two way ANOVA followed with HSD post hoc test. The results of this study shows that: (1), Number of options influenced item validity of the students environmental personality score (2), sample size did not influence the item validity of the students environmental personality score and (3) there is an interacting influence between the number of options and sample size on the item validity of the students environmental personality. The HSD test reveals that the sample group with 175 students that used 3 options differs significantly compared to the other groups, while there is no significant difference between other student groups working with either 3 or 5 options. To summarize, the item validity of students environmental personality is better on groups 175 samples working with 3 options rather than 5 options or on groups of 215 students working with either 3 or 5 options.

### **Keywords:**

Item Validity; Environmental Personality; Number of options; Sample size

**Paper ID: EDS 120**

## **Evaluation of Guidance and Counselling Programs during the Covid-19 Pandemic: Literature Study**

### **Presenter:**

Ach. Sudrajad Nurismawan, Findivia Egga Fahruni, Ela Nur Fadilah, Surya Adhi Nugraha  
State University of Surabaya  
achsudrajad.21006@mhs.unesa.ac.id

### **Abstract**

To be able to measure how effective and efficient a guidance and counselling service program is, counsellors need an appropriate and systematic evaluation of the model according to the conditions in the school. However, due to limited information and data related to the most appropriate and effective program evaluation model to be applied during the Covid-19 pandemic, counsellors have difficulty determining the evaluation model. Therefore, this study aims to (1) map the evaluation models of guidance and counselling programs that have been implemented by counsellors during the Covid-19 pandemic; (2) describe the key concepts of the evaluation model that are considered efficient and effective to be applied by counsellors during the Covid-19 pandemic; (3) explain the practice procedures for an effective and efficient evaluation model to be applied by counsellors during the Covid-19 pandemic. This study uses a literature study method with analysis of the Miles & Huberman model on the latest relevant articles so that it is expected to obtain results that are in accordance with the research objectives.

### **Keywords:**

Evaluation, Guidance and Counselling Program, Covid-19

**Paper ID: EDS 129**

**Efektivitas Bimbingan Kelompok Melalui Teknik Problem Solving untuk Meningkatkan Self Efficacy dalam Prokrastinasi Akademik Siswa Kelas Xi SMK Wachid Hasyim 2 Surabaya di Masa Pandemi Covid-19**

**Presenter:**

Much. Irzal Ardiansyah  
Univsitias Negeri Surabaya  
irzal2896@gmail.com

**Abstract**

This research has a background to find out the obstacles that occur in the application of online learning/distance learning (PJJ) during the Covid-19 pandemic for students of Wachid Hasyim 2 Surabaya Vocational School in 2021. The purpose of this study is to describe the implementation and existence of student academic procrastination. when implementing an online/online-based education system that was applied during the pandemic. This research method uses a quantitative approach. The research subjects were students of class XI SMK Wachid Hasyim 2 Surabaya. The object of this research is to increase self-efficacy in students' academic procrastination during the Covid-19 pandemic. Data collection techniques used by researchers are literature studies and several techniques, including; (1) observation; (2) interviews; (3) measurement scale; and (4) documentation. The learning solution during this pandemic is learning with online media. There are several obstacles related to the implementation of online learning during a pandemic, both in terms of supporting facilities and infrastructure to access to available information, among others; (1) there are students' difficulties in understanding the learning material; (2) the number of student assignments given by the teacher; (3) there are no friends to study and discuss during distance/online learning; (4) decreased learning concentration; (5) the learning process during the pandemic; (6) barriers to online learning.

**Keywords:**

Group guidance through problem solving techniques, self-efficacy, student academic procrastination

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**Paper ID: EDS 130**

**Publication Performance and Scientific Impact of Unesa Postgraduate Lecturers**

**Presenter:**

Wasis Wasis, Tsuroyya Tsuroyya, Muhammad Abdul Ghofur  
Univsitias Negeri Surabaya  
muhammadghofur@unesa.ac.id

**Abstract**

The performance of scientific publications of the Postgraduate lecturers at the Universitas Negeri Surabaya is one of the important indicators in measuring the quality of learning as well as the reputation of the institution. Therefore, the performance of this publication needs to be a continuous concern. This study seeks to describe the performance of scientific publications of 128 home base postgraduate lecturers at the Universitas Negeri Surabaya in the 2019-2020 period. The scientific impact analysis is seen from the number of citations obtained from documents in Google Scholar while the publication performance is seen from the number of Scopus indexed documents. Statistical analysis of different tests using t-test. As a result, there is an increase in the number of citations obtained, but in terms of the number of Scopus indexed documents, it has decreased. Indications of the cause are discussed.

**Keywords:**

Publication Performance; Scientific Impact;



**Paper ID: EDS 134**

## **Analysis of adequate of green open space for reducing CO<sub>2</sub> in State University of Surabaya**

### **Presenter:**

Eko Budiyanto, Nugroho Hari Purnomo, Bambang Hariyanto  
State University of Surabaya  
muzayanah@unesa.ac.id

### **Abstract**

UNESA Ketintang Street Campus, Surabaya, is the biggest campus in South Surabaya. Academic activity on the UNESA Ketintang Street Campus to some extent contributed to the increase of CO<sub>2</sub> concentration in the Surabaya City. The increase of CO<sub>2</sub> concentration can be balanced by Green Open Space. This study goal is to determine the adequacy of Green Open Space in Unesa Ketintang Street Campus in reducing CO<sub>2</sub>. The study used quantitative research method. The study location was UNESA Ketintang Street Campus, Surabaya. Data acquisition is by observation technique. Observation was carried out for 6 days in July 2021. Analysis Unit uses Box Model. Adequity of existing Green Open Space was analysed by consideration of CO<sub>2</sub> reduction, the reduction indicator of CO<sub>2</sub> concentration (Net\_CO<sub>2</sub>-Con) in cumulative concentration of CO<sub>2</sub> on ambient air. The result of study shows that from 7 point of observation, the average CO<sub>2</sub> concentration on ambient air is around 346 – 570 ppmV. The value of reduction of CO<sub>2</sub> concentration (Net\_CO<sub>2</sub>-Con) is around -19,46 to -87,69 ppmV. The minus sign (-) on the reduction value shows that Green Open Space in UNESA Ketintang Street Campus, Surabaya, was adequated to reduce CO<sub>2</sub> concentration on ambient air.

### **Keywords:**

CO<sub>2</sub>, reduce, green open space

**Paper ID: EDS 168**

## **Development of Conflict Management Style Media Development Based on Android to Know the Style of Managing Conflict High School Students in Surabaya**

### **Presenter:**

Qorina Aris Budiarti  
State University of Surabaya  
qorina.18012@mhs.unesa.ac.id

### **Abstract**

This study aims to develop a set of android CMS ( Conflict Management Style ) to find out the style of managing conflict among high school students as an important information to reduce conflict appropriately and responsibly that meets the assessment criteria of acceptability includes aspects of usability, feasibility, accuracy and propriety. This research uses the Borg & Gall development research method which includes; (1) preliminary studies, (2) planning, (3) initial product development, (4) testing expert validation, (5) product revision. After that, the datas were analyzed using quantitative and qualitative methods. The material expert test assessment shows 92.19%, means that the contents of CMS ( Conflict Management Style ) android material is very good, no revision needed. Not only that, the Rating media expert test also shows a very good results, which is 100%, it means that this application design can be considered as a very good one. So concluded that the development of android-based conflict management style understanding media to determine students' conflict management styles had met the criteria for good acceptability in the design and content of the discussion, so that the Android CMS (Conflict Management Style) could be used as information to reduce and direct conflict.

### **Keywords:**

Android development , conflict management style.

**Paper ID: EDS 169**

## **Guidance and Counseling Services to Develop Student Career Maturity**

### **Presenter:**

Ma'fufah Hastin Hastin  
State University of Surabaya  
mafufah.18007@mhs.unesa.ac.id

### **Abstract**

This study describes career guidance and counseling services for career maturity of high school students. The method used is library research method. The results of the study refer to the components of international, national journal articles and input from supervisors, namely: 1) The successful application of services from 25 journals has 6 studies that are influenced by various factors (a) locus of control and self-concept, (b) learning motivation, (c) ) adversity quotient, self-awareness, gender and socioeconomic status, (d) Self management. 11 studies of career maturity results can improve. 3 studies on the use of media, namely assessment tools, modules and multimedia. 3 studies through self-efficacy, 2 studies compare the career maturity of students between boys and girls. 2) Methods or techniques found 8 methods or techniques, namely (a) group counseling services (b) career portfolio media. (c) career information services (d) Self Management techniques. (e) Collaborative career guidance (f) interactive multimedia career information (g) self-efficacy techniques (h) career guidance module. 3) The scope and targets are from higher education to high school. The targets are mostly mixed sex, both individually and collectively. 4) Suggestions or recommendations that are expected to provide career guidance services to increase student career maturity

### **Keywords:**

Career Guidance and Counseling Services, Career Maturity

**Paper ID: EDS 185**

**THE EFFECT OF THE USE OF ONLINE LEARNING MEDIA AND LEARNING STYLES ON THE LEARNING MOTIVATION OF SHIPPING CADETS**

**Presenter:**

Ardhiana Puspitacandri, Sutoyo  
Politeknik Pelayaran Surabaya  
ardhiana@poltekpel-sby.ac.id

**Abstract**

The Covid-19 pandemic which is currently experienced by almost all countries in the world has had a significant and massive impact. In the field of education itself, the government has strictly eliminated face-to-face learning in class and distance learning is considered a solution so that education can continue to be implemented in the midst of the Covid-19 pandemic emergency. In learning activities, motivation is the overall driving force in students that gives rise to learning activities that ensure the continuity of learning activities. The learning process that is less than optimal can lead to less than optimal learning outcomes. Lecturers have an important role in growing cadets' motivation to learn as students. It is possible for lecturers to create interesting learning so that they can foster cadets' learning motivation through a variety of web-based learning media used that are adapted to student learning styles. The purpose of the study was to determine the learning motivation of cadets in terms of the variety of web-based learning media used and the learning styles of students. The research population was cadets of Surabaya Shipping Polytechnic in semester 2. The sample in the study was 196 people, taken using purposive sampling method. The research method uses a quantitative approach using a comparative causal method. Collecting data using a questionnaire and analyzed using Two Way Anova Factorial with interaction. The results showed that there was no significant (significant) difference in the variety of web-based learning media used on learning motivation ( $F=0.997$ ;  $p>0.05$ ), and learning styles ( $F=0.640$ ;  $p>0.05$ ), and not there is an interaction between learning media and learning style ( $F=0.407$ ;  $p>0.05$ ). The selection of web-based learning media has relatively no different effect on students' learning motivation, but learning styles have a partially significant effect on learning motivation

**Keywords:**

learning motivation, learning style, learning media

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**Paper ID: EDS 197**

**Experiential Learning Model as a Counseling Guidance Teacher Strategy to Increase Students' Interest in Learning**

**Presenter:**

Anik Hermawati, Mochamad Nursalim, Retno T Tri Hariastuti  
anik.20004@mhs.unesa.ac.id

**Abstract:**

This study aims to describe the experiential learning model as a teacher counseling strategy to increase student interest in learning. The experiential learning model is one method that is quite interesting to be applied in learning activities. Focusing on the experience experienced by a person, while participating in learning activities, it is expected to experience changes in order to be able to increase the effectiveness of learning outcomes. The research method used is based on a literature study conducted by reviewing various theories. Data collection tools used are journals, articles, and books. The results of the literature study obtained that the experiential learning model can increase students' interest in learning.

**Keywords:**

interest to learn;experiential learning models

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**Paper ID: EDS 198**

**Overcoming Students' Pornographic Watching Behavior through  
Convergence Counseling**

**Presenter:**

Hari Utami Dewi, Budi Purwoko, Najlatun Naqiyah  
raden.20012@mhs.unesa.ac.id

**Abstract:**

The rationale for this research to help students overcome the viewing behavior of pornographic watching through group counseling services with convergence counseling techniques, which is an integrative flow of counseling. Convergence counseling is used overcome the behavior of watching pornographic content. It is the author's innovation in dealing with counselees who experience severe problems involving deviant behaviors. The research method used is a development research method approach. The action used in this research is "Overcoming the behavior of watching pornographic content with convergence counseling" by method observation, interview, and questionnaire. The result of development research show that the use of convergence counseling can change the behavior of watching pornographic content, which leads to increased awareness and self-concept to be more religious in applying their behavior in daily life, so as to create adjustment behavior according to religious norms and values.

**Keywords:**

convergence counseling;behavior of pornographic watching;students

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**Paper ID: EDS 199**

**Correlation Between Religiosity, Parent-Child Communication, and Student Self-development**

**Presenter:**

Siti Hafshah Mashduqie, Endang Pujiastuti Sartinah, Budi Purwoko  
Universitas Negeri Surabaya  
raden.20012@mhs.unesa.ac.id

**Abstract:**

This research was conducted at the Assyafiiyah Islamic Boarding School, Tamberu Village, Batumarmar District, Pamekasan Regency, where almost 80% of the guardians of the students work as Indonesian Migrant Workers in Malaysia, this has an impact on the activeness and interest of students to learn. The purpose of this study was to determine the relationship between religiosity and communication between parents and children with the self-development of students. The method used in this study uses quantitative research methods, namely multiple regression analysis. Data were collected from 3 scales, namely: the scale of religiosity, the scale of communication between parents and children, and the scale of self-development. The author hopes that after this research can help students who have difficulty in self-development.

**Keywords:**

Religiosity;Parent-child communication;Self-development

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**Paper ID: EDS 200**

**Improving Parents' Attention to the Interest of High School Students Continuing Study In Higher Education through a Parenting Program**

**Presenter:**

Ninin Irmawati, Najlatun Naqiyah, Hadi Warsito  
Universitas Negeri Surabaya  
nininirma.20011@mhs.unesa.ac.id

**Abstract:**

Continuing to college is the dream of high school graduates who live in urban areas. With good grades in semesters 1-5, they can pass the SNMPTN with a study program that suits their interests, especially if they have a KIP or a card for a PIP scholarship. With KIP they don't have to spend money, tuition is free and even gets pocket money. For those who do not pass the SNMPTN they can also study for free with KIP at private universities. The reality on the ground is not the case because of 80% of students receiving KIP, only 20% are willing to continue. The main reason given was because of the parents' economy, even though they had been socialized about the existence of KIP, their decision had not changed, therefore a parenting program was held. The purpose of this study was to determine the implementation of the Parenting Program to increase parental attention to the interest of class XII students to continue their studies at SMA Negeri 3 Bondowoso for the academic year 2020-2021. This study used descriptive qualitative method. The results of the study stated that the implementation of the parenting program was not successful because many parents did not support their children to continue on the grounds that the economy was not supportive, some children were engaged, afraid that they would not be able to think about lessons, and the children were tired of studying.

**Keywords:**

Parenting program;parent's attention;interest,KIP



**Paper ID: EDS 211**

**IHT (In House Training): Student Characteristics-based Classical Guidance to Increase Student Learning Motivation**

**Presenter:**

Lilik Budiastutik  
Universitas Negeri Surabaya  
lilik.2008@mhs.unesa.ac.id

**Abstract:**

Education that is able to support development in the future is education that is able to develop the potential of students. The success of educational programs through the teaching and learning process in schools is strongly influenced by one of them, namely educators. Understanding the characteristics of students in the educational process is a central problem. Therefore, every teacher must try as much as possible to understand individual differences between students, which will then be linked to individual and classical services. For this reason, teachers must play a full role, have the responsibility to develop student motivation. The purpose of this research is to grow the professional commitment of teachers and increase students' motivation to learn through in-house training in the form of classical guidance. Researchers used a qualitative approach to analyze the pattern of mentoring. Data collection techniques using interview and observation techniques. The results of the recapitulation of interview and observation data show the level of implementation of learning activities is 92%, and the results of learning evaluations are 96%. Meanwhile, the student wellbeing instrument showed 82%, as well as an increase in student achievement to 80%.

**Keywords:**

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**Paper ID: EDS 212**

**High School Students' Self-Regulated Learning and Academic Procrastination Level in Blended Learning Model: A Correlation Analysis**

**Presenter:**

Nanang Masrur Habibi, Retno Tri Hariastuti, Rusijono Rusijono  
Universitas Negeri Surabaya  
nanang.20009@mhs.unesa.ac.id

**Abstract:**

Covid-19 pandemic leading teachers to conduct limited face-to-face learning with online and offline (blended learning) scheme affects on students' low self-regulated learning and high academic procrastination. This research aims to describe the self-regulated learning and the level of student academic procrastination in the blended learning model, as well as examine the relationship between those two. A total of 841 students from a state high school in Mojokerto Indonesia gave responses on self-regulated learning scale instruments and academic procrastination scales in google form format which were distributed through an online student classroom platform. By analysing the data descriptively and examining a Pearson product-moment correlation, the results of this study found that there is a significant and negative relationship between self-regulated learning and academic procrastination in high school students in the blended learning model. In addition, the level of self-regulated learning in high school students is the most dominant in the low category, while the level of academic procrastination in high school students is the most dominant in the high category. The correlation results indicate that the lower the level of self-regulated learning of high school students, the higher the level of academic procrastination of high school students. To suggest, a survey of the level of self-regulated learning and the level of academic procrastination needs to be examined in a larger scale. Also, researchers and teachers need to improve self-regulated learning and reduce academic procrastination in students through development research and various models and counseling approaches.

**Keywords:**

**Paper ID : EDS 230**

**Conventional to Online Education during COVID-19 Pandemic: Impact of the Transition from the Perspectives of Educators in Higher Education Institution**

**Presenter :**

Marlizayati Johari, Juraidah Musa, Nordiana Zakir, Aliamat Omar Ali, Masitah Shahrill

[masitah.shahrill@ubd.edu.bn](mailto:masitah.shahrill@ubd.edu.bn)


**Abstract**

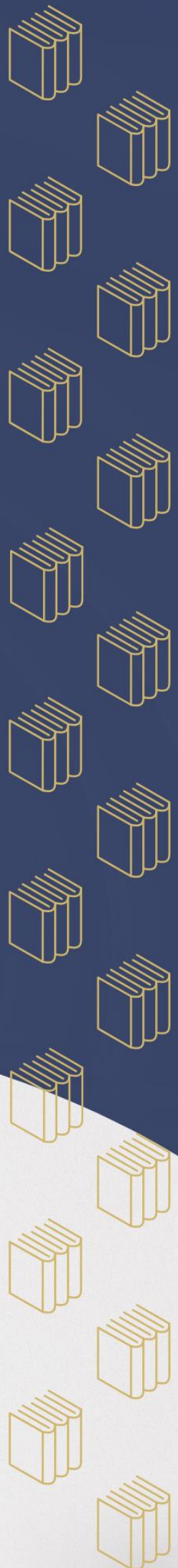
During the first outbreak of COVID-19 in Brunei Darussalam in March 2019, higher education institutions such as Universiti Brunei Darussalam (UBD) had shifted the conventional teaching and learning approach from mainly face-to-face to fully online teaching and learning. This included the education graduate faculty of UBD i.e. Sultan Hassanal Bolkiah Institute of Education (SHBIE). The aim of this paper was to investigate the impact of COVID-19 pandemic on the sudden transition of teaching and learning from the perspectives of SHBIE's academic teaching staff. The online questionnaire was distributed to the teaching staff via email in April 2020. The response rate of the online questionnaire was 88%. Descriptive statistics was used to analyse the data where frequency and percentage were used to describe the pattern of the responses. It was found that half of the staff perceived there were more interactions with students through online teaching activities. However, about 77% and 46% of the staff mentioned that their physical and mental well-being respectively were also affected by the transition to online teaching.

**Keywords :**

COVID-19; Educators' Perspectives; Online Teaching and Learning



 **ABSTRACT  
COLLECTION:  
Mathematics Education**



**Paper ID: MED 3**

**The Process and Lateral Thinking Ability of Students in Mathematics are reviewed Based on Mathematics Learning achievements and Gender Differences in Class XII MIA Students of SMA Negeri 1 Alor Barat daya**

**Presenter :**

Yafet Kala Pandu  
Sanata Dharma University  
panduyafet@gmail.com

**Abstract**

This study aims to 1) determine the lateral thinking process of students in SMA Negeri 1 Alor Barat Daya in terms of mathematics learning achievement and students' gender differences. 2) determine the lateral thinking ability of the students of SMA Negeri 1 Alor Barat Daya in terms of mathematics learning achievement and students' gender differences. This research is a descriptive research with a qualitative approach. The subjects of this study were 6 students of SMA Negeri 1 Alor Barat Daya with each level of high, medium and low mathematics learning achievement represented by men and women. Data was collected by means of mathematics learning achievement tests, lateral thinking tests and interviews. Data analysis used qualitative data analysis techniques, namely: data reduction, data presentation, and drawing conclusions. The results showed that 1) the lateral thinking process of students with high mathematics learning achievement, both male and female, had been fulfilled based on lateral thinking indicators. The subject can solve starting from recognizing the main idea of the problem at hand, the subject can look at the problem with several ways of solving it, the subject can loosen the rigid way of thinking: the subject can use the general solution method, choose to use the general solution method and give reasons why he chooses to use the general solution method. In this case, the subject uses random ideas to generate new ideas; the subject can have an idea on a general way of solving, the subject can explain the steps in using the idea of a way of solving that is not common. The lateral thinking process of students with moderate mathematics learning achievement, both male and female, has been partially fulfilled based on lateral thinking indicators. The subject can recognize the main idea in the problem, the subject has not looked at the problem in several ways, the subject has not loosened a rigid way of thinking (in the second problem male subjects can solve it by way of an unusual solution), the subject does not have random ideas to generate ideas -new idea. The lateral thinking process of students with low mathematics learning achievement, both female and male, has not met the indicators of students' lateral thinking. The subject cannot write down the dominant idea on the answer sheet, the subject does not solve the problem given in several different ways, the subject cannot loosen the control of rigid thinking, the subject does not have random ideas in generating new ideas. 2) Students' lateral thinking ability is reviewed based on gender differences and high mathematics learning achievement has the same level of lateral thinking ability, which is high seen from the subject of being able to solve problems correctly and clearly on each of the students' lateral thinking indicators. In other words, the better the mathematics learning achievement, the better the students' lateral thinking ability. Students' lateral thinking ability is reviewed based on gender differences and moderate mathematics learning achievement has a moderate level of ability. This is because the two subjects can only fulfill

the first lateral thinking indicator, namely recognizing the dominant idea. If the mathematics learning achievement is moderate, both female and male, then the lateral thinking ability is also moderate. Students' lateral thinking ability is reviewed based on gender differences and low mathematics learning achievement has a low level of ability, judging by the subject's ability to solve problems starting from the subject unable to write down the dominant idea on the problem, the subject has not been able to solve the problem given in several different ways, the subject has not able to loosen the control of rigid ways of thinking and the subject has not been able to have random ideas to generate new ideas. The lower the mathematics learning achievement, both female and male, the lower the students' lateral thinking ability.

**Keywords:**

Lateral thinking in mathematics, mathematics learning achievement, gender



Paper ID: MED 6

**Pengaruh Pembelajaran Daring (Google Classroom) dengan Menggunakan Pendekatan Saintifik Berbasis Etnomatematika Terhadap Kemampuan Pemecahan Masalah Siswa Kelas VIII SMPN 02 Kota Bengkulu**

**Presenter :**

Rahmi Maiyunda Sari  
Universitas Bengkulu  
rahmimaiyundasari1717@gmail.com

**Abstract**

This study aims to determine whether there is an effect of online online learning (google classroom) using an ethnomathematical-based scientific approach to the problem solving and mathematical communication skills of eighth grade students of SMPN 02 Bengkulu City. The population in this study was class VIII SMPN 02 Bengkulu City Even Semester for the 2020/2021 Academic Year. The samples of this study were students of class VIII C as an experimental class by applying online learning (google classroom) using an ethnomathematical-based scientific approach to problem solving and mathematical communication skills and class VIII A students as a control class by applying conventional learning through WhatsApp. Data analysis was performed using a two-way ANOVA test for data with normal and homogeneous distribution. Based on the results of the study, the percentage of problem solving and mathematical communication skills of experimental class students was higher than the control class, namely 81% and 73% in the high category. The results of the hypothesis test obtained that the value of  $F_{count} > F_{table}$ , then  $H_0$  was rejected with a significance level of 5% and  $F_{table} = 3.99$ . On the value of Google Classroom learning with conventional learning on problem solving abilities  $F_{count} = 7.9$ . The score on the problem solving ability of high-skilled students with low-ability students'  $F_{count} = 8.86$ . The score on the interaction of learning factors and the ability to solve students' problem solving abilities  $F_{count} = 7.41$ .

**Keywords:**

Etnomatematika, Google Classroom, Problem Solving, Scientific Approach.

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**Paper ID: MED 7**

**Unfolding the Practical of Numerical Literacy for Specialist in Teaching Mathematics**

**Presenter :**

Mohamad Rif'at Hamdy  
Tanjungpura University  
mohammad.rifat@kip.untan.ac.id

**Abstract**

The objective is to explain the typical rationale design of mathematics education research for a teacher to become a specialist in teaching mathematics. The structure shows (1) learning environments as a natural way to address the teachers in their primary role and an approach for effectively improving mathematics teaching - that is a teaching model based on the theory of didactical situations; (2) illustrating how in a concrete case the model can be brought to life by drawing from processes inherent in mathematics; (3) turning out from a genetic view of mathematics; and (4) dealing with the consequences for teacher education in demanding special mathematical courses for teachers. That is a method by which the students acquire knowledge and skills more than in the past and acquire them self, delivering subject matter to develop their abilities. The main question formulated: What is both scientifically and practically founded teaching method by which the further the development of the student in the desired way? The teachers get two instruments: providing opportunities and stimulating individual growth. The result is that the students with the foundations for a mathematical penetration of all things and phenomena of numerical literacy are in the enlightened educational view of skills. And the student is no longer tuned to passively receiving knowledge but to actively acquiring it. The characteristic of the teaching method is not instruction and receptivity but organization and activity.

**Keywords:**

rational design, specialist, didactical situation, genetic view of mathematics



**Paper ID: MED 10**

## **SMP Students' Learning Autonomy through Problem Based Learning (Pbl)**

### **Presenter :**

Faurina Rinanda  
Universitas Syiah Kuala  
faurinananda8@gmail.com

### **Abstract**

Indonesian students have relatively poor learning autonomy. It is due to the fact that teachers explain material and solve example questions without involving students. This results in learners' inactiveness and less learning autonomy. Therefore, there is a need to enhance students' learning autonomy, one of which is by integrating Problem Based Learning (PBL). The goal of this study was to investigate the autonomy of students taught by implementing Problem Based Learning and students taught by applying conventional learning. This study was an experimental research with pre-test and post-test control group design. The population in this study was all grade VII students at SMP Negeri 3 Banda Aceh with which two classes were selected through random sampling technique. The instrument employed to obtain the data was students' learning autonomy questionnaires. The statistical tests used in analyzing the questionnaires were t-test and two-way anava test to assess potential differences at all students' levels. Based on the research, it was found that (1) Students' learning autonomy toward mathematics when using Problem Based Learning (PBL) was better than students' learning autonomy when using conventional learning, (2) There was no correlation between Problem Based Learning (PBL) and students' levels (high, medium, low) toward students' learning autonomy.

### **Keywords:**

Students' Learning Autonomy, Problem Based Learning (PBL) method

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**Paper ID: MED 15**

## **Learning Geometry through Web-Based Learning for Higher Education**

### **Presenter:**

Lisnani Lisnani, Ratu Ilma Indra Putri, Zulkardi, Somakim  
Universitas Sriwijaya  
liznani87sopian@gmail.com

### **Abstract**

Geometry is one of the important components in learning mathematics for higher education students especially during the COVID-19 pandemic. The object of this research was described a learning trajectory on geometry through web-based learning through Google Sites. The research method used design research type validation studies starting from preliminary design, teaching experiments, and retrospective analysis. The research by using the Pendidikan Matematika Realistik Indonesia (PMRI) approach. The subjects of this research are third semester students at one of the private universities in Indonesia. A hypothetical learning trajectory using Google Sites was developed by collecting data through documentation, interviews, and classroom observations. Data collection techniques in the form of interview sheets, questionnaires, and tests. The result of this research was local instructional theory on geometry through web-based learning through Google Sites that the web-based learning through helped students in higher education understand the concept of geometry. The HLT was implemented in the classroom to investigate students' actual learning trajectory in higher education.

### **Keywords:**

Geometry, web-based learning, PMRI approach

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**Paper ID: MED 16**

**Development Research: PISA Math Model for Seventh Grade Students**

**Presenter:**

Dina Timutang, Talisadika Serrisanti Maifa, Cecilia Novianti Salsinha  
Universitاس Timor  
dinatimutang@gmail.com

**Abstract**

This study aims to produce valid and practical PISA math model. The type of research is development research which adapt the model of Tessmer. Researches conducted two stages, which are preliminary stage and prototyping (formative evaluation) stage. The preliminary stage consists of analyzing students, analyzing curriculum and analyzing PISA problems. Meanwhile, The prototyping stage consists of self-evaluation, expert reviews, one to one and small group. Subject in this study were students of class VII SMPK Putri St. Xaverius Kefamenanu, Timor Tengah Utara, Nusa Tenggara Timur. The results of this study was valid and practical 8 items PISA math model. The validity of content, construct, and language was based on validators judgment and the practicality was measured in small group.

**Keywords:**

PISA, development research, tessmer

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**Paper ID: MED 19**

**Development of Mathematics Learning Media in Futsal Context**

**Presenter:**

Kiki Nia Sania Effendi  
Universitas Singaperbangsa Karawang  
kiki.niasania@staff.unsika.ac.id

**Abstract**

The purpose of this research is to produce a product in the form of middle school mathematics learning media with valid futsal context. The research method used is design research with the type of development research and the evaluation flow used is formative study with the stages of self-evaluation, expert review, and one-to-one, small group and field test. In this article, the discussion of research on the validity of the product obtained from the results of the expert review and one-to-one stages is discussed. The research subjects were seventh grade students of MTs Karawang. Research data were collected by means of walk through and documentation. The results obtained based on data analysis can be concluded that the resulting product in the form of junior high school mathematics learning media with futsal context is said to be valid, because the prototype of the product is valid after being revised based on suggestions from experts and testing on students in terms of content, constructs, and language.

**Keywords:**

Mathematics learning media, futsal context, design research

**Paper ID: MED 21**

## **Improving Students' Geometry Problem Solving Ability through Spatial Training**

### **Presenter:**

Yenny Safrina  
Syiah Kuala University  
yennysafrina12@gmail.com

### **Abstract**

Problem solving is an integral part of learning mathematics and geometry is one of the basic materials of mathematics. However, the reality showed that students' geometric problem solving abilities are still low. One of the causative factors is the students' spatial ability. This is because there is a significant correlation between spatial ability and problem solving. Thus, spatial training needs to be implemented in schools as an effort to improve students' geometric problem solving abilities. In addition, the purpose of this study is to determine the improvement of students' geometric problem solving skills through spatial training. While, the research method used is a quantitative method with a one group pretest-posttest design. In this case, the selection of only one class is due to the limitations of researchers in conducting research during the pandemic. The research sample was students of class VIII-b SMPN 2 Sigli, totaling 30 students. Then, the research instrument is a test question about the ability to solve geometric problems. Data from students' geometry problem solving ability were analyzed using Paired t Test and normalized N-gain. The results indicated that there was an increase in student' geometric problem solving ability through spatial training. Based on this, it can be assumed that spatial training can improve students' geometry problem solving ability. Hence, the implication of this research is expected spatial training can be done continuously to get better results.

### **Keywords:**

Geometry Problem Solving Ability, Spatial Training

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**Paper ID: MED 25**

**Students' Spatial Ability through Realistic Mathematics Education Approach (RME) assisted by Geogebra Software**

**Presenter:**

Khairul Busyra  
Syiah Kuala University  
busyra@mhs.unsyiah.ac.id

**Abstract**

Spatial ability is one of the necessary abilities in studying geometry that require visual interpretation. Conversely, the reality shows that student' spatial abilities are classified as less. Students have difficulty in constructing and visualizing geometric shapes, through a realistic mathematical approach assisted by Geogebra software, it is expected to be able to develop student' spatial abilities. Here, the aims of this study was to identify students' spatial abilities through a realistic mathematics education approach (RME) aided by Geogebra software. The approach that used in this research was mixed method with sequential explanatory type. The research sample was the student in class VIII-F Darul Ihsan Boarding School Abu Krueng Kale Aceh Besar with totaling 15 students. After analyzing the quantitative data and then followed by interviews the student to clarify the results of this study. In addition, the research instrument was the spatial ability test as a quantitative instrument and interview guidelines as a qualitative instrument. The results indicated that there were twelve (80%) students who met the visualization ability and three (20%) students did not meet this ability. Therefore, it is necessary to study further concerning about students with poor spatial abilities to identify the difficulties experienced by students in solving spatial problems.

**Keywords:**

Spatial Ability, Realistic Mathematics Education Approach (RME), Geogebra software

**Paper ID: MED 30**

## **Exploring Prospective Teachers' Thinking Process in Solving an Ill-Structured Problem**

### **Presenter:**

Abd Kadir Jaelani, Siti Maghfirotn Amin, Abadi Abadi  
Universitas Negeri Surabaya  
abd.jaelani16070936006@mhs.unesa.ac.id

### **Abstract**

This study explored the features of prospective teachers' thinking process skills in the process of solving an ill-structured problem in an private university mathematics classroom in Makassar, Indonesia. The participants solved the ill-structured problem by following the phases of Analyze, Browse, Create, Decision-making, and Evaluate. Thirty prospective teachers were selected to complete the mathematical ability test. The students were classified into high and low-ability groups. The group of high-ability prospective teachers were interviewed based on the results of solving the Ill-Structured Problem. Firstly, analyze: understanding and redefining the problem by connecting and presenting known information on the problem through image representation. Secondly, browse: identifying the mathematical content needed to solve the problem. Thirdly, create: formulating solutions that meet many conditions and showing alternative solutions to problems in written and oral form. Fourthly, decision-making: finding the relationship between the solutions contained in a given problem. Lastly, evaluate: identifying a problem-solving idea as a follow-up plan when faced with a relatively similar problem and completing a written solution. This finding study suggested that it can be employed to help detect the features of prospective teachers' thinking process to solve ill-structured problems in mathematics education.

### **Keywords:**

ill-structured problems; thinking process; prospective teachers'; mathematics education

**Paper ID: MED 35**

## **Professionalism Development of High School Teachers in Improving the ability to Implement Realistic Mathematics Education in East OKU Regency**

### **Presenter:**

Edwar Edwar, Ratu Ilma Indra Putri, Zulkardi Zulkardi  
Universitas Sriwijaya  
edwar\_yanto@yahoo.com

### **Abstract**

The results of the teacher competency test based on the 2018 Program for International Student Assessment (PISA) survey, which placed Indonesia in 74th out of 79 had an impact on student achievement, especially in the field of mathematics. The ability of students is very lacking, especially in mathematical understanding, reasoning and problem solving abilities. Therefore, a teacher as the main designer in the learning process is required to be able to master learning theory and learning principles and be able to master and develop learning materials creatively. The principles and creative learning materials are known as realistic learning models. Therefore, the purpose of this study is to improve the competence of high school teachers (especially in East OKU district) in implementing realistic mathematics education (RME). This research method is divided into three stages, namely: First Stage: socialization in the form of lectures and discussions about RME material. The second stage: workshops/training/assistance in program preparation, and preparation of teaching materials using RME. The third stage: implementation of learning in schools, along with the monitoring system. The analysis concludes that this study has increased the professional competence of teachers in implementing realistic mathematics learning as indicated by the potential effect on student learning outcomes (the average score of students' abilities is 70.16) and the results of the analysis of observations of each activity during learning (average results). Average 3.09)

### **Keywords:**

RME, Profesionalism Development



Paper ID: MED 37

## **Implementation of Lesson Study for Learning Community (LSLC) Based on Indonesian Realistic Mathematics Approach (PMRI) in Mathematics Teacher Learning at SMA Negeri Sumsel Palembang**

### **Presenter:**

Rini Herlina Rusiyanti  
Universitas Sriwijaya  
rini.herlina.r@gmail.com

### **Abstract**

Lesson study for Learning Community (LSLC) is one of the efforts that can be done to improve teacher learning abilities. LSLC is an activity that can solve problems faced by teachers by applying various appropriate learning methods or strategies, according to the demands of the 2013 curriculum and 21<sup>st</sup> century skills. PMRI is a learning approach that is associated with real things or real situations that students have experienced so that the role of PMRI strongly supports the implementation of LSLC. The method used is descriptive qualitative research. While data collection is done by observation, documentation, field notes, and the results of LKPD based on the RPP that has been designed. This research was conducted on students of SMA Negeri Sumsel in Palembang class XII with the subject matter of Dimensi Tiga. The activities in this research consist of four stages; Plan, Do, See, and Re-design. The media used is LKPD. The results of this study indicate that learning with the application of PMRI-based LSLC can help students understand the concept of three-dimensional material, can build good collegiality between mathematics teachers, can solve problems faced by teachers, implementation of learning is in favor of students, and teachers gain experience about learning with PMRI based LSLC.

### **Keywords:**

LSLC, PMRI, Dimensi tiga, 21st century skills

**Paper ID: MED 47**

## **Characteristics of student learning obstacles in problem solving**

### **Presenter:**

Farah heniati santosa, Samsuriadi Samsuriadi, Muhammad Galang Isnawan  
Universitas Nahdlatul Wathan  
fafa.adipati@gmail.com

### **Abstract**

The purpose of this study is to identify the characteristics of learning obstacles, especially epistemological obstacles in problem solving on the concept of triangles and squares. The research was conducted on junior high school students in one of the schools in the city of Mataram. The research sample consisted of 7 students with low level skills. The research instrument in the form of Respondents' Ability Test on triangular and rectangular material consisting of 5 questions, observation sheets and interview guidelines. Qualitative research methods are used with didactical design research approach. The results showed that students' learning obstacles at low level ability in the form of students are still weak in understanding the basic concepts of triangles and squares and the application of triangular and square formulas in the context of non -routine questions. These results confirm that the observation of learning obstacles as a basis for planning the development of learning experiences is the main thing. Understanding the characteristics of students is the key to student success in learning and problem solving.

### **Keywords:**

Learning obstacles; epistemological obstacles

**Paper ID: MED 49**

## **Mathematical ideas on The Bunga Tujuhbelas Illisel Motif in the Woven Cloth of The Abui Tribe of Alor Island**

### **Presenter:**

Febriani Debora Maima, Wara Sabon Dominikus, Damianus Samo  
Universitas Nusa Cendana  
Fesslymaima23@gmail.com

### **Abstract**

Culture is the identity of a hereditary area. In the cultural activities of society embodied the mathematical elements that needed to be explored. The purpose of this study is to describe ethnomathematics on the *Bunga Tujuhbelas Illisel* motif of the *Abui* tribe's original *Batulolong* on Alor island and its integration in mathematical learning. The study is qualitative work using ethnographic research design. The number of informants in the study were 5 weavers over the age of fifty. Data is collected by way of observation, documentation, and interviews. The data is analysed using the ethnomathematics characteristic. The study shows that there are ethnomathematics in the *Batulolong* woven cloth of *Abui* tribe's. Calculating how many threads it would take to form a motive with the *lowan* unit. In the activity to design the motif of *Bunga illisel* includes the concept of geometry of shape, geometry of transformation, odd numbers pattern, even number patterns, palindromic numbers, sets, and combinations. So, the mathematical concepts of schools in a culture weaving the traditional *Batulolong* can be developed in learning and thus lead to new innovations in school mathematics. So that learning becomes more contextual and fun, and culture is increasingly known, loved, and preserved.

### **Keywords:**

Batulolong, culture, ethnomath, mathematics learning, numbers

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**Paper ID: MED 51**

## **Development of Authentic Assessment Models in Research Methods Courses**

### **Presenter:**

Sri Wahyuni, Fertilia Ikashaum, Endah Wulantina, Laila Mustika Putri  
IAIN Metro  
ikashaum@gmail.com

### **Abstract**

Assessment is one of the learning processes used to see the success of learning. If the assessment system is right, then the data obtained will describe the actual learning outcomes. The purpose of this research is to produce an authentic assessment model that can be used as an assessment guide for research methods courses. The assessment model in question contains authentic tasks that can lead students to apply theory to structured research ideas in a good research proposal design. This assessment model consists of 5 aspects which have translated into 17 sub-aspects with 43 assessment items. This research uses design research with the type of development study. The stages carried out are in the form of preliminary and formative evaluations which include self-evaluation, prototyping, and field tests. The subjects in this study were students who took research methods courses as many as 65 people. The results of the study indicate that the assessment model developed has valid characteristics based on the validator's assessment.

### **Keywords:**

Assessment guidelines, authentic assessment model, research methods

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**Paper ID: MED 55**

**Mathematical Activities in Bartering Culture at Geliting Maumere Market**

**Presenter:**

Familia Yetriana Elu, Wara Sabon Dominikus, Juliana M H Nenohai  
Universitas Nusa Cendana  
familiayetriana@gmail.com

**Abstract**

In various cultural activities, there is mathematics known as ethnomathematics. The purpose of this study is to identify and describe mathematical activities in the barter culture in the Geliting Maumere market. Geliting market is one of the traditional market in Kewapante sub-district, Sikka Regency, East Nusa Tenggara Province. This research is a qualitative research using an ethnographic research design. The informants in this study were five people aged 61-77 years. Data were collected by means of interviews, observation, and documentation. Data validation was done by source triangulation method. The data were analysed using ethnomathematical characteristics referring to the Miles and Huberman model. The results showed that there was a mathematical activity known as ethnomathematics in barter culture. Estimating the price of merchandise to be exchanged for other merchandise. Compare the prices of the items to be exchanged. School mathematics concepts related to ethnomathematics in barter cultural include: linear equation of two variables, mathematical logic, addition, subtraction, multiplication, division, and social arithmetic. Developed teaching materials for learning the school's mathematical concepts. Teaching materials with cultural context as a new innovation in learning mathematics in schools. So that learning will be more fun.

**Keywords:**

Activities, barter, culture, ethnomathematics, mathematics learning

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**Paper ID : MED 62**

**Tetra - Helix Concept Model Based On Vocational Realistic Education (VRE)**

**Presenter :**

Agus Adi Putrawan, Ni Wayan Dewinta Ayuni  
Politeknik Negeri Bali  
putrawanagusadi@pnb.ac.id

**Abstract**

Even though many studies have been conducted regarding to realistic mathematical concepts, there are only few researches on their implementation in vocational mathematics learning. This study aims at producing mathematics instructional materials development model and it's prototype (meet the criteria of being valid, practical, and effective). This study was a research and development, which consisted of two steps, preliminary and formative studies. In the preliminary stage, content and construct analysis were carried out. Furthermore, in the formative study stage, self evaluation, prototyping and field tests were carried out. This development resulted into a conceptual model involving four stakeholders (tetra-helix) of development research, such as researchers, industry workers, teachers, and students. The tetra-helix model concept based on vocational realistic education is a model for developing mathematics instructional materials which can be used at vocational institution in the form of textbooks, job sheets, syllabus and lesson plans. They integrate the mathematical concepts learned with their realistic applications in industry (tourism, engineering, and e-commerce).

**Keywords:**

Vocational realistic education, tetra-helix

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**Paper ID : MED 65**

**Ethnomathematics: Trade Around The Musi River**

**Presenter :**

Malalina Malalina, Ratu Ilma Indra Putri, Zulkardi Zulkardi, Yusuf Hartono  
Universitas Tamansiswa Palembang ; Universitas Sriwijaya  
[malalina@unitaspalembang.ac.id](mailto:malalina@unitaspalembang.ac.id)

**Abstract**

Indonesia has many large and small islands so that it has diversity related to cultural activities, especially water areas. One of the water activities in Indonesia is trade in the Musi River, Palembang. The purpose of this study was to determine the mathematical concepts contained in mobile trading activities on the Musi River. The research subject is a traveling merchant who trades Palembang local food using traditional boats on the Musi River. The research used is qualitative with an ethnographic approach. Data collection techniques in this study are literature study, observation, interviews and documentation. The conclusion of this study is that mobile trading on the Musi River indirectly applies several mathematical concepts, such as build space (ball), flat (rectangular), comparison, and social arithmetic.

**Keywords :**

Ethnomathematics, mathematical concepts, musu river

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**Paper ID : MED 66**

## **Visually Impaired Students' Creative Thinking in Solving a Geometry Problem**

### **Presenter :**

Luthfiana Tarida  
Universitas Negeri Surabaya ; Akademi Maritim Nusantara  
[luthfiana.21012@mhs.unesa.ac.id](mailto:luthfiana.21012@mhs.unesa.ac.id)

### **Abstract**

Every person have equal opportunity to pursue education, with no exception for visually impaired students. Sometime, it is difficult for them to learn mathematics, especially geometry. Geometry usually learned by visual that visually impaired students has limitation due to damage eyesight.. Creative thinking will help visually impaired students to solve this problems. The aim of this paper is to describe how the visually impaired student used creative thinking when solved a geometry problem. Subject of this research is visually impaired student. This research is a descriptive exploratory study with data analysis using qualitative approach. The aspects used to know creative thinking are fluency, flexibility, and novelty. Student use creative thinking when solving problem "Draw a kite with different size of each angle (minimum 2 kites)!". On novelty aspect, student is able to use their own method on solving problem using right process and result. On fluency aspect, student is able to give more than one related ideas to solve problems and state it clearly. On flexibility aspect, student is able to give variety interpretation to the picture, stories, or problems. Student is able to use variety of strategies to solve the problems. Student can solved mathematic problems by creative thinking.

### **Keywords :**

Creative thinking; visually impaired student; solving geometry problem



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Paper ID : MED 68

## Learning Mathematics Using Website at Vocational School for Areas of Trigonometric Triangles

### Presenter :

Intan Buhati Asfyra  
Sriwijaya University  
[intanbuhatia06@gmail.com](mailto:intanbuhatia06@gmail.com)

### Abstract

This research is a qualitative descriptive study that aims to describe learning the area of trigonometric triangles using the website in Vocational High School. Learning mathematic to use this website begins with making teaching materials in the form of modules, interactive PowerPoints, activity sheets, and formative test questions. All learning materials can be accessed through the website that has been designed. The data collection technique uses screen recordings from Zoom meetings, observations, and interviews. The test instrument is used as supporting data to see student learning outcomes after learning the area of trigonometric triangles as a whole. The results showed that during the learning process, which lasted for two meetings, students could follow well all stages of learning and get good results.

### Keywords :

Trigonometric triangle area; mathematics learning website

Paper ID : MED 69

## The Ability of Prospective Teacher Students in Planning Early Childhood Learning: Mathematics Side

### Presenter :

Arvin Efriani  
UIN Raden Fatah Palembang  
[arvinefriani\\_uin@radenfatah.ac.id](mailto:arvinefriani_uin@radenfatah.ac.id)

### Abstract

This study aims to describe the ability of prospective early childhood teacher students in planning and implementing learning for early childhood planning and learning courses. Planning and Learning for early childhood is a course that provides knowledge and practice on how to design learning in schools with appropriate methods, models, approaches, and learning strategies so that learning in schools is more colorful, efficient and fun. This type of research is descriptive qualitative. The research subjects are prospective early childhood teacher students who take planning and early childhood learning courses in the 2020/2021 even semester. The instruments used are device assessment sheets and teaching practice observation sheets. The results obtained are that the planned tools already contain six aspects of early childhood development and learning practices are in accordance with the planned tools. However, the plans made in one context do not contain the appropriate stages starting from concepts, transitions and symbols, especially in the cognitive aspects of mathematical material.

### Keywords :

Early childhood, mathematics, planning and learning

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**Paper ID : MED 72**

**Designing Numeration Assisted E-Learning Using a COVID-19 Context**

**Presenter :**

Jayanti  
Universitas PGRI Palembang ; Universitas Sriwijaya  
[jayanti2hr@gmail.com](mailto:jayanti2hr@gmail.com)

**Abstract**

New changes to the university curriculum, namely independent campuses and also in schools with freedom of learning to apply a minimum competency assessment (AKM) with PISA criteria in 2021, have caused many who do not understand the form of AKM questions among students, teachers and students due to limited learning resources on campus. and school. This research is to produce a valid, practical COVID-19 context and have a potential effect on students' mathematical numeracy. This study involved 30 students aged 17 years at the University of PGRI Palembang and also students from SD Negeri 91 Palembang totaling 18 people aged 10 to 12 years with various mathematical abilities. Research design with the type of development study chosen as the main research framework assisted by online learning platforms. Data were analyzed descriptively, interviews, and document analysis. COVID 19 Context Learning on the content of statistical data at the level of reasoning ability generated after formative evaluation. The formative process is carried out with SISFO e-learning learning and also through zoom meetings and intensive communication in WhatsApp Group (WAG) by producing a valid and practical COVID 19 context. After being piloted in 91 Palembang University and SD Negeri 91 classes, the resulting COVID-19 context has a potential effect on students' mathematical numeracy skills and students' life skills during the COVID-19 Pandemic.

**Keywords :**

Numeration, design, PMRI, E-Learning and PISA

Paper ID : MED 76

## Islamic Financial Literacy in Mathematics Education: Proposed Design for Instruction

### Presenter :

Intan Bigita Kusumawati, Achmad Dhany Fachrudin, Ratu Ilma Indra Putri, Zulkardi Zulkardi, Soffil Widadah, Muhammad Khusni Mubarok  
STKIP PGRI Sidoarjo ; Universitas Sriwijaya  
[bigita.intan@gmail.com](mailto:bigita.intan@gmail.com)

### Abstract

This study aims to develop a social arithmetic learning design by integrating Islamic economic principles. By using various Islamic financial products as a context in mathematical tasks, we propose a hypothetical learning trajectory (HLT) to support the students' Islamic financial literacy (IFL) skills. We chose Design Research as the method to achieve the goal. However, we limit the discussion to a part of one phase, namely pilot experiments, of the three main phases of design research. This study involves six Islamic junior high school students. The design consists of several activities that require students to solve math-based Islamic financial literacy tasks. These tasks contain IFL knowledge including *Money and shariah transaction*, *Planning and Managing finance using shariah product*, *Risk and Reward of shariah finance product*, *Landscape of shariah finance*. We develop an instructional design by adapting the process domain of the OECD financial literacy by adjusting based on the principles of Islamic economics. In general, the stages of learning activities sequentially are identifying the information, analyzing information of the context, evaluating the issues, and applying the knowledge and understanding. At each of these stages, students are faced with problems that focus on each process domain. The results show that this design can bring out some fundamental mathematical capabilities besides supporting the students' IFL. Furthermore, by infusing Islamic financial literacy in mathematics education, we get an opportunity to create a caring young generation on the development of Indonesian Islamic economics.

### Keywords :

Islamic financial literacy; mathematics education; Design Research

**Paper ID : MED 77**

**Promoting Students' Reasoning Ability through Mathematical Tasks Using Covid-19 Context: What The Teacher Can Do?**

**Presenter :**

Meryansumayeka Meryansumayeka, Zulkardi Zulkardi, Ratu Ilma Indra Putri, Cecil Hilrimartin  
Universitas Sriwijaya  
[meryansumayeka@fkip.unsri.ac.id](mailto:meryansumayeka@fkip.unsri.ac.id)

**Abstract**

Mathematical tasks has important role in promoting students' mathematical ability. However, most of students can not do by themself in improving their ability. They still need supports from their teacher. This paper describes the way that teachers can do in promoting students' reasoning ability. Some mathematical tasks using Covid-19 context were developed and used in learning sequences. Design research type validation study was chosen as research method. The data were collected through interview, observation, and students' worksheet, and they were analyzed qualitatively. The results showed that some supports that teachers need to do in promoting students' reasoning ability such as: asking students whether they understand the problem given; asking the reason behind students' answers; not giving judgement of students' answers directly; asking the other students' opinion or answers; and comparing the difference among students' answers.

**Keywords :**

Reasoning Ability; Matchemtical Tasks; Covid-19 Context; Teachers' Supports

Paper ID: MED 82

## **Development of Numeration Activities and Questions for The Pisa Type of Holiday Context In Pandemic Times for Junior High School Students**

### **Presenter:**

Risda Intan Sistyawati  
Sriwijaya University  
risdaintan98@gmail.com

### **Abstract**

This research belongs to the type of development research which consists of the main stages including preliminary design and formative evaluation. This study aims to obtain valid pisa type development activities consisting of eliminary design, self evaluation, expert review, one to one and small group. The emergence of this research is due to the low mathematical literacy of students in Indonesia. This study took a special research subject for students of SMP Negeri 13 Palembang. From this research, the results obtained include the development of PISA-type activities using valid and practical tourist attractions content during the pandemic. It can be seen from the results of the research obtained that the questions are classified as practical because the questions are easily understood by students and can provide answers that vary from one to another according to the level of difficulty for students.

### **Keywords:**

PISA Task, Literacy and Numeracy Task, Context of Tourist Attractions in a Pandemic Period.

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**Paper ID: MED 83**

## **How Pre-Service Elementary Teachers Deal with Mathematical Literacy Problems? A Case Study**

### **Presenter:**

Rita Novita, Tatang Herman  
Universitas Pendidikan Indonesia  
ritanovita@upi.edu

### **Abstract**

Pre-service elementary teachers (PSETs) must understand in-depth mathematical concepts and procedures. Still, they must also improve their mathematical ability and skills in solving mathematical problems and applying them in all aspects of life. Such mathematical capacity is known as mathematical literacy. This study aimed to describe the mathematical ability of PSETs in solving mathematical literacy problems. Some Errors and obstacles PSETs face in struggling to solve mathematical literacy problems are also described. This study is expected to make a valuable contribution to designing learning or other development programs for PSETs related to mathematical literacy. 73 PSETs of one private university in Banda Aceh, Indonesia participated in this research. The qualitative method with a case study design was used in this research. Data were collected using tests (the sequences of PISA and PISA-like problems in moderate and most difficult levels) and interviews. The results showed that the ability of PSETs in solving mathematical literacy problems was still low. The limits in answering the problem reveal that most PSETs struggle to formalize real-life problems into mathematics, even though a lack of knowledge of related mathematical topics is also a factor to consider.

### **Keywords:**

Pre-Service elementary teacher, Mathematical literacy

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**Paper ID: MED 84**

**Development of student learning activities on the subject of sine and cosine rules with the context of jumputan fabrics**

**Presenter:**

Delia Septimirati  
Universitas Sriwijaya  
septimirantidelia09@gmail.com

**Abstract**

This trigonometry material has basic abilities which include comparisons, functions, equations, and trigonometric identities in problem solving. Trigonometry is also defined as the science of measuring three angles or measuring triangles, which studies the relationship between the sides and angles of a triangle. This study uses design research as a way to answer the problem formulation so that the research objectives can be achieved. How to develop sine and cosine rules learning activities using the context of Palembang's typical jumputan fabric. This study aims to develop learning activities for the sine and cosine rules material using the context of Palembang's typical jumputan fabric. Based on the results of the research and discussion that have been carried out with the media learning that uses the context of Palembang's typical jumputan cloth can help students in solving problems on the material sine and cosine rules, then students can manipulate the context used in applying it directly in the form math.

**Keywords:**

Design research, Trigonometry, solution of problem



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**Paper ID: MED 85**

## **A Learning Trajectory for Geometric Transformation: Sumatera Selatan Traditional Dancing**

### **Presenter:**

Dewi Rawani  
Universitas Sriwijaya  
dewirawani@yahoo.com

### **Abstract**

Mathematics is used in all aspects of life and emphasizes the activities. This research aimed to develop based realistics mathematical approach in geometric transformation's subject. This research used design research to provide a good consideration of learning process through allegations built in framework analysis hypothetical learning trajectory (HLT). The HLT using Sumatera Selatan Traditionals' dancing by collecting data through documentation, interviews, and classroom observations. Design research is carried out in three stage which preparing for the experiment; the design experiment (pilot experiment & teaching). The result of this research showed local instructional theory. The result of this research indicate that the dancing helped student understand the concept of geometric transformation. The learning trajectory for geometric transformation based on dancing is seen from the the perspective of level of emergent modelling which Situation level, gesture on dancer; Referential level where the rules of the gesture were used as starting point to learn the concept of geometric transformation. Movement between gesture on dancer stimulated students' knowledge about translation, reflection, rotation, and dilations; general level, students used the properties formed like describe shadow. Lastly, at the formal level students development their informal knowledge into formal concepts of geometric transformation.

### **Keywords:**

Learning Trajectory; Geometry Transformation; Realistics Mathematical Approach

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**Paper ID: MED 86**

## **The Prototype of Students Worksheet for Mathematical Literacy**

### **Presenter:**

Tria Gustiningsi  
Universitas Sriwijaya  
triagustiningsi08@gmail.com

### **Abstract**

This article aims to describe part of the stages of developing students worksheets in learning that involve mathematical literacy which is valid, practical, and has a potential effect on students' mathematical literacy skills. This study uses a design research with type of development studies which consist of preliminary, prototyping, and evaluation stage. This research only discusses up to the self-evaluation stage in prototyping stage. Data were collected with documentation which consist of curriculum documents, PMRI characteristics, PMRI principles, and PISA framework. Content of students worksheet is space and shape with rectangular material. The activity in students worksheet is making cake. This research produces students worksheets that are in accordance with the curriculum, PMRI characteristics and principles, and PISA framework.

### **Keywords:**

Students Worksheet; Mathematical Literacy; PMRI; PISA

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**Paper ID: MED 87**

**Development of PISA Types of Numeration Activities and Questions Health Context in Pandemic Times**

**Presenter:**

Ayu Luviyanti Tanjung  
Sriwijaya University  
ayu.luviyanti@gmail.com

**Abstract**

This study aims to produce PISA-type numeration activities and questions using a valid and practical health context during a pandemic. This research is development research which consists of stages preliminary, self-evaluation, expert review, one to one, small group. This research is needed to see the mathematical literacy ability of students in Indonesia which is still low. The subjects in this study were students of SMP Negeri 13 Palembang. The results of this study are in the form of activities and numeration questions of the PISA type with the context of Health in the pandemic period that are valid and practical. Valid in terms of content, construct and language from the results of the validator's assessment. Practically, it can be seen from the test results in the small group where most of the students can understand the questions well.

**Keywords:**

PISA Task, Literacy and Numeracy Task, Health Context during a Pandemic

Paper ID: MED 89

## Development of Literacy Reasoning Questions in the Covid-19 context with Inquiry Method for Secondary School Students

### Presenter:

Riszky Pabela Pratiwi, Zahra Alwi, Zulkardi Zulkardi, Ratu Ilma Indra Putri, Samsuryadi Samsuryadi, Meryansumayeka Meryansumayeka, Duano Sapta Nusantara, Jayanti Jayanti, Risda Intan Sistyawati, Ayu Luviyanti Tanjung, Sisca Puspita Sepriliani, Shinta Aprilisa  
Sriwijaya University  
pratiwi.bela@gmail.com

### Abstract

This study aims to produce PISA-based literacy reasoning questions using the Covid-19 context. This study uses the collaboration model of Borg and Gall (2007), Zulkardi (2006) and Tessmer (1993) with two stages, namely preliminary and formative evaluation. The data collection process was carried out through literature studies, questionnaires, interviews, assessment sheets and tests. The results of this study were in the form of a collection of literacy reasoning questions in the context of COVID-19 which were compiled using the Inquiry method. It can be seen from the results of the research conducted, that the literacy reasoning questions made are feasible and practical because they can produce answers that vary according to the level of difficulty of the questions.

### Keywords:

Literacy; PISA; Covid-19; Inquiry

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**Paper ID: MED 90**

**Students reflective thinking ability in solving mathematical problems based on gender**

**Presenter:**

Nunik Triharyati  
Universitas Sebelas Maret  
nuniktriharyati@gmail.com

**Abstract**

The pupose of this study is to describe the students reflective thinking ability in solving mathematical problems based on gender. The subjects in this study consisted of one male students and one female students. The research location is in Vocational High School in Surakarta. The results of this study showed at the mathematical solving problem, all student can provide the main problem. In the problem analysis, students can provide the main problem, but only one student adjusts female subject matter to the basic formula. In the criterion of the solution, all students met this step, even though the results of the evaluation experienced error. In the information analysis, only female student does not need other information in solving the problem. In the propose solution, all students are able to solve the problem. In the select solution, female students can reach this stage. In the implement solution, all students reach this step. At the feedback analysis, only female student check to work steps and calculation.

**Keywords:**

reflective thinking, solving mathematical, gender

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**Paper ID: MED 91**

**Designing PISA like-Numeracy Problem using A COVID-19 Context**

**Presenter:**

Duano Sapta Nusantara  
Universitas Sriwijaya  
duanosn@gmail.com

**Abstract**

Considering the poor performance of data literacy at PISA, which remains a crucial issue for Indonesian secondary school students, a range of fascinating COVID-19 data is supplied as learning resources to prepare for minimum competency assessment (MCA). For this reason, the paper aims to produce a set of PISA-like numeracy problems which is valid, practical, and potentially affecting students' data literacy by using COVID-19 Pandemic as a context. The fundamental framework of this research was design research in the form of development studies. As data resources, walkthrough, test, interview, and document review were collected and analyzed descriptively. PISA-like numeracy problem has resulted after the design process using a focus group discussion and formative evaluation. The development process resulted in a series of PISA-like numeracy problems at the reasoning level, employing the COVID-19 data context, relating uncertainty and data content. To conclude, PISA-like numeracy problems also potentially affecting students' data literacy i.e. reasoning and argumentation, making conclusions and interpretation based on existing data

**Keywords:**

Minimum Assessment Competency; PISA; COVID-19; Design Research

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Paper ID : MED 93

## The Development Of PISA Type Numeration Problems In The Eid Context During Pandemic

### Presenter :

Sisca Puspita Sepriliani  
Universitas Sriwijaya  
[siscaps69@gmail.com](mailto:siscaps69@gmail.com)

### Abstract

This research is motivated by students' low mathematical literacy skills and it is necessary to develop PISA type questions using contexts that are close or familiar to students' ears. These problems resulted in this study which aims to produce valid and practical activities and questions Numeracy PISA in the religious day during a pandemic context for junior high school students . for junior high school students, the development of PISA questions can be a solution to improve students' mathematical literacy skills. This study uses a design research type of development studies which consists of the stages preliminary, self-evaluation, expert review, one to one and small group with the research subjects being SMPN 13 Palembang students. The results of this study are activities and questions of the PISA type with the context of holidays during the pandemic that are valid and practical. The practicality of the questions can be seen from the answers of students who are diverse and have a level of difficulty that is in accordance with the abilities of junior high school students.

### Keywords :

PISA Task, Numeracy Task, eid day in Pandemic Context

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**Paper ID : MED 95**

**The Understanding Profile of Student with Low Functioning Autism Spectrum Disorder in Geometry**

**Presenter :**

Nur Fauziah, Irwani Irwani  
Universitas Muhammadiyah Gresik  
[nurfauziah@umg.ac.id](mailto:nurfauziah@umg.ac.id)

**Abstract**

Students with low functioning autism spectrum disorders (ASD) are students who experience interaction and communication disorders with low intelligence levels. This disorder causes obstacles in learning in class, they have difficulty understanding concepts. Geometry is a mathematical concept that is very relevant to everyday life. This study aims to describe the profile of ASD student's understanding of basic geometric concepts, especially rectangles and squares. The subject in this research is a elementary school student with low functioning ASD. Data was revealed through task-based interviews using instrument of understanding the concept of geometry. The profile of understanding the concept of geometry, devising interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining. Some characteristics of autism was very perceptible during understanding the concept of geometry. Subject can interpret the geometry concepts into real objects that are around him. Subjects can provide examples and non-examples of geometric concepts by mentioning the objects around them. By using the media manipulation of geometric shapes, the subject can classify geometric shapes. The subject can identify the characteristics of the concept even by using very simple sentences, but cannot generalize it in the form of a definition. Subjects can compare a real object in the form of a square with a real object in the form of a rectangle. But the subject cannot explain why the object is square or rectangular.

**Keywords :**

Understanding profile, low functioning autism spectrum disorder, geometry



**Paper ID : MED 99**

## **Development of Student Worksheets Based on Ethnomathematic Traditional Engklek Games on Cube and Rectangular Pyramid**

### **Presenter :**

Mar'atush Sholihah, Soffil Widadah, Dewi Sukriyah  
STKIP PGRI Sidoarjo  
[maratush97@gmail.com](mailto:maratush97@gmail.com)

### **Abstract**

The purpose of this research is (1) development of student worksheet based on ethnomathematics traditional engklek game on cube and rectangular pyramid (2) to describe the quality of students worksheets based on ethnomatematics traditional engklek game on cube and rectangular pyramid from aspect of validity, practicality, and effectiveness. This research is a development research with a Plomp development model with four step namely: Preliminary investigation, Design, Realization, and Test, evaluations, and revisions. This research used five 8th graders. The result of research: (1) based on valid criteria of student worksheets developed were declared result average score of 4,27 (very valid), (2) student worksheets by practical criteria with the average rating of the validator stating the student worksheets can be used with a little revision and obtained a percentange of learning management implementation 88,9% (1st meeting) and 85% (2nd meeting) with an average score of 3,44( good), besides that based on student activity result of activity is greater than passive ctivity (92,7% > 8,2%), so it can be concluded that student worksheets are very practical to use, (3) based on the learning achievement test obtained 80% classical completeness (good) with an average grade obtained 88, while the result of student questionnaire responses obtained a score of 98% (very positive), so it can be concluded that student worksheets developed effectively used.

### **Keywords :**

Student Worksheet; Ethnomatematics; Traditional Engklek Game.

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**Paper ID : MED 103**

**The Development Of Economic - Mathematics Learning Worksheets**

**Presenter :**

Indrie Noor Aini  
Universitas Singaperbangsa Karawang  
[indrienooraini@gmail.com](mailto:indrienooraini@gmail.com)

**Abstract**

The science of mathematic is applicable in economic field to resolve problems based economic. The purpose of this study is to develop valid and practical worksheet criteria in economic-mathematics course. Employing the development study of design research method, this study encompasses three main steps namely the preliminary, prototyping, and assessment step with formative study being used as an evaluation flow in the prototyping step. The subjects of this study were fourth semester students of a university in Karawang. The data were gathered through documentation, walkthrough, questionnaire, test, and interview. Based on the data analysis, it was concluded that this study has delivered seven valid and practical worksheets products on seven different economic-mathematics course materials.

**Keywords :**

Economic-mathematics, worksheet, development research

**Paper ID : MED 107**

**Student Response to Inquiry-Based Learning Assisted with Student Worksheets during the Covid-19**

**Presenter :**

Rezky Ramadhona

Universitas Negeri Surabaya ; Universitas Maritim Raja Ali Haji

[rezky.21031@mhs.unesa.ac.id](mailto:rezky.21031@mhs.unesa.ac.id)

**Abstract**

Learning continues even though Covid'19 has hit the whole world. This is a new challenge in the world of education. Educators and students try to keep learning going so that learning objectives are still achieved. The learning is done by using the Student Worksheet which is based on inquiry. Therefore, it is necessary to review how the implementation of learning that occurred during covid'19, especially in the Analytical Geometry of Plane and Space using Student Worksheet during learning. The instrument used is a student response questionnaire distributed via Google Form. Aspects that are seen are attitudes, knowledge, and independence.

**Keywords :**

Student Response; Inquiry; Student Worksheets

**Paper ID: MED 111**

## **Designing Hypothetical Learning Trajectory of Cartesian Coordinate System Oriented to Solving Environmental Problems**

### **Presenter :**

Jeinne Mumu, Rully Charitas Indra Prahmana, Vera Sabariah, Benidiktus Tanujaya  
Universitas Papua  
j.mumu@unipa.ac.id

### **Abstract**

Students' environmental awareness can be increased through mathematics instruction in the context of real-world environmental problems. Students can learn how to develop a mathematical concept as well as how to make decisions about the best solution to environmental issues through this learning. The purpose of this study is to develop a hypothetical learning trajectory (HLT) utilizing a realistic mathematical method oriented toward environmental problem-solving. The resulting HLT design is the product of the research conducted during the preliminary stages of Design Research. HLT is based on the findings of a literature review, a curriculum analysis, and a qualitative investigation of student learning issues. Additionally, this design will be used in the subsequent stage of Design Investigation research, which will result in the production of Local Instructional Theory. The findings of this study reveal that the resulting HLT incorporates various student activities centered on environmental concerns for students to comprehend the concepts of point and line position in the Cartesian Coordinate System materials. This article provides a complete explanation of the HLT design, which includes the learning objectives, conjectures, or assumptions conducted by the researchers, as well as the learning activities.

### **Keywords:**

Hypothetical Learning Trajectory; Environmental Problems; Cartesian Coordinate System

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**Paper ID: MED 116**

## **Improving Students' Mathematical Problem Solving Ability Through Guided Discovery-Excel Learning Method**

### **Presenter :**

Aulia Diraswati Septyangraeni  
State University of Surabaya  
aulia.18009@mhs.unesa.ac.id

### **Abstract**

Mathematical ability is the ability to solve student problems in giving answers. The ability to solve problems can build students' understanding. Hence, this study aims to analyse the improving students' mathematical problem solving ability through guided discovery-excel learning. Data were collected from one class (34 students) grade eleven of SMK NEGERI 1 GRATI Pasuruan. Data were collected by using test, observations, and questionnaires. Test is used to obtain the test results data of the student's mathematical problem solving ability after guided discovery-excel learning. In this research, excel is used to learn matrix material that can help and make students interested in learning matrix material. Teacher show excel in the main activities to explain the matrix material in the first and second meetings. Based on the results of research on improving the ability to solve mathematical problems, it was concluded that the results of the ability to solve mathematical problems in the matrix material of class XI APAT 2 SMKN 1 Grati through Guided Discovery Learning using Excel in the first and second meetings were still poor, it means the students were not able to understand in solving problems, planning solutions, implementing solutions, and re-examining solutions, while in the third meeting, students' ability to solve mathematical problems is good according to the specified success category, namely there were 23 students from the whole students (68%) in the good or excellent category at solving problems.

### **Keywords:**

Mathematics problem solving; guided discovery; excel

**Paper ID: MED 117**

## **Understanding Philosophy of Mathematics Education through Numeracy Task-Context Pandemic Covid-19**

### **Presenter :**

Tatag Yuli Eko Siswono, Masriyah Masriyah, Ahmad Wachidul Kohar, Shofan Fiangga  
Universitas Negeri Surabaya  
tatagsiswono@unesa.ac.id

### **Abstract**

Philosophy as a science that studies general objects of knowledge needs to be introduced in various activities, such as solving problems related to numeracy in the context of the COVID-19 pandemic. Hence, this study aims to explore students' understanding of the general philosophy of completing numeracy tasks. Data were collected from 65 student teacher candidates whom studied the course of philosophy of mathematics education at the university in Surabaya, East Java, Indonesia. The numeration task is open-ended using the context of the COVID-19 pandemic. Descriptive analysis by grouping student answer models, and student responses in terms of epistemological, ontological, and axiological aspects related to numeracy tasks. The results of the analysis show that there are seven solution models of the numeracy task made by students. While related to epistemology, students mentioned four views of the task. As for the ontological and axiological aspects, students mentioned three views.

### **Keywords:**

Philosophy of mathematics education; numeracy; pandemic Covid-19

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**Paper ID: MED 121**

## **Development of Higher-Order Thinking Skill (HOTS) Test on Mathematics in Primary School**

### **Presenter :**

Ega Gradini, Cut Khairunnisak, Julia Noviani  
Institut Agama Islam Negeri Takengon  
ega.gradini@gmail.com

### **Abstract**

Assessing students higher-order thinking skills is still challenging for mathematics teachers in Indonesia. This paper aims to develop a test that is valid, reliable, practical, and effective to assess students' higher-order thinking skills in mathematics learning. The Plomps' developmental model, Generic model for Educational Design, was deployed to develop the test. The method consisted of 4 phases; (1) Problem analysis, (2) Design, (3) Develop, and (4) Evaluation and Implementation. The quality of the developed test was examined by using Plomps' product quality criteria; (1) Validity, (2) Reliability, (3) Practicality/usability, and (4) Effectiveness. The test was validated by 2 validators that are experts on HOTS in mathematics and trial. Meanwhile, the practicality/usability of the test was examined by 5 mathematics teachers from different Junior High schools. The Effectiveness was measured by trial on 3 primary schools. The validity and reliability were measured using the Expert Agreement Index (EAI) from Gregory. The rubric's practicality was analyzed using practicality product criteria and the effectivity of the test was analyzed by using a two-tailed t-test. The research shows that the validity of the test is 0.88 (high validity) and the reliability is 0.93 (reliable). The practicality of the test is 75.26 (Practical). The trial on the lower-index, middle-index and higher-index schools found that the higher-order thinking skill is effective to implement. In conclusion, the HOTS test is valid, reliable, practical, and effective to use to measured students' higher-order thinking skills in mathematics learning.

### **Keywords:**

HOTS, Thinking Skills, Assessment, HOTS Problems

**Paper ID: MED 122**

## **Workshop on Project-Based Assessment for Middle School Mathematics Teachers in Nganjuk Regency**

### **Presenter :**

Siti Khabibah, Dini Kinati Fardah, Endah Budi Rahaju, Abdul Haris Rosyidi, Dayat Hidayat  
Universitas Negeri Surabaya  
sitikhabibah@unesa.ac.id

### **Abstract**

Project-Based Assessment is one form of assessment that must be carried out by the teacher. However, Middle School Mathematics Teachers in Nganjuk Regency still have difficulty in constructing this assessment instruments. This article aims to describe the implementation of the Workshop on the Preparation of Project-Based Assessment for Middle School Mathematics Teachers in Nganjuk Regency and the responses given by the participants. Activities are carried out starting from situation analysis, partner problem analysis, solution offering, planning, implementation, and evaluation. From the questionnaire given to the participants, the results of the questionnaire score with a very good category for participant responses to the material, presenters, and duration of implementation. The average score obtained related to the material on a rating scale of 1-4, among others: the suitability of the material in meeting the needs of the teacher (3.83), the systematicity of the material (3.68), the ease of the material to be applied (3.35). Meanwhile, the average score of participants' responses to the presenter on a rating scale of 1-5 includes: mastery of the material by the presenter (4.79), clarity of presentation of material by the presenter (4.69), and clarity of answering questions (4.54). While the average score for the duration of the workshop is 3.49 on a scale of 1-4. Of the 21 groups of participants who submit the project-based assessments, 8 groups construct the assessment for grade 7, 9 groups for grade 8, and 4 groups for grade 9. While the subject matter distribution of those 21 assessments consists of: numbers made by 1 group, geometry and measurement made by 9 groups, algebra made by 8 groups, and statistics and probability made by 3 groups. All participants stated that this workshop was good and smooth, interesting, very useful, challenging, fun, satisfying, adding knowledge. A total of 96.4% of the 84 participants were passionate about practicing project-based assessment in their classrooms.

### **Keywords:**

Project-Based Assessment; middle school mathematics teachers; workshop



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**Paper ID: MED 125**

**Development of Mathematical Literacy Problems using Bengkulu Context**

**Presenter :**

Agus Susanta, Hari Sumardi, Zulkardi Zulkardi  
Universitas Bengkulu  
agussusanta@unib.ac.id

**Abstract**

The implementation of the Minimum Competency Assessment (AKM) in 2021 created confusion among students and teachers, especially in secondary schools in Bengkulu City due to the limited number of problem that refer to the AKM. The purpose of this research is to produce mathematical literacy problems with a valid and practical Bengkulu context and student responses in solving them. This study involved 26 students from two junior high schools in Bengkulu City. Research design was used development research. Data were analyzed descriptively through tests, interviews and documentations. The research resulted in mathematical literacy problems using Bengkulu context that were valid and practical in improving students' mathematical literacy skills.

**Keywords:**

Development, Mathematical Literacy, Bengkulu Context

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**Paper ID: MED 128**

**Mathematical problem solving ability in terms of student metacognition in the subject differential equation**

**Presenter:**

Ovan Ovan Ovan  
Universitas Negeri Surabaya  
ovan.21029@mhs.unesa.ac.id

**Abstract**

This study aims to describe mathematical problem-solving abilities in terms of student metacognition in the differential equations course. This type of research is qualitative research. The subject that became the research sample was differential equations. The subjects of this study were 4th semester students of the mathematics education study program, STKIP YPUP Makassar. The results of student work are described based on mathematical problem-solving abilities in terms of metacognition. The results showed that there were students who had poor metacognition, goodenough, and very good. To improve mathematical problem solving skills, it is necessary to provide reinforcement in the form of problem-solving-based exercises so that students' metacognition can improve.

**Keywords:**

Mathematical, problem solving, metacognition, differential equation

**Paper ID: MED 133**

## **Students' Thinking Processes in Solving Mathematical Problems Based on Krulik and Rudnik Steps**

### **Presenter:**

Siti Suprihatiningsih, Triana Harmini, Nugroho Arif Sudibyo  
Universitas Negeri Surabaya, Universitas Darussalam Gontor, Universitas Duta Bangsa  
siti.21032@mhs.unesa.ac.id

### **Abstract**

This study aims to describe students' thinking processes in solving mathematical problems based on Krulik and Rudnik's rules. This research is qualitative research with a case study method. Sampling was done by a combination of purposive sampling and snowball sampling. The research subjects used in this study were nine subjects, namely: three high-ability students, three medium-ability students, and three low-ability students. Data were validated by using the time triangulation test. The results showed: (1) In the reading and thinking step, students immediately identified all the facts in writing. After identifying the facts, students identify questions from the given problem. (2) In the exploration and planning stages, students organize information about the material. Students consider sufficient information about the material because there is a relationship between what is known and what is asked. Students immediately choose strategies to answer questions; (3) In the strategy selection step, students use simulation or experimental strategies, students try to experiment with certain theorems; (4) In the step of finding the answer, students use estimation in finding the answer. On the other hand, there is one student who uses algebraic skills to find the answer. (5) In the reflection and expansion step, students can review the calculation results by returning them to the answer sheet. Then students find that the answer is correct.

### **Keywords:**

Thinking Processes, Solving Mathematical, Krulik and Rudnik

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Paper ID: MED 135

## Mathematics Pre-service Teachers' Understanding of Derivative Concepts Using APOS Theory Related to Mathematic Anxiety: A case study

### Presenter:

Enny Listiawati, Dwi Juniati, Rooselyna Ekawati  
Universitas Negeri Surabaya  
ennylistiawati@stkipgri-bkl.ac.id

### Abstract

In this study, we focus on describing the understanding of pre-service mathematics teachers with low and high math anxiety levels of derivative function based on the APOS theory. All 26 pre-service mathematics teachers who had taken calculus courses were given a math anxiety questionnaire then 1 student with low math anxiety level and 1 student with high math anxiety level were selected and given derivative functions tasks and interviewed based on the results of their work. The results showed that the subject with high math anxiety levels were in Action determined derivative function in the form of two-function multiplication by multiplying it distributively first and then derived it using the derivative rule, while the subject with low math anxiety directly used the derivative rule for multiplying two functions. In the Process, all subjects can explain the steps to determine the derivative function. The subject with high math anxiety has not yet reached the object and schema stage but subject with low math anxiety level at Object identified a composition function using the chain rule to determine the derivative of the composition function. In Schema, the subject determined a certain equation of a curve at a point and used several rules.

### Keywords:

Teacher's understanding; APOS; Derivative Function; Math Anxiety

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**Paper ID: MED 136**

**Metacognitive Processes of Middle School Students in Solving Arithmetic Sequence Problems in Terms of Mathematical Ability**

**Presenter:**

Mega Suliani, Dwi Juniati, Agung Lukito  
Universitas Negeri Surabaya  
mega.19003@mhs.unesa.ac.id

**Abstract**

This study aimed to describe students' metacognitive processes in solving mathematical problems related to arithmetic sequences in terms of the level of mathematical ability, namely high, medium, and low. The research method used in this research was descriptive explorative. The instruments used include researchers as the main instrument, question sheets, and recording tools. The research subjects consisted of 3 students of class VIII in one of the junior high schools in Tarakan, which were selected by random sampling technique. The results of this study were students who have a high level of mathematical ability had better metacognitive processes when solving arithmetic sequence problems than students with moderate and low mathematical abilities. Students with high math abilities evaluate after solving problems, while students with moderate and low abilities did not check after solving problems, so they did not realize mistakes made. So it could be concluded that students who have high mathematical abilities had better metacognitive processes when solving arithmetic sequence problems than students with moderate and low abilities.

**Keywords:**

metacognitive process; arithmetic sequence; level of mathematical ability

**Paper ID: MED 144**

## **Flipbook for Flipped Classroom: A Statistics Learning Media Promoting Students' Numeracy**

### **Presenter:**

Mayang Purbaningrum, Thoiffatul Khusnun Nisa', Indri Rohmatul Fakhri Febriani, Ahmad Wachidul Kohar  
Surabaya State University  
ekohariyono@unesa.ac.id

### **Abstract:**

The existence of Covid-19 causes the need for learning innovations supporting online learning and numeracy to understand data. The integration of e-module in flipbook and numeracy is expected to improve students' numeracy in online learning. This is a development study that aims to produce a valid and practical flipbook as an e-module for learning statistics which has a potential effect on students' numeracy in a flipped classroom learning design. The flipbook was developed through the stages of preliminary investigation and formative evaluation. Data were collected and analyzed by means of walkthroughs, tests, interviews, and document review. Results indicate that the flipbook demonstrates the stages of flipped learning from out-of-class activities (independent learning experience at home, do assignments, and takes notes of less understandable) to in-class activities (deepening understanding of statistics through class discussions and working on problem-solving tasks). The flipbook developed meets the criteria of validity and practicality respectively in terms of content and ease of use. In addition, it has the potential effect to develop students' numeracy based on the document analysis of student responses regarding the process of formulating problems mathematically, employing formal mathematical structure, and interpreting solutions on a set of numeracy tasks.

### **Keywords:**

Flipbook; flipped learning; numeracy; statistics

Paper ID: MED 145

## DEVELOPING TEACHERS PCK ON ALGEBRAIC EXPRESSION THROUGH SHORT TRAINING

### Presenter:

Tuti Zubaidah  
mathematics education of syiah kuala university  
tuti.zubaidah@fkip.unsyiah.ac.id

### Abstract:

One of the causes student's misconceptions comes from the teacher's misconceptions. It is necessary to study the teacher's misconceptions and conduct treatment to overcome these misconceptions. This study aims to analyze increasing teacher's PCK related to students' misconceptions on algebraic expression through short training and also to find out the causes of teachers experiencing misconceptions. This type of research is a mixed method. Participants in the study were 54 mathematics teachers who teach in junior high schools in one of the districts in Aceh province. The instrument was a test (pre-test dan post-test) and interview guidelines. Data were analyzed using t test and qualitatively. The results showed that there was an increase in teacher PCK after short training. The cause of teacher misconceptions is generally due to teachers repeating the same misconceptions even though training has been carried out to correct them. In fact, it is not easy to change the mindset of teachers' misconceptions in just one days of training.

### Keywords:

PCK, Misconception, teacher, training

Paper ID: MED 148

## The Effectiveness of the Model Problem Based Learning and Video Scribe Media Terms of Mathematical Reasoning and Motivation to Learn

### Presenter:

R. A. Rica Wijayanti, Didik Hermanto, Mety Liesdiani  
STKIP PGRI BANGKALAN  
ricawijayanti@stkipgri-bkl.ac.id

### Abstract:

This study aims to describe the effectiveness of the Model Problem Based Learning and video scribe media terms of mathematical reasoning and motivation to learn. This study was quasi experimental with the non equivalent control group design. The research population is VI students in SDN Bilaporah 5, Bangkalan and the research sample is VI-A and VI-B were randomly selected. The instrument used in this study is the mathematical reasoning test and motivation in learning questionnaire. The data were analyzed by using a multivariate test Hotelling's T, MANOVA, and t-test. The analysis regarding at the significance level of 5%. The results this study showed that (1) the teaching of mathematics by using the model problem based learning and video scribe media is effective terms of mathematical reasoning and motivation to learn; (2) the model problem based learning and video scribe media is better than the conventional teaching model.

### Keywords:

effectiveness model problem based learning, video scribe media, mathematical reasoning, motivation to learn



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Paper ID: MED 156

## **ETHNOMATHEMATICS EXPLORATION IN WEDDING TRADITIONS OF DAYAK ETHNIC**

### **Presenter:**

Hodiyanto Hodiyanto  
Universitas Negeri Surabaya  
haudy\_7878@yahoo.com

### **Abstract**

The purpose of this study is to explore ethnomathematics in wedding traditions of Dayak ethnic. The type of research used in this study is a qualitative research with an ethnographic approach. This research was conducted on the Dayak Pompak'ng community, Sanggau Regency and Dayak Kanayatn Landak Regency, West Kalimantan Province. The data in this study are the forms of traditional wedding traditional tools, and traditional wedding tradition activities, while the data sources are divided into two, namely primary and secondary. The primary data sources are customary leaders and mathematics teachers, while the secondary data are the general Dayak community. Data collection techniques used in this study are direct observation techniques, direct communication techniques and documentary/bibliographical study techniques. Data collection tools used are observation sheets, interview guidelines, and documents. The data analysis technique used in this research is data reduction, data presentation, conclusion/verification. The validity checking technique used is source triangulation. Based on data analysis conducted on the findings in the field and interviews, the results of this study indicate that there are traditional wedding traditional tools and activities that have mathematical concepts in form, and use in the form of tools used, and how to use these tools. The materials in the traditional games of the Dayak Pompak'ng and Dayak Kanayatn ethnic groups are flat shapes, the Pythagorean theorem, spatial figures, calculations and sequences and series. The results showed that there was a link between local culture and mathematics learning.

### **Keywords:**

Ethnomathematics, Wedding Tradition, Dayak Pompak'ng Tribe, Dayak Kanayatn

**Paper ID: MED 160**

## **Unpacking Primary Teachers' Initial Knowledge of Realistic Mathematics Education: A Case of Iceberg Model of Fraction Division**

### **Presenter:**

Evangelista Lus Windyana Palupi, Ahmad Wachidul Kohar, Rooselyna Ekawati, Shofan Fiangga, Masriyah Masriyah  
Universitas Negeri Surabaya  
evangelistapalupi@unesa.ac.id

### **Abstract**

Iceberg model of realistic mathematics education (RME) is known as a metaphor to illustrate how informal, pre-formal, and formal mathematical models and strategies are used by students to develop a “floating capacity” for the understanding of formal representations of mathematics. This is a survey study that explores Indonesian primary teachers' initial knowledge of RME through iceberg model created for learning fraction division in primary classrooms. A total of forty-five elementary school teachers in Sidoarjo worked on a questionnaire about creating an RME iceberg in the initial agenda of teacher professional training. The created iceberg models were analyzed based on the extent to which the learning stages meet the admitted learning trajectory of fraction division in RME. Results indicate the iceberg models created by the primary teachers tend to illustrate the skeleton of learning stages in formal mathematics, instead of pre-formal mathematics. Most of the teacher participants concern with providing a learning experience on the formal operation of fraction division at the beginning of learning stages followed by contextual learning experience, which is inversely related to the standard model of iceberg in RME.

### **Keywords:**

RME iceberg; teacher knowledge; fraction division

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Paper ID: MED 163

**The didactical use of multiple pictorial representations: The case of fractions division**

**Presenter:**

Kamirsyah Wahyu  
Universitas Islam Negeri Mataram  
kwahyu@uinmataram.ac.id

**Abstract**

Representation plays a paramount role in mathematics instructions since it facilitates students' *model of* the problem situations to the construction of formal knowledge. This article seeks to reflect on the use of multiple pictorial representations in supporting students' understanding of fractions division in primary schools. Theoretically, each representation has unique characteristics in terms of determining the whole, equal parts, and fractions. The empirical reflections reveal that working with different representations is affected by the contexts and the characteristics. When dealing with a cake context, which is a typical area model, for example, in order to translate it to other representations, the students are challenged to embrace the different characteristics. The implication of the findings will be discussed to shed light on instructional practices in primary classrooms.

**Keywords:**

Multiple representations; Pictorial; Fractions division

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**Paper ID: MED 165**

**Statistical Reasoning Ability of Banda Aceh City High School Students**

**Presenter:**

Vaniyon Ariwinanda, Cut Morina Zubainur, Hizir Sofyan  
Universitas Syiah Kuala  
vaniyon125@gmail.com

**Abstract**

The ability of statistic reasoning is the ability to get the information that comes into daily life based on statistical data, the ability to answer problems well, according to existing data in a different way and to get a slightly different result. The aim of this study is to see the ability of the statistic reasoning of high school students in banda aceh. This type of research is the descriptive quantitative. The population of this research is the entire high school student in banda aceh. samples are taken by the method of sampling with a total of 64 students. The intrumen used in this study is the Statistical Reasoning Assessment (SRA) which is developed by Garfield (2003). Data collection techniques using tests. The data analysis used is descriptive statistics. Scores obtained by students will be changed into percentages. On the average, the test of statistic reasoning ability shows that 65.91% percent of the students still answer incorrectly. It shows a misunderstanding of answering statistic questions.

**Keywords:**

Statistical Reasoning, Statistics Education, SRA

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**Paper ID: MED 166**

## **Teacher's Perception of Open-Ended Problems with Cultural Context**

### **Presenter:**

Rika Zahra, Anwar Anwar  
Syiah Kuala University  
rikazahra19@gmail.com

### **Abstract**

Keterampilan berpikir sangat penting untuk diterapkan dalam matematika karena pemecahan masalah membutuhkan pemikiran yang luas atau pemikiran divergen yang tidak mengarah pada solusi tetapi membutuhkan banyak ide atau solusi. Salah satu hal yang menuntut keterampilan berpikir kreatif siswa adalah mengajukan pertanyaan terbuka. Penelitian ini merupakan penelitian awal dari penelitian pengembangan. Tujuan dari penelitian ini adalah untuk menganalisis bagaimana guru memandang pertanyaan terbuka dengan Konteks Budaya. Subjek dalam penelitian ini adalah 1 orang guru yang mengajar di SMP Sukma Bangsa Pidie dan 3 orang guru yang mengajar di SMP Unggul Sigli. Data dikumpulkan melalui angket dan wawancara dengan guru, kemudian dianalisis secara deskriptif. Hasil penelitian menunjukkan; Pertama, Siswa perlu berlatih banyak pertanyaan terbuka dan konteks budaya dan. Kedua, Penting untuk menerapkan pertanyaan terbuka dalam konteks budaya sekolah menengah pertama untuk melatih keterampilan berpikir kreatif. Ketiga, materi yang sesuai dengan konteks Open-ended dan Cultural adalah materi pengukuran, karena terdapat dalam kehidupan sehari-hari sehingga memudahkan siswa untuk memahami dan mengilustrasikannya. Studi ini menunjukkan bahwa pertanyaan terbuka dengan konteks budaya masih terbatas. Oleh karena itu, perlu dikembangkan pertanyaan terbuka dengan konteks budaya. Studi ini menunjukkan bahwa pertanyaan terbuka dengan konteks budaya masih terbatas. Oleh karena itu, perlu dikembangkan pertanyaan terbuka dengan konteks budaya. Studi ini menunjukkan bahwa pertanyaan terbuka dengan konteks budaya masih terbatas. Oleh karena itu, perlu dikembangkan pertanyaan terbuka dengan konteks budaya.

### **Keywords:**

Cultural Context, Open-ended Problem

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**Paper ID: MED 167**

**Readability of HOT Mathematical Problems in Disaster Context for Junior High School Students**

**Presenter:**

Fahlida Harnita, Rahmah Johar  
Syiah Kuala University  
fahlidaharnita.edu@gmail.com

**Abstract**

Disaster mitigation efforts in learning mathematics need to be carried out to foster disaster awareness in students through higher order thinking (HOT) mathematical problem in disaster context. One effort that can be done is to design math HOTS questions with a disaster context. However, the questions developed have not gone through the readability test stage by students. This study aims to analyze the readability of HOT mathematical problem in the context of disaster for junior high school students. This research is a development research that is limited to the stages of one to one and small group only. This study resulted in 16 HOT math questions in the context of disaster for junior high school students which had passed the readability test. The implication of this research is that the questions that have been tested for legibility can be used by teachers in the teaching and learning process in the classroom.

**Keywords:**

Higher-order thinking; question readability; disaster context

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**Paper ID: MED 170**

## **Teacher Needs for the availability of Faraidh Context Math HOTS Questions**

### **Presenter:**

Eva Riska, Cut Morina Zubainur  
Syiah Kuala University  
evariska97@gmail.com

### **Abstract**

The diversity of teacher abilities in developing HOTS questions needs attention, especially with contexts that are close to students' lives, for example faraidh. Reference to HOTS questions in the context of faraidh is still very limited. The purpose of this study was to identify the teacher's needs regarding the availability of math HOTS questions in the faraidh context. The type of research conducted is descriptive quantitative research. The population of this study were all mathematics teachers in religious schools in Banda Aceh City and Aceh Besar District. Meanwhile, the research sample is mathematics teachers at MTsS Babun Najah, Aceh Besar District and SMPIT Al-Fityan Banda Aceh City, totaling seven people. The research instrument used is a questionnaire on the availability of math HOTS questions in the faraidh context. The results of the study indicate that teachers need the availability of math HOTS questions in the faraidh context. The implication of this research is that it is necessary to provide a reference for math HOTS questions in a faraidh context to meet the needs of teachers.

### **Keywords:**

Faraidh context, higher order thinking skill questions, teacher needs

**Paper ID: MED 172**

## **Investigating Students' Mathematical Creative Thinking Process through Eliciting Activities Learning Model (MEAs)**

### **Presenter:**

Risa Arwina Arwina, Anwar Anwar Anwar, Cut Morina Zubainur  
Universitas Syiah Kuala  
anwarramli@unsyiah.ac.id

### **Abstract**

Mathematical creative thinking is needed by students to construct their thinking ideas in solving mathematical problems. It can be stimulated through certain learning models, one of which is the Eliciting Activities Learning Model (MEAs). Learning motivation is one of the factors that can be the basic for students in developing mathematical creative thinking processes through the MEAs. In fact, the studies to investigate mathematical creative thinking processes in solving mathematical problems are minimal, especially in terms of high, medium, and low motivated students. This study aims to explore students' mathematical creative thinking processes through the MEAs for students who have high, medium, and low motivation. Through a qualitative approach, this research was conducted at SMP Inshafuddin Banda Aceh, Indonesia. The subjects were six students who were selected from 23 students based on the level of learning motivation (2 high, 2 medium, and 2 low), which were obtained from the results of a learning motivation questionnaire. Furthermore, at the end of every four times of the learning mathematics that applies MEAs, subjects are interviewed based on the rubric that meets the creative thinking rubric score. The results showed that the thinking process of students who had high learning motivation dominantly produced higher fluency and flexibility than students who had medium and low motivation. Apart from that, students who have high learning motivation are able to go through four stages of the creative thinking process, namely the preparation, incubation, illumination, and verification stages. Meanwhile, the thinking process of students who have moderate motivation is dominant to produce fluency and flexibility from students with low motivation. Moderately motivated students also go through four stages of the creative thinking process. Low-motivated students were only able to achieve fluency and only go through the preparation stage in the mathematical creative thinking process.

### **Keywords:**

Eliciting Activities Learning Model (MEAs), Motivation, Students' Mathematical Creative Thinking Process



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**Paper ID: MED 173**

**Learning Design Mean Topic Using Treasure Finding Context**

**Presenter:**

Ratu Ilma Indra Ilma Putri  
Universitas Sriwijaya  
ratuilma@unsri.ac.id

**Abstract**

The design research method was used in this study with the aim to determine the role of treasure finding a context in supporting the learning process using the PMRI approach that could help the students understanding mean concepts in the seventh graders. The implementation of this study consisted of three stages: preparing for the experiment, the experiment design, and retrospective analysis. This study was conducted in State Junior High School 1 North Indralaya, with the samples were 35 students of seventh graders. The data collection techniques used in this study were observation, interview, field notes, and written tests. The results of this study were in the form of a learning trajectory that included two learning activities starting from the use context of the treasure finding and by splitting the treasure evenly, then solved the problem in daily life. These activities could help students understand mean concepts.

**Keywords:**

Design research, learning trajectory, the mean topic, PMRI approach

**Paper ID: MED 174**

## **Desain Hypothetical Learning Trajectory Dalam Pembelajaran Rotasi Menggunakan Motif Kain Songket Palembang**

### **Presenter:**

Arika Sari Ardani  
Sriwijaya University  
arikasari1998@gmail.com

### **Abstract**

This research have purpose to design mathematics education in rotation using motif of songket palembang as starting point or konteks in learning process. The method that used in this research is design research with three step, that is preliminary design, design experiment and analysis retrospective. The subjek in this research is a few sample of student class IX junior high school. The results of this study are in the form of a hypothetical learning trajectory design in rotational learning using motif songket Palembang with a learning trajectory : students can find out the definition and the nature of rotation through problems exploration using songket palembang, students can paint and determine the coordinates of the shadows of rotated objects at cartesian coordinates through exploration of motif songket Palembang, students can paint the first point and the point of rotation result using the help of geogebra through exploration of motif songket Palembang, students use songket motifs to solve daily rotation problems and the last trajectory is student finding the formula of rotation using motif songket Palembang context.

### **Keywords:**

Hypothetical learning trajectory, design research, rotation, kain songket palembang

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**Paper ID: MED 175**

**Development of Mathematics Learning Module Based on Realistic Mathematics Education (RME) on Topic of Set in Junior High School**

**Presenter:**

Rinoanus Edufa Jenaman, Kadek Adi Wibawa, I G A Putu Arya Wulandari  
Universitas Mahasaraswati Denpasar  
adiwibawa@unmas.ac.id

**Abstract**

The 2013 curriculum emphasizes student activity in the learning process, therefore, learning resources used are expected to support the curriculum. Learning resources used in schools are in the form of textbooks and worksheets which only contain a summary of material and assignments for students. This makes students unmotivated to learn mathematics. This study aimed at developing a valid, effective and practical mathematics learning module based on Realistic Mathematics Education (RME). The learning module intended to make it easier for students to understand the set material. This study used the 4D method, namely define, design, develop, disseminate. The product developed was a mathematics learning module that links up students' everyday experiences with mathematical concepts. The trial subjects in this study were expert subjects, namely material experts and media experts and the students of class 7D of SMP Sapt Andika Denpasar represented by 10 students as research samples. Data collection techniques were also in the form of a questionnaire conducted to measure the practicality of using the module in the learning process. the data were analysed quantitatively and qualitatively. The results of the study showed that, in terms of the validity of the product developed, it was valid based on the assessment of material experts and very valid based on the assessment of media experts. After completing the product trial process, the learning modules developed were effective and practical based on the test results and questionnaires conducted to teacher and students. The learning modules developed were ready to be used in the real learning process.

**Keywords:**

Module Development; Realistic Mathematic Education (RME); Set; 4D Method

**Paper ID: MED 176**

## **Preliminary Learning Design Based Realistic Mathematics Education on Entrepreneurship Arithmetic Content in Junior High School**

### **Presenter:**

Kadek Adi Wibawa, I Putu Ade Andre Payadnya, Rinoanus Edufa Jenaman, Dilla Safira, Gede Indra  
Universitas Mahasaraswati Denpasar  
adiwibawa@unmas.ac.id

### **Abstract**

One of the causes of boring mathematics learning is that teachers often do not relate the concepts to previous students' experiences and their everyday life. This research aims to develop learning designs based on realistic mathematics education on entrepreneurship arithmetic content in junior high school. In this paper, a preliminary learning design is described comprehensively to be used to produce a Hypothetical Learning Trajectory (HLT). The method used is qualitative by reviewing several references, conducting observations, and group discussion forums. The results of this study are five stages to increase students' interest in learning, conceptual understanding, and problem-solving, including 1) engagement with content and context, 2) story of entrepreneurship on video, 3) concept deepening, 4) collaboration to solve problems and 5) making conclusions. The context of this research is the life surrounding the students combined with the 4.0 era development, namely Badung traditional markets, offline malls and online malls, and 3D printing. Instruments designed to support these five stages are learning implementation plans, student worksheets, video presentations, and PowerPoint slides.

### **Keywords:**

Design research, realistic mathematics education, entrepreneurship arithmetic content

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**Paper ID: MED 177**

**Kearifan Lokal in Mathematics Learning Process at School in Jambi Province**

**Presenter:**

Silvia Fitriani  
Universitas Batanghari  
silviafitriani1089@yahoo.com

**Abstract**

This research aims to describe kearifan lokal, a subject discussing local culture content in Indonesia, and to analyze mathematics learning process at schools in Jambi Province based on Bishop's universal mathematical activities. The collection and analysis of the data used a qualitative approach. Besides the qualitative approach, we also used an ethnomathematical approach to make a rigorous description of kearifan lokal and its existence in the mathematics learning process at the schools. This research found that the current implementation of kearifan lokal in Jambi was still in progress of development. In fact, however, many schools have already implemented the subject muatan lokal based on the Indonesian Ministry of Education and Culture's regulation. Furthermore, we could identify the existence of mathematics in the teaching material of kearifan lokal subject. However, the connection between both kearifan lokal and mathematics as subjects at school is too weak for the VII grade of junior high schools in Jambi.

**Keywords:**

Kearifan lokal, Bishop's universal mathematical activities

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**Paper ID: MED 180**

**Reasoning Approaches of Prospective Teacher Students in Proving Even Numbers**

**Presenter:**

Sugi Hartono, Tatag Yuli Eko Siswono, Rooselyna Ekawati  
Universitas Negeri Surabaya  
tatagy@gmail.com

**Abstract**

Students' mathematical reasoning can be seen from the way they prove a simple mathematical statement. This article discusses the reasoning approach of 32 teacher candidates in proving even numbers. This descriptive-exploratory research uses an interpretative analysis of the assignments given to prospective teacher students in the first semester courses. We discussed how participants develop generalizations from adding two odd numbers to an even number. The results pointed out that participants used inductive-deductive reasoning and deductive reasoning to convince their strategies. This reasoning approach will be categorized into characteristics that may become a general and regular pattern for proving this even number problem.

**Keywords:**

reasoning; proving; inductive reasoning; deductive reasoning

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**Paper ID: MED 181**

**Using Cognitive Process Dimension to Assess Prospective Teachers' Reformulated Problems from a PISA-like Task**

**Presenter:**

Ahmad Wachidul Kohar, Endah Budi Rahaju  
Universitas Negeri Surabaya  
ahmadkohar@unesa.ac.id

**Abstract**

This is an exploratory study that investigates the problems formulated by prospective teachers from a PISA-like task. A total of 25 students participated in a writing test to create four mathematics problems with levels of applying, reasoning, evaluating, and creating according to the revised framework of Bloom's taxonomy. The data, which are the problems posed by the prospective teachers, were then analyzed based on the criteria whether they are categorized as mathematics problems, not problems, or exercises, as well as variations in the methods of problem reformation: changing context or content, simplifying, expanding problems, changing what is given and what is desired, adding information, and combinations. In addition, the mathematics problems are also assessed based on the suitability of the cognitive processes chosen for each problem posed. The results show that the combination type of adding information and simplified is the most common method found in the questions made. While most of the problems which meet the level of applying correspond to what cognitive reports are supposed to be, only a small number of problems are posed that are successfully structured according to the higher levels of cognitive processes, namely evaluating and creating.

**Keywords:**

problem posing; pisa-like task; cognitive processes

**Paper ID: MED 184**

## **Hypothetical Learning Trajectory of Trigonometry for Students Grade 10th amid Pandemic Covid-19**

### **Presenter:**

Fifin Aisyah, Farida Nursyahidah  
Universitas PGRI Semarang  
faridanursyahidah@upgris.ac.id

### **Abstract**

Trigonometry is a necessary material for students to acquired. However, trigonometric continue to pose challenges for students, particularly cosine rule materials. The purpose of this study was thus to design learning series that assists students in grade tenth solve cosine rules problems using the Indonesian Realistic Mathematics Education context. The subject of the study is the tenth-grade students of SMA N 1 Belik, Pemalang, Central Java, with the involvement of 6 students who are selected as diverse students. The method followed design research using observation, video recordings activities in the online class, collecting student data, carrying out pre-test and post-test, and interviewing students as data collection techniques. This study produced a hypothetical learning trajectory (HLT) consisting of three activities in online class using Skype, namely: observing night market video to locate trigonometric ratios in a right triangle, observing takbir keliling video to discover the notion of the cosine rule, and resolve the contextual problems of the cosine rule. The study concluded that the activities designed can make hybrid learning meaningful and easy for students to grasp the cosine rule.

### **Keywords:**

HLT; Cosine Rule; Hybrid Learning; Realistic Mathematics



**Paper ID: MED 201**

**Application of DCGL to analyze students' interest learning mathematics during COVID-19 pandemic**

**Presenter:**

Wiryanto Wiryanto, Chusnul Chotimah, Trisya Maritaria  
Universitas Negeri Surabaya  
wiryanto@unesa.ac.id

**Abstract:**

At this time in 2020, the world has been hit by a corona virus outbreak (COVID-19), which hinders face-to-face meetings between teachers and students and demands digital-based learning. The purpose of this study was to determine the effect of the application of digital creativity game-based learning media with named DCGL on the level of student emotional interest and cognitive interest during the covid-19 pandemic. The research method used is a quasi-experimental method. This research was conducted on students of Sumur Welut 3 Surabaya Elementary School with a total of 65 students. The data collection tools used were the Bartlett Test of Sphericity student interest test, the dashboard results from the Prodigy application, and student interview sheets. The results showed that there was an increase in students' learning interest by applying prodigy media on a game-based learning basis with a significant increase of 23% and having a Cronbach alpha value of 0.85. So it can be said that by applying game-based learning media to help increase students' interest in learning mathematics in the learning from home.

**Keywords:**

learning from home;game learning;mathematics education

**Paper ID: MED 202**

## **A Study of ICT-Based Learning in Elementary School Mathematics Learning Concepts during the COVID-19 Pandemic**

### **Presenter:**

Wiryanto Wiryanto, Chusnul Chotimah, Ni'matur Rochmah, Mario Florentino  
Universitas Negeri Surabaya  
wiryanto@unesa.ac.id

### **Abstract:**

The aim of this study is to examine the application of technology to mathematics learning at the time of the Covid-19 pandemic. The research method used is comparative analysis research. The variables being compared are Information and communication technologies-based learning media with the contribution of several aspects, namely the total article with the title of the media, user perception, the total material that can be applied, gameplay, graphic design, and features of the application. Utilization of technology that can be used in the learning process without facing real time but has good effectiveness. The learning media are Edmodo, Geogebra, and Knowre Math. This third application helps in learning mathematics as the co-19 pandemic continues so that it does not require face-to-face but learning runs efficiently

### **Keywords:**

Covid-19;ICT-based Learning;mathematics education

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**Paper ID: MED 203**

**Reviewing Digital Escape Game in the Teaching and Learning of Mathematics**

**Presenter:**

Nurul Najiah Najibah Abu Bakar, Masitah Shahrill  
University Brunei Darussalam  
20m9213@ubd.edu.bn

**Abstract:**

As many traditional classroom learning has now shifted to online learning, several educators have adapted digital game-based learning in their teaching practices. Numerous studies have been conducted to investigate the effects of game-based learning on students' learning attitude and performance. The emergence of escape rooms or escape games in educational settings has become a promising scientific field and has increased the interest of researchers and educators as a new form of game-based learning. Previous studies have shown that the use of escape games helped in improving students' performance and engagement in mathematics. However, there is no known evidence of the implementation of digital escape game in secondary mathematics lessons in Brunei. The aims of this presentation are to review previous relevant literature about implementing digital escape games in mathematics and the impact of digital escape game on students' performance.

**Keywords:**

Digital Escape Game; Secondary Mathematics; Students' Performance

**Paper ID: MED 205**

## **What are the Ideal Traits of Secondary School Mathematics Leader?**

### **Presenter:**

Mohd Khairul Azam Hj Ali Mashod, Dayangku Nurul 'Izzati Pengiran Omar, Nadiah Maimunah Khanafiah, Nurul Hafizah Haji Alias, Sil Yin Tan, Ani Afifah Haji Mosli, Nor Azura Abdullah, Masitah Shahrill  
Universitas Brunei Darussalam  
masitah.shahrill@ubd.edu.bn

### **Abstract:**

An effective school leadership is critical for the success of educational organisation. Importantly teachers as leaders have extraordinary influences in their own classrooms and on their students. The aspect of teacher leadership provides self-knowledge and also the courage to act on that knowledge. However, what a teacher-leader believes does not necessarily get reflected into his or her teaching practices in the classroom nor may it be reflected or perceived by their peers. In this study, we explored the insights from twelve graduate teacher-candidates in one of the teacher training institutions in Brunei Darussalam. They were asked to describe the ideal leadership role that will need to be present in or possessed by a secondary mathematics teacher. There were many variations in the responses where it is similar to the traits of a good mathematics teacher but extended beyond the classroom. Apart from ideal leadership traits such as excellent classroom control and knowledgeable in mathematics content and pedagogy, ideal leaders should also have collegial capabilities, growth oriented among others.

### **Keywords:**

Mathematics; Leadership Traits; Quality Leader

Paper ID: MED 206

## Exemplary Leadership Characteristics of a Secondary School Mathematics Teacher

### Presenter:

Dalilah Syazwi @ Dalilah Farzana Haji Laidin, Nur Fatin Haji Ismail, Dk Nurul Najiah @ Najibah Pg Abu Bakar, Mohamad Bahzi Al Barakat Shahrums, Afiqah Bari'ah Haji Emran, Nur Basmirah Haji Abas, Nor Azura Abdullah, Masitah Shahrill  
Universitas Brunei Darussalam  
masitah.shahrill@ubd.edu.bn

### Abstract:

To promote educational reform and change, there is a need for schools to be reconceptualised as learning organisations. One of the key ingredients to this vision is modelling and growing of teachers as leaders. Teachers as leaders are no longer based on their formal position but seen to be teachers that gain control of their own professional progression in the classroom and beyond. In this study, we explored the insights from twelve graduate teacher-candidates in one of the teacher training institutions in Brunei Darussalam. They were asked on their experiences meeting exemplary secondary school mathematics teachers they perceived to exhibit exemplary leadership. It was found that most of the responses are based on their personal and professional encounters. These exemplary leadership characteristics influence their perception for an ideal model for secondary mathematics teachers. Among others mentioned are interpersonal communication skills, knowledgeable in content and pedagogy, desirable personal attributes, and reform driven.

### Keywords:

Mathematics; Learning organisations; Leadership traits.

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**Paper ID: MED 207**

**A Review of the GeoGebra Software in Teaching Coordinate Geometry**

**Presenter:**

Mohamad Bahzi Al Barakat Shahrums, Masitah Shahrill  
Universitas Brunei Darussalam  
20M9214@ubd.edu.bn

**Abstract:**

GeoGebra is a software or teaching tool that users can use offline to teach specific mathematics topics. It is available for free download and be used anywhere, which is beneficial for learners. GeoGebra software was created to address a wide range of various levels of content areas in mathematics. It has features that can help learners visualise 2D and 3D dynamic geometry topics. The use of GeoGebra helped students significantly to score mathematics topics such as trigonometry function graphs, geometry, and trigonometry in other countries. However, the use of GeoGebra is rarely being used in secondary mathematics lessons in Brunei Darussalam. The aims of this presentation are to review previous relevant literature about the GeoGebra software in the teaching of coordinate geometry, the impact of using the software on students' performance and to identify the gaps in literature, if any, in connecting and its applicability to an intended future study at the secondary mathematics level.

**Keywords:**

GeoGebra; Teaching Tool; Coordinate Geometry; Secondary Level Mathematics

**Paper ID: MED 208**

## **Mnemonic Devices in Solving Mathematical Story Problems: A Review of the Literature**

### **Presenter:**

Afiqah Bari'ah Haji Emran, Masitah Shahrill  
Universiti Brunei Darussalam  
20M9241@ubd.edu.bn

### **Abstract**

In the 21st Century, challenges are invariably occurring as Brunei Darussalam adapts to the modernisation era. It is crucial to develop independent and innovative problem-solvers to overcome challenges. Students' dependence on the keyword tactics and formula approach to tackle story problems in Mathematics demonstrates inadequate intelligence and weak problem-solving abilities. A mnemonic is an instructional strategy designed to enhance students' memory retention of crucial and complex information. The application of mnemonics in Mathematics lessons in various parts of the world has shown that it significantly facilitated students with varying abilities to solve multiple story problems more effectively. However, there are limited studies conducted on mnemonics to tackle story problems in the secondary level in Brunei. This review intends to examine earlier findings associated with utilising different mnemonics in solving mathematical story problems, the results and influences of using mnemonics on learners' accomplishment, and recognise the hollows, if they exist, in the past works of literature.

### **Keywords:**

Problem-solving; Story problems; Secondary Mathematics; Mnemonics; Memory

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**Paper ID: MED 209**

**A Review on the Use of Gizmos in the Teaching and Learning of Integers**

**Presenter:**

Nur Fatin Haji Ismail, Masitah Shahrill  
Universiti Brunei Darussalam  
20m9242@ubd.edu.bn

**Abstract**

The Gizmos software is considered a virtual manipulative for the teaching and learning mathematics and science concepts. This software is easily available on the Internet from the 'ExploreLearning.com' website and easily accessible using computer and mobile devices. Gizmos provides interactive online simulation that allows students to visualise and experiments with mathematics concept through inquiry and exploration. Students can use Gizmos to interact with hundreds of mathematics topic which includes the study of arithmetic especially integers. The visualisation in Gizmos enable students to directly manipulate the integer chips by dragging them on the model area. The use of Gizmos in learning Mathematics has been validated in the literature as a highly effective way to build conceptual understanding. However, the use of Gizmos in Brunei lessons, both primary and secondary levels are rarely used and so far, there was only one study looking at the effectiveness of Gizmos in the learning of integers. Therefore, the aims of this presentation are to review previous relevant literature about the use of Gizmos in the teaching of integers, the impact of utilising this software on students' performance as well as to identify the gaps in the literature.

**Keywords:**

Virtual Manipulative; Gizmos software; Integers; Secondary Mathematics



**Paper ID : MED 216**

## **Exploring Prospective Teachers' Critical Thinking Process in Solving an Ill-Structured Problem**

### **Presenter :**

Abd Kadir Jaelani, Siti Maghfirotn Amin, Abadi Abadi  
Universitas Negeri Surabaya  
[abd.jaelani16070936006@mhs.unesa.ac.id](mailto:abd.jaelani16070936006@mhs.unesa.ac.id)

### **Abstract**

This study explored the features of prospective teachers' critical thinking process skills in the process of solving an ill-structured problem in a private university mathematics classroom in Makassar, Indonesia. The participants solved the ill-structured problem by following the phases of analyze, browse, create, decision-making, and evaluate. Thirty prospective teachers were selected to complete the mathematical ability test. The students were classified into high and low-ability groups. The group of high-ability prospective teachers were interviewed based on the results of solving the Ill-Structured Problem. The results, include, analyze: understanding and redefining the problem by connecting and presenting known information on the problem via image representation. Browse: identifying the mathematical content needed to solve the problem. Create: formulating solutions that meet many conditions and showing alternative solutions to problems in written and oral form. Decision-making: finding the relationship between the solutions contained in a given problem. Lastly, evaluate: identifying a problem-solving idea as a follow-up plan when faced with a relatively similar problem and completing a written solution. This finding study suggested that it can be employed to help detect the features of prospective teachers' thinking process to solve ill-structured problems in mathematics education and for future research.

### **Keywords :**

Ill-structured problems; mathematics education; prospective teachers'; critical thinking

**Paper ID : MED 218**

**Implementation of Lesson Study for Learning Community (LSLC) and PMRI in Three Dimensional Learning at SMA Negeri Sumsel Palembang**

**Presenter :**

Rini Herlina Rusiyanti  
Universitas Sriwijaya  
[rini.herlina.r@gmail.com](mailto:rini.herlina.r@gmail.com)

**Abstract**

Lesson Study for Learning Community (LSLC) is one of the efforts that can be done to improve teacher learning abilities. LSLC is an activity that can solve problems faced by teachers by applying various methods or appropriate learning strategies according to the demands of the 2013 curriculum and 21st century skills. PMRI is a learning approach that is associated with real things or real situations that students have experienced so that the role of PMRI is very important. support the implementation of LSLC. The method used is descriptive qualitative research. While data collection is done by observation, documentation, field notes, and the results of LKPD based on the RPP that has been designed. This research was conducted on students of SMA Negeri Sumsel in Palembang class XII with the subject matter of three dimensions. The activities in this research consist of four stages; Plan, Do, See, and Re-design. The media used is LKPD. The results of this study indicate that learning with the application of PMRI-based LSLC can help students understand the concept of three-dimensional material, can build good collegiality between mathematics teachers, can solve problems faced by teachers, implementation of learning is in favor of students, and teachers gain experience about learning with PMRI based LSLC.

**Keywords :**

LSLC, PMRI, Dimensi tiga, 21st century skills

**Paper ID : MED 220**

**Designing Learning Trajectory on The Topic of Simplifying Fractions Using Realistic Mathematics Education with Flipped Classroom Strategy**

**Presenter :**

Stevanus Trionanda, Hongki Julie  
Universitas Sanata Dharma  
[stevanustrionanda23@gmail.com](mailto:stevanustrionanda23@gmail.com)

**Abstract**

This study aims to design a learning trajectory-based instruction that is used to teach simplification of fractions using realistic mathematics education and flipped classroom. This study is a design research which aims to develop a learning instrument theoretically and empirically. The instruments used are daily notes, learning trajectory, and learning video. The learning trajectory consists of goals and learning assumptions, activities of teacher and students, and students' flow of thought. Because the data is qualitative, the retrospective analysis will be done using Miles-Huberman method which consists of data collection, data display, data reduction, and conclusion drawing. The result of this study is a trajectory-based instruction using realistic mathematics education and flipped classroom that is used to teach simplification of fractions. The phases of the trajectory-based instruction are as follows: 1) pre-phase where teachers gave rules to be followed by students during class, 2) self-study phase where students learn from the video and solve problems in it before going to the next phase, 3) synchronous learning phase where students, facilitated by teacher solve realistic problems about fraction simplification by WhatsApp and continued by Zoom, 4) transfer phase where students apply their knowledge by doing exercise and small projects.

**Keywords :**

Design research; realistic mathematics education; flipped classroom; fractions

**Paper ID : MED 224**

## **Adaptive Reasoning And Productive Disposition Of High School Student In Solving Problem Based on Cognitive Styles**

### **Presenter :**

Muhammad Syarifuddin Rahman, Dwi Juniati, Manuharawati  
State University of Surabaya  
[rahman.19004@mhs.unesa.ac.id](mailto:rahman.19004@mhs.unesa.ac.id)

### **Abstract**

Adaptive reasoning and productive disposition are the abilities that must be possessed by students in studying mathematics with high abstraction. Adaptive reasoning is used by students to obtain the relationship of concepts and procedures to mathematical problems. Productive disposition is a positive attitude of students in learning mathematics. In addition, in solving mathematics problems, students are also influenced by gender differences. So this study aims to describe the adaptive reasoning ability and productive disposition of students in solving problems based on gender differences. This type of research is qualitative with a descriptive approach. Subjects were selected using a purposive sampling technique. The data collection techniques is giving math test and interviews. The results showed that female subjects were able to think logically in providing explanations, justifications and reflections on the relationship between mathematical concepts, problem situations, experiences and problem situations, as well as solving strategies and problem situations, while male subjects could provide explanations and justifications for the relationship between mathematical concepts with problem situations, solving strategies and problem situations. The productive disposition ability of female subjects is different from male subjects. Male subjects do not know the usefulness of mathematics and do not believe that they are able to solve problems.

### **Keywords :**

Adaptive Reasoning; Productive Disposition; Cognitive Style

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**Paper ID : MED 233**

**Analysis Of Mathematical Creative Thinking Ability Of Junior High School Students On Angle Materials**

**Presenter :**

Bahagia Bahagia, Rahmah Johar  
Syiah Kuala University  
[bahagiamtk@gmail.com](mailto:bahagiamtk@gmail.com)

**Abstract**

Creative thinking is an important ability in mathematics, but not many studies have analyzed students' creative thinking skills on angle material. This study aims to determine the mathematical creative thinking ability of junior high school students on angle material. This type of research is quantitative research. The instrument used in this test is in the form of a creative thinking ability test, questions in the form of a description test are given to class VII students in one of the junior high schools in Jantho City. The results showed that students' creative thinking skills in the angle material were still low where only 39% of students' answers achieved the maximum score, where the percentage of the flexibility indicator was 48%, the fluency indicator was 36%, the originality indicator was 36%. 22% and the lowest percentage is the elaboration indicator, which is 3%. On the elaboration indicator questions, students are unable to answer.

**Keywords :**

Mathematical Creative Thinking Ability; Angle Material

**Paper ID : MED 234**

**Analysis of the Problem Solving Ability of Junior High School (SMP) Students on the Material of Polyhedron**

**Presenter:**

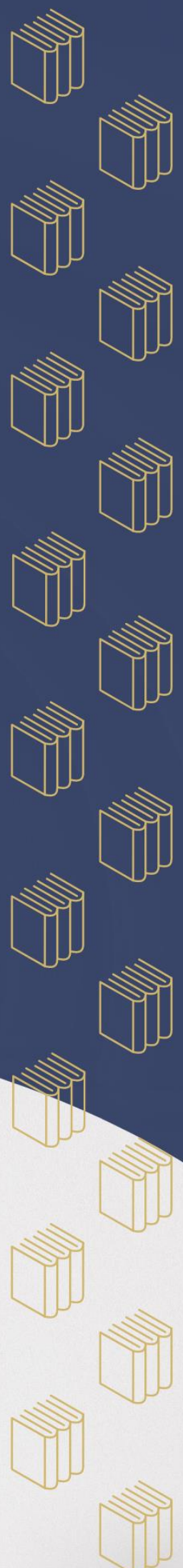
Mirna - Zk  
Universitas Syiah Kuala  
[Fitrianaekarahayu5@gmail.com](mailto:Fitrianaekarahayu5@gmail.com)

**Abstract**

The purpose of this study was to analyze the mathematical problem solving abilities of eighth grade students of junior high school on the material of flat side space. This type of research is descriptive qualitative. The subjects in this study were students of class VIII E at SMPN 1 Takengon as many as 28 students. The instrument used in this research is a test of students' mathematical problem solving ability, which consists of two questions and a semi-structured interview sheet. The results showed that students' problem-solving abilities were in low qualification, many students did not perform indicators of looking back at the results obtained and were still wrong in understanding the problem, but were able to plan problem solving and implement problem solving. Thus, it is recommended for educators to present non-routine questions to students so that students are more accustomed to solving problems that are considered difficult.

**Keywords :**

Problem solving, Polyhedron



**ABSTRACT**  
**COLLECTION: Social**  
**Science Cultural &**  
**Humanities in Education**





**Paper ID: SHE 9**

## **Self Efficacy And Self Regulated Learning Level Of Senior High Schools On Pandemic COVID-19**

### **Presenter:**

Sumarlik Sumarlik  
Universitas Negeri Surabaya  
sumarlik.19013@mhs.unesa.ac.id

### **Abstract**

The purpose of this study was to see the level of self-efficacy and self-regulated learning of students during the COVID-19 pandemic. This study uses a descriptive analytic method in high school, with a cross sectional approach to self-regulated learning and self-efficacy scales given to 60 students. Univariate analysis showed that 51 students (85%) with low self-efficacy had low self-regulated learning during the COVID-19 pandemic. There are three things that affect the level of students' self-regulated learning, namely: self-efficacy, learning motivation, and learning objectives. Self-efficacy is very important because it is self-confidence in students' abilities in dealing with certain conditions to achieve learning goals. There needs to be a follow-up on self-efficacy to produce a high level of self-regulated learning in students.

### **Keywords:**

Self Efficacy; Self Regulated Learning; Pandemic COVID-19



Paper ID: SHE 12

## Development of Ecolearning Thematic Models as Alternative Future Learning Models in Elementary Schools

### Presenter:

Fadhil Sidiq, Nana Supriatna, Sapriya Sapriya, Wahyu Sopandi  
Universitas Pendidikan Indonesia  
fadhil.sidiq@upi.edu

### Abstract:

The purpose of this study was to determine the development of thematic ecolearning models in learning in elementary schools. This research is research and development (RnD). The research subjects were teachers and students at SDN 9 Langsa City. The results of the study provide the following descriptions: 1) develop a thematic ecolearning model by determining the theme, KI, KD, learning objectives, questions, validation tests, practicality tests and determining the final product of the learning model; 2) The item instrument is in the form of multiple choice as many as 25 questions and consists of 10 questions. Based on the validation test conducted by the experts, namely; thematic material experts get a score of 80.5% with "high" criteria. While linguists get a score of 90.5% with the "very high" criteria. From the evaluation experts get a score of 80% with the "high" criteria. 3) the development of an ecolearning model in learning in elementary schools through a practicality test to get the results of the teacher's response reaching 85% with the "high" criteria. Meanwhile, from the students' questionnaire responses with a total of 10 children, they got a score of 80% with the "high" criteria. From the results of the percentage of thematic ecolearning model development at SDN 9 Langsa City, it was declared feasible to use.

### Keywords:

Ecolearning Thematic, Alternative Future Learning.

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**Paper ID: SHE 13**

## **Development of Interest Recommendation Analysis Application**

### **Presenter:**

Ericha Sholeha  
Universitas Negeri Surabaya  
ericha.19010@mhs.unesa.ac.id

### **Abstract:**

This research aims to produce a application for analysis interest recommendation for junior high school that meets the product eligibility criteria. The application was developed to assist counseling teachers in making a interest recommendation letter for IX grade students who will graduate. This interest recommendation letter can be used as a consideration for students in choosing a secondary school. In addition, it is also a consideration for BK teachers in senior high school to placing students based on their interests and abilities. The application was developed using research and development procedures with the stages of analysis, design, develop, implementation, and evaluation. The types of data used in this research are quantitative and qualitative. Data collection using eligibility questionnaire. The eligibility test was carried out by 2 experts material, 1 expert media, and 2 potential users. The data analysis technique uses the percentage formula. The results of data analysis showed that the percentage of eligibility is 95.72%, which means that application was very good product and does not need to be revised.

### **Keywords:**

interest; recommendation; application

**Paper ID: SHE 29**

## **The Strength of a New Subject Anthropology of Art and Culture Education in Empowering Students for Creative Learning**

### **Presenter:**

Autar Abdillah  
Surabaya State University  
autarabdillah@unesa.ac.id

### **Abstract**

In the disruptive era the introduction of a new subject is welcome to pursue a better outcome. This article describes the strength of Anthropology of Art and Culture Education as a new subject in triggering creative learning. This subject is influenced by its contact with the social sciences and changes in society's view of learning. This study tries to reveal (1) How this new subject is implemented to trigger creative learning? and (2) How is this new subject getting influence from the social sciences, thereby changing people's views on creative learning? This study employed a longitudinal qualitative research method for three years, 2018-2021. The subjects were postgraduate students of Art and Culture Education Department, the State University of Surabaya. The data was collected through offline observation within 2018-2019 and online meeting during pandemic in 2020. The results showed that the introduction of the new subject, Anthropology of Art and Culture Education, brings somewhat promising trend. This subject becomes an arena for exploration and brainstorming in interdisciplinary studies. Furthermore, in social sciences, Sociology, for an instance, the new subject has an influence on changing people's views through creative learning.

### **Keywords:**

Strengthening, Anthropology of Art and Culture Education, Creative Learning

**Paper ID: SHE 119**

**The role of girls' talk programme in providing support and empowerment for female students**

**Presenter:**

Nor Zaiham Midawati Abdullah  
Sultan Hassanah Bolkuah Institute of Education, Universiti Brunei Darussalam  
norzaiham.abdullah@ubd.edu.bn

**Abstract**

Thoughts and opinions on female empowerment have been circulating around for a very long time. In the recent years, there have been influxes of girls voicing out their thoughts and standing up for themselves in the world of social media. In order to provide support and empowerment for female students, some schools in Brunei Darussalam organised 'Girls' Talk' programme to create awareness regarding topics related to female students' concern. It is also provided as a gesture of assistance for the students' transitioning from elementary school to secondary school.

The main objectives of this study are to distinguish female students' perceptions on the programme, to examine school counsellors' opinions on the programme, and to identify the assistance school counsellors can provide to support and empower the female students. This study utilises one-on-one interviews with three female counsellors and six female students from two different schools in Brunei Darussalam. This study found that this programme provides female students with good support platform where they could develop their empowerment through the knowledge gained. Besides, the programme offers them with exposure and awareness regarding issues related to behaviour, morality, interpersonal relationships, specific disciplinary cases, and physical health.

**Keywords:**

Counselling, school counsellor, girls' talk, support, empowerment

**Paper ID: SHE 157**

## **How Does Social Science Education Drive Marketing Mindset to Shape Entrepreneurial Interest?**

### **Presenter:**

Harti Harti, Nasution Nasution, Nugroho Hari Purnomo, Andre Dwijanto Witjaksono, Norida Canda Sakti, Ramlee bin Ismail, Mohd Asri bin Mohd Noor

Universitas Negeri Surabaya; Universiti Pendidikan Sultan Idris  
harti@unesa.ac.id

### **Abstract**

This paper aims to address conceptually, how social science education might drive a marketing mindset to shape students' interest in entrepreneurship. The external environments might influence the social science education curriculum and one's way of thinking and mindset. Factors like social relationships, education, culture, community, technology, geography, economic conditions, and political system will expose someone to different experiences in life, resulting in different perceptions of marketing and entrepreneurial activities as a whole. Someone with limited ability to recognize consumer behavior, the market, and the current trend might struggle and might find that entrepreneurial activity is hard, risky, and unattractive. In contrast, someone with a good marketing mindset might have the confidence to practice entrepreneurship. Thus, it might build their interest in entrepreneurship. This paper laid down a discussion of the previous literature and providing a major argument on social science education, marketing mindset, and entrepreneurial interest.

### **Keywords:**

Social Science Education; Marketing Mindset; External Environments; Entrepreneurial Interest

**Paper ID: SHE 159**

**PENGEMBANGAN MATERI HUTAN MANGROVE DI KAWASAN ESTUARIA BERBASIS CONTEXTUAL LEARNING UNTUK MENINGKATKAN KEPEDULIAN SISWA TERHADAP LINGKUNGAN DI KELAS X IPS SMAN 1 ROTE TENGAH**

**Presenter:**

Hanik - Budiasih, Biru Damar Cahyanti, Nugroho Hari Purnomo  
Universitas Negeri Surabaya  
budiasihanik@gmail.com

**Abstract**

Central Rote Regency is an area that has mangrove forest areas, the majority of which are still natural. Mangrove forest is an area in the estuary area has an important role in supporting the surrounding ecosystem. With the many benefits and functions of mangrove forests in estuarine areas, it is very needed to provide knowledge and understanding to students, especially in utilizing the natural potential around them to increase awareness of maintaining this protected area so that it is maintained and sustainable.

The purpose of writing this study is to take advantage of the natural conditions of the mangrove forest as the main learning resource to provide knowledge and concern for students. This is because there are still weaknesses in the presentation of material which is only in the form of theory without linking learning in the field. The development of teaching materials for mangrove forests in the estuary area in class X IPS can be taught to students using the Contextual Learning model. This model and method aims to increase the power of strong conceptual understanding and accommodate the involvement of students in understanding the material based on what is encountered around them through the Contextual Learning model. With the model and development of teaching materials, it is hoped that the learning process will be achieved in accordance with the basic competency standards and core competencies that have been stated in the geography learning syllabus for class X IPS which can cover aspects of knowledge and aspects of student attitudes.

**Keywords:**

Mangrove Forest, Estuary Area, Contextual Learning

**Paper ID: SHE 162**

**Pengembangan Materi Pemanfaatan Sumber Daya Laut dan Implikasinya Bagi Masyarakat Dengan Menggunakan Model Pembelajaran Kontekstual dengan Metode Mind Mapping Pada Kelas XI**

**Presenter:**

Richa Diari Sandi, Iin Vina Noviana, Nugroho Hari Purnomo  
Universitas Negeri Surabaya  
iinvinanoviana1990@gmail.com

**Abstract**

Learning geography is learning that requires special skills so that material related to the spatial context can be conveyed properly. Learning that is always space-oriented must be delivered with an attractive model. Studying geography not only develops principles, theories, but also studies and analyzes events on earth. Marine resources are one of the complex materials in geography learning. This material requires a good analysis in the management and distribution of marine resources. The resource-rich ocean is studied so students can understand distribution and good management. Utilization of marine resources and its implications for society is a sub-chapter of Basic Competence 3.3, namely analysis of the distribution and management of marine resources in class XI. The material can be developed using a contextual learning model combined with the mind mapping method. These models and methods aim to enable students to learn concepts and at the same time relate them to actual conditions so that students' awareness of the surrounding environment will be achieved. These concepts will then be presented again in the concept of mind mapping. The development of these teaching materials is expected to make learning run optimally and students will more easily understand it. Mastery of the material by students will be easier if it is associated with the surrounding natural conditions. With this learning model, it is hoped that the learning process can be achieved in accordance with the basic competency standards in geography learning for class XI which is guided by the syllabus.

**Keywords:**

marine resources, contextual learning, mind mapping methods

**Paper ID: SHE 178**

**The Female Protagonists Attachment to Sexism in An Antology Short Story Translated by Dayla Cohen-Mor**

**Presenter:**

Syaikhatus - Nisa, Suci - Suryani  
University of Madura  
satunnisa18@gmail.com

**Abstract**

This paper is purposely designed to identify the female protagonists attachment to sexism and to elaborate the female protagonists react the sexism. The theory of feminism by bell hooks (1984) is applied in this paper to help the writers of the paper to achieve the purpose. Women attachment to sexism became the focus for bell hooks to sound all over the world since it leads women to be marginal, subordinate, invisible. Those cause women become victims of male superiority. The descriptive qualitative method is used in the paper. The data are in the form of the authors' narration taken from an anthology of short story of Arab women writers that is translated by Dayla Cohen-Mor. The findings show that female protagonists attachment to sexism are divided into some points. Those are male domination over women, women hating in daily contact with one another, women devalue parenting work, women perform defensive, competitive, and suspicious behavior to one another, and women feel threatened by one another without cause. The ten short story selected for the writers to analyze are worthless media to learn women attachment to sexism since those can arise students' awareness towards the issue.

**Keywords:**

Female Protagonists, Attachment to Sexism, Short Story



**Paper ID: SHE 196**

## **Application of Research-Based Learning Methods in Social Studies Learning on Junior High School Teachers**

### **Presenter:**

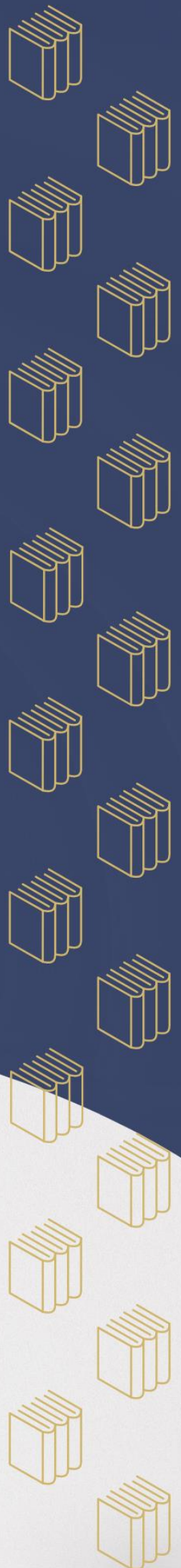
Nasution Nasution, Warsono Warsono, Sarmini Sarmini, Ketut Prasetyo,  
Nuansa Bayu Segara  
Universitas Negeri Surabaya  
nasution@unesa.ac.id

### **Abstract**

This study aimed to analyse: 1) the usefulness of training programs in research-based learning application methods to social studies teachers; 2) The implementation of training programs of the research-based learning method application for social studies teachers; 3) Improved skills in applying research-based learning methods in schools. The research method has three stages. In job learning, by providing training or recharging social studies teachers on research-based learning methods. On the job learning, participants practice research-based learning methods in their classes in their respective schools. Third, in-job learning, program evaluation, to find out teacher's performance after program implementation. Research Results showed the participants assessed the usefulness of the provision of reviving research-based learning methods. The training program runs according to a predetermined schedule. Teacher skills increase after the debriefing program and implementing the practice of applying research-based learning methods in their respective schools. The recommendation of result this study for the local Education Office is social studies teachers require a sustainable program to improving teaching skills in scientific learning.

### **Keywords:**

Research Based Learning; Social Studies;Teacher



 **ABSTRACT  
COLLECTION: Sport &  
Science Education**



**Paper ID: SSE 14**

## **Development of STEM Animation Learning Media with Feedback to Facilitate Students' Critical Thinking Ability on Global Warming Materials**

### **Presenter:**

Fitria Lafifa, Parno Parno, Erti Hamimi, AM Setiawan  
Science Education, State University of Malang, Indonesia  
fitrialafifa28@gmail.com

### **Abstract:**

Critical thinking skills needed to face the 21st century. PISA 2018 data shows that students' critical thinking skills are still low. The Earth is experiencing an increase in temperature so it requires a solution to overcome it. STEM animation learning media with feedback can increase student reality and involvement and make it easier for students to understand concepts by linking STEM elements. The application of STEM learning media animation with feedback is still rarely used to build capabilities of critical thinking. The purpose of this study was to develop STEM animation learning media with feedback to facilitate students' critical thinking skills on appropriate global warming materials. This study uses Research and Development and ADDIE model's 5 stages, namely Analysis, Design, Development, Implementation, and Evaluation. The instrument used is a media validation questionnaire, material, and readability. The results of average percentage of test material 95,1 % and media 94,3% with very decent criteria. The percentage of students' readability test has an average value of 81% with a very decent category. So, this media can facilitate students to think critically on global warming material. For future researchers, it is recommended to use the product as a medium of learning in the classroom.

### **Keywords:**

animation learning media, STEM, STEM animation, critical thinking, and global warming

Paper ID: SSE 23

## **Development of Science E-module Based on SETS (Science, Environment, Technology, and Society) With Formative Assessments to Improve Critical Thinking Ability of Grade IX Students on Biotechnology Materials**

### **Presenter:**

Dwi Tina Arianti, Parno Parno, Muhammad Fajar Marsuki, Isnani Juni Fitriyah, Safwatun Nida  
State University of Malang  
dwi.tina.1703516@students.um.ac.id

### **Abstract**

Biotechnology is important to learn to prepare students to be able to innovate in the future, but students still have difficulty learning biotechnology materials due to low understanding of learning materials, and students are not directly involved in learning so that it hampers students' ability to think critically. However, the development of SETS-based teaching materials with formative assessments in junior high school biotechnology learning as an effort to improve critical thinking skills is still rarely done. The purpose of this study was to develop and test the feasibility of a SETS-based biotechnology e-module with formative assessment in improving the critical thinking skills of grade IX junior high school students. The research procedure used is a 3-D model which is a modification of the 4-D model, namely Define, Design, and Develop. The research instruments used were material validation questionnaires, media validation questionnaires, and readability test questionnaires. The results of validation by a lecturer and a teacher who are both material experts and media experts show that the SETS-based e-module with formative assessment has a feasibility percentage of 88.93% with a very feasible category. The results of the readability test by 33 students showed the percentage of e-module readability was 92.01% with a very good category. Thus, an e-module based on SETS with formative assessment is included in the very feasible category so that it can be applied to improve students' critical thinking skills in biotechnology materials. For further research, this product development is recommended so that it can be tested for effectiveness and implemented in classroom learning.

### **Keywords:**

E-module; Biotechnology; SETS; Critical Thinking

**Paper ID: SSE 60**

## **THE DEVELOPMENT OF IESDAC INSTRUMENT AS A COMPREHENSIF TOOLS IN SCIENCE LEARNING ASSESSMENT**

### **Presenter:**

Agus Fany Chandra Wijaya  
Universitas Pendidikan Indonesia  
agus.fany@upi.edu

### **Abstract**

Making a decision made by a person is influenced by the rationality, perception, and cognition of the literature (Chater N., et al., 2017). Education for Sustainable Development (ESD)-oriented learning directs students to familiarize their way of thinking, acting, and behaving comprehensively based on the pillars of sustainable development. Exploration of skills acquired by students after learning is more dominated by cognitive aspects that are more oriented to the way of thinking and tend to override their perspective of acting and behaving. Hassan, Noordin, & Sulaiman (2010) and Arba'at (2006; 2009) has developed an instrument of sustainability awareness in a structured manner, with more emphasis on the attitude aspect. This can be the basis for developing further evaluation instruments to be able to explore one's cognitive aspects in taking a stand. This study aims to develop an integrated ESD Awareness and Cognitive evaluation instrument based on science learning for high school students. By using the Research and Development (R&D) research method through the ADDIE stages (Analysis, Design, Develop, Implement, and Evaluate). This study involved 100 student respondents at the high school level spread across several areas in West Java by simple random sampling to meet the expected data. The structure of this instrument comprehensively involves aspects of ESD, categories of sustainability awareness, and scientific reasons that explain the choice of respondents' attitudes that has been made in the form of a questionnaire. The results of this study are instruments with mostly valid items, item reliability of 0.92 and Cronbach's alpha value of 0.86. Based on these results, it can be stated that the INTEGRATED ESD AWARENESS AND COGNITIVE (IESDAC) instrument can be used to comprehensively measure a person's attitude and understanding in learning science.

### **Keywords:**

IESDAC, ESD, Awareness

Paper ID : SSE 94

## Study Of Critical Thinking Skills For Junior High School Students In The Era Industrial Revolution 4.0

### Presenter :

Zahara Lutfiya Azmi  
Universitas Sriwijaya  
zaharaedhiza20@gmail.com

### Abstract

Critical thinking skills are very important in the era of the industrial revolution 4.0, especially in the 21st century. This research is a preliminary study that aims to determine the extent of students' understanding of critical thinking skills and their application in learning science and physics by teachers in schools. The research method used is qualitative research using google forms and interviews. The research subjects were students of SMP Negeri 59 Palembang. From the results of this initial study, it was found that 50% of students did not carry out activities to solve problems, 47% of students got unsatisfactory learning outcomes, 60% of students had difficulties in explaining learning experiences, and 51% of students had difficulties in understanding physics science material. Thus, students' understanding of critical thinking skills still needs to be improved in learning science physics. As for suggestions for further research to directly analyze Physics Science learning in critical thinking skills.

### Keywords :

Critical thinking skills, industrial revolution era 4.0

**Paper ID: SSE 123**

## **Critical Thinking Dispositions and Critical Thinking Skills's Preservice Science Teachers's**

### **Presenter:**

Amiq Fikriyati, Rudiana Agustini, Suyatno Suyatno  
Universitas Negeri Surabaya  
amiq.18002@mhs.unesa.ac.id

### **Abstract**

This study aimed to describe and examine the relationships between critical thinking dispositions and critical thinking skills of Preservice Science Teacher. In this research quantitative descriptive method was utilized. Thirty preservice science teacher's of Universitas Islam Negeri Sunan Ampel Surabaya was participated in this study. The instrument used in this study was a critical thinking disposition inventory and critical thinking skills test. The data were collected through questioner and test. The results showed that: (1) the disposition critical thinking skills of preservice science teacher on the seven indicators (truth-seeking, open-mindedness, analyticity, systematicity, self-confidence, inquisitiveness, and maturity of judgment) were categorized as very low; (2) critical thinking skills of preservice science teacher on the five indicators (interpretation, analysis, evaluation, inference, and explanation) were categorized as low; and (3) there is a meaningful relationship was found, there was significant correlation between pre-service science teachers' critical thinking dispositions and critical thinking skills. An improvement is needed in lecturing learning model to improve student's critical thinking dispositions and critical thinking skills.

### **Keywords:**

Critical thinking dispositions; critical thinking skills; preservice science teacher



**Paper ID: SSE 137**

## **Profile of Students' Science Process Skills on Substance Pressure Material**

### **Presenter:**

Saidawati Saidawati, Zainul Arifin Imam Supardi, Fida Rachmadiarti, Eko Hariyono, Arif Sholahuddin, Binar Kurnia Prahani  
Universitas Negeri Surabaya  
saidawati.20004@mhs.unesa.ac.id

### **Abstract:**

In science learning, students need to be trained to develop Science Process Skills (SPS). This main objective is to analyze the profile of junior high school students' SPS on substance pressure material. This research is a pre-experimental research. The sample of this research was 100 students of class VIII junior high school, first year. The SPS Test Instrument (SPSTI) to determine the profile of junior high school students' SPS on material pressure of substances. SPSTI consists of eight indicators: Formulating the problem; Formulate a hypotheses; Identifying experimental variables; Defines the operational definition of the experimental variable; Designing experimental procedures; Creating graph; Data analysis; Formulating conclusions. This instrument has been declared valid and reliable by the three experts. In case of this research, the profile of junior high school students' SPS on substances pressure material in general still at a low level. The implication of this research can be used as empirical evidence that junior high school students' SPS on substance pressure material still needs to be improved.

### **Keywords:**

Science Process Skills; Substance Pressure Material



Paper ID: SSE 138

## GEOMORPHOLOGICAL MAPPING OF THE PRAMBANAN HILLS YOGYAKARTA

### Presenter:

Nugroho Hari Purnomo  
Pascasarjana Universitas Negeri Surabaya  
nugrohohari@unesa.ac.id

### Abstract:

Prambanan Subdistrict, Sleman Regency, Yogyakarta, and its surroundings have experienced quite rapid regional development. One of the drivers of regional development is the construction of an alternative road connecting Prambanan with Gunung Kidul Regency which is connected to the Yogya Solo toll gate. The development will cross the Prambanan hills area. To anticipate further regional development, it is necessary to study the characteristics of the land. Understanding the geomorphological conditions of an area becomes the basis for land studies to support regional development. This study aims to identify the geomorphological characteristics of the Prambanan hills area. The research method is based on the main unit of analysis for the survey, namely the geomorphological unit used for the field survey. Geomorphological units are composed of overlapping lithological units, landforms, and slopes. The research work steps include pre-mapping, field-mapping, and post-mapping steps. The analysis carried out is spatial analysis in the form of map presentations and descriptions of morphography, morphometry, and passive morphostructure. The results showed that on a map scale of 1: 50,000, two landforms could be identified, namely hills and denudational and structural escarpments. For lithology, three rocks can be identified, namely the Kebo Butak sandstone unit, the Semilir lapilli unit, and the Semilir tuff unit. Slopes can be identified in all classes, namely 0-8%, 8-15%, 15-25%, 25-45%, and >45%. The results of the combination of these three elements produced 9 geomorphological units. The 9 are the Semilir denudation hills rocked with lapilli with a slope of 15-25%, the denudation hills with Semilir lapilli rock with a slope of 25-45%, Kebo Butak sandstone hills with a slope of 8-15%, the denudation hills with sandy Kebo Butak with slopes 15-25%, Kebo Butak sandy hills with a slope of 25-45%, Semilir danudasional hills with 15-25% slopes, Semilir tuff hills with 25-45% slope, structural escarpment with Semilir lapilli with 25 slopes -45%, and the Semilir lapilli-rock structural escarpment with a slope of >45%.

### Keywords:

geomorphology; hills; Prambanan

**Paper ID: SSE 139**

**The Relationship of Eye-foot Coordination with Football Skill: A Correlation Study in Under-15 Football Athletes**

**Presenter:**

Razali Razali, Myrza Akbari  
University of Syiah Kuala  
razali.ismail@unsyiah.ac.id

**Abstract:**

Football skills are one of the fundamental aspects that must be possessed by football players. In addition, to support football skills, football players must be equipped with abilities in good physical condition. Based on theoretical studies, movement in football is dominated by dynamic movements so that movement coordination is one important aspect in supporting football skills. The purpose of this study was to determine the relationship between variables, eye-foot coordination and football skills. This research approach is quantitative with correlational type. The population of this study was the Junior Players of the Persati Aceh Tamiang Club, totaling 36 athletes (total sampling). The data collection techniques are as follows: (1) eye-foot coordination using the "tennis ball throw-catch test", (2) football skills are measured using the "David Lee test". Data analysis was carried out using a simple correlation analysis technique and multiple correlation. Based on the results of data analysis, it can be concluded that: (1) there is a significant relationship between eye-foot coordination and football skills ( $r = 0.73$ ), and eye-foot coordination contributes 81.36% to football skills.

**Keywords:**

Football Skill, Eye-Foot Coordination,

**Paper ID: SSE 150**

**Worksheet Based On Susan Loucks Horsley: Alternative to Improve Students' Critical Thinking Skills in Science Learning**

**Presenter:**

Nurhayati Nurhayati, Rudiana Agustini, Elok Sudiby, Ana Yuniasti Retno Wulandari, Eko Hariyono, Binar Prahani  
Universitas Negeri Surabaya  
nurhayati.20028@mhs.unesa.ac.id

**Abstract:**

The preliminary results of critical thinking skills carried out on 30 junior high school students are still show a low category. Therefore, the researcher developed worksheet based on Susan Loucks Horsley as an alternative to improve students' critical thinking skills in science learning. The research objective to determine the validity and reliability of the worksheet based on Susan Loucks Horsley. The worksheets were compiled based on Susan Loucks Horsley's four learning syntaxes which validated by three experts in the field of science learning. The data analysis technique for student worksheet validation was assessed using expert validity and content validity. Based on the results of the analysis of expert validity and content validity, the worksheets based on Susan Loucks Horsley to improve students' critical thinking skills are included in the very valid category and reliable.

**Keywords:**

Validity; reliability; critical thinking skills; worksheet; susan loucks horsley

**Paper ID: SSE 151**

**The Use of STEM-Integrated Project Based Learning Models to Improve Learning Outcomes of Junior High School Students**

**Presenter:**

Roudhoutul Aulia Rochim, Prabowo Prabowo, Mohammad Budiyanto, Eko Hariyono, Binar Kurnia Prahani  
Universitas Negeri Surabaya  
roudhoutul.20001@mhs.unesa.ac.id

**Abstract:**

The purpose of this research is getting the profile of STEM-integrated project based learning models to improve result of learning on junior high school students. The Qualitative descriptive analysis uses literature review to get the profile of STEM-integrated project based learning models. The result of research shows there are many PjBL models was built into STEM those are effective in improving science, physics, and math learning result. The following some recommendations for learning models that can practice problem solving skills. In other words, a learning model with a scientific approach that focus on students and the help of technological media such as inquiry-based learning, PjBL and collaborative learning, especially mechanics, the effect of traditional learning is difficult to understand.

**Keywords:**

Project Based Learning; STEM; Learning Outcome

**Paper ID: SSE 153**

**Research trends for masters of science education at the State University of Surabaya:  
Case studies**

**Presenter:**

Eko Hariyono, Titin Sunarti, Hasan Nuurul Hidaayatullaah, Desi Wulandari  
Universitas Negeri Surabaya  
ekohariyono@unesa.ac.id

**Abstract:**

Novelty research characterizes the creativity of students in developing ideas. The main objective of this study is to analyze research trends of the master of science education at the State University of Surabaya. This research method uses descriptive qualitative research. Collecting data by analyzing research abstracts for the last 5 years starting from 2015 to 2020. The data obtained were analyzed using a total sampling technique. Research trends in the Master of Science education at the State University of Surabaya are mostly researching about the development of learning tools with qualitative-quantitative methods, and research topics about innovative learning in the field of thinking skills. Some college students research media, curriculum, and assessment. Policy recommendations are needed by department heads in making decisions to improve research trends and college student publications. This research implies that research trends in the Master of Science education at the State University of Surabaya require further innovation

**Keyword:**

Masters;research trend;science education

**Paper ID: SSE 155**

## **The Study of Implementation SETS Approach to Improve Students' Critical Thinking Skills**

### **Presenter:**

Wardatul - Aini  
Universitas Negeri Surabaya  
wardatul.20029@mhs.unesa.ac.id

### **Abstract**

Some skills that need to be developed in the 21st century, namely communication, collaboration, critical thinking and problem solving, and creativity. SETS (Science Environment Technology and Society) is an approach in learning activities which consists of four components, namely science, technology, environment and society. This approach is applied in learning activities to improve students' critical thinking skills. The research method is qualitative-descriptive by reviewing 20 journals. The results of the study show that there are many applications of the SETS approach in learning that can improve students' critical thinking skills. Further research should be develop the application of the STEM approach by integrating it with other learning models so that it can be used to develop the skills needed in the 21st century, especially during the COVID-19 pandemic.

### **Keywords:**

SETS Approach, Critical Thinking Skills

**Paper ID: SSE 194**

**The Effect of Online Physical Education Program toward Physical Fitness Improvement for Undergraduate Students**

**Presenter:**

Muchamad Arif Al Ardha, Heryanto Nur Muhammad, Nurhasan Nurhasan, Abdul Rahman Syam Tuasikal, Achmad Widodo, Zhi Neng Huang, Jian Wen Chen, Kolektus Oki Ristanto, Chung Bing Yang, Lucy Widya Fathir, Ainun Zulfikar Rizki  
Universitas Negeri Surabaya; National Taiwan Ocean University; National Dong Hwa University  
muchamadalardha@unesa.ac.id

**Abstract**

Physical activity increases body immunity by adjusting the exercise intensity of each individual with mild-moderate exercise at a threshold of 60-80% of the maximum pulse rate. This research aims to inquire the effect of online physical activity program which was implemented during physical education class toward physical fitness. There was endurance, upper body strength, core strength, and lower body strength as the selected component of physical fitness in this study. Research and development (R&D) and quasi experimental study with a one group pretest-posttest research design were implemented in this study. The physical fitness was measured by skipping, push up, plank and horizontal jump. There were 250 undergraduate students who enroll in physical education and fitness courses participated in this study as research sample. The online physical education program was implemented in 4 months. The result, there was a significant improvement on students' upper body and core strength (sig. < .05). Furthermore, the results and discussion are explained further in the article.

**Keywords:**

Online Exercise Model, Physical Fitness, Physical Fitness Test

**Paper ID: SSE 195**

## **Learning Material Development of Small Ball Game for Physical Education Curriculum in Senior High School Level**

### **Presenter:**

Advendi Kristiyandaru, Sasminta Christina Yuli Hartati, Bernard Djawa, Muchamad Arif Al Ardha, Andhega Wijaya  
Universitas Negeri Surabaya  
muchamadaldardha@unesa.ac.id

### **Abstract**

Professional teachers need to prepare learning material properly. It is critical to support the learning process and make it easier for students to receive lessons. The learning materials are lesson plan, teaching materials, learning media, Student Worksheets (LKPD), and assessments. This study aimed to develop learning materials for small ball games in junior high school level. This research was conducted by using research and development (R&D) methods. The learning materials are developed using a 4D development model. There are four steps in the 4D development model i.e., define, design, develop and disseminate. The analysis was conducted by evaluating the national curriculum, teachers' capability, students' profile and other related consideration in the define phase. There were physical education experts were involved in the designing and developing phase. The last, there were 120 junior high school students and three physical education teachers participated in this study to provide feedback on the development of learning materials in the disseminate phase. The results and discussion are explained further in the article.

### **Keywords:**

Learning Material; Physical Education; Small Ball Games



**Paper ID: SSE 210**

**A Review on the Use of Content and Language Integrated Learning (CLIL) in the Teaching and Learning of Secondary Geography**

**Presenter:**

Mohamad Akmal Fauzan Abu Bakar, Desmond Chia Chun Tan  
Universiti Brunei Darussalam  
20m9261@ubd.edu.bn

**Abstract**

Content and Language Integrated Learning (CLIL) is a ‘dual focus’ educational approach to help students to acquire both subject content and language simultaneously during a lesson. CLIL utilises students’ language skill to enhance their understanding of the subject content through cognitively stimulating tasks that promotes the development of their Cognitive Academic Language Proficiency (CALP) and Basic Interpersonal Communication Skills (BICS). Such an educational approach bridges the gap between student’s content understanding and Zone of Proximal Development (ZPD) through linguistical support during content learning. Although CLIL was launched in Brunei Darussalam during 2010, it was largely used in subject area of English. Non-language disciplines such as Social Studies and Geography have limited exposure to such an educational approach to teaching and learning. The aims of this presentation are to review relevant literature on (i) the uses of CLIL in different countries and its reported outcomes, (ii) educators’ perceptions of CLIL and (iii) how it informs a potential study in the area of secondary geography education.

**Keywords:**

Content, Language; Integration; Secondary Geography

**Paper ID : SSE 219**

**STEAM-Integrated Project Based Learning Models: Alternative to Improve 21st Century Skills**

**Presenter :**

Zayyinah Zayyinah, Erman Erman, Zainul Arifin Imam Supardi, Eko Hariyono, Binar Kurnia Prahani

Universitas Negeri Surabaya

zayyinah.20030@mhs.unesa.ac.id

**Abstract**

Education in Curriculum 2013 has to create and design learning for 21<sup>st</sup> century. The skills that must be possessed in this century such as critical thinking, problem-solving, creativity, collaboration, communication, science literacy, etc. STEAM-integrated project based learning is a learning design that consist 5 aspects, namely science, technology, engineering, art, and mathematics that are implemented with project-based teaching and learning activities. The research's objective is to observe the effectiveness of using STEAM-integrated project based learning model to improve students' 21<sup>st</sup> century skills. The research method is qualitative-descriptive by reviewing the literature in as many as twenty journals. Study shows that there are many Project Based Learning (PjBL) models built into STEAM that are effective in enhancing one of skills in 21<sup>st</sup> century. Future research must explore the implementation of STEAM-integrated project based learning during the Covid-19 pandemic by developing e-learning material based on STEAM-PjBL that can be used in online learning.

**Keywords :**

STEAM, project based learning, 21st century skills

**Paper ID : SSE 226**

## **Assessing Students' Conceptual Understanding through Self-Explaining Concept Maps**

### **Presenter :**

Amirah Nur Naseekah Samahani, Siti Norhedayah Abdul Latif  
norhedayah.latif@ubd.edu.bn

### **Abstract**

Meaningful learning is attained when new information is successfully linked to the learner's cognitive structure. It involves the representation of an integrated system in which ideas and thoughts are cohesively linked together, enabling the learner to subconsciously refine and strengthen their knowledge construction. This study implements Concept Mapping as the intervention tool to help students facilitate and organise information by generating patterns and mental models of concepts. Most studies supporting the use of concept maps concluded remarks of significant contribution through pre-and post-test results. Little is known on how a concept map develops students' conceptual understanding. This study aims to extend further the accuracy of students' proper understanding by inviting them to Self-Explain their concept maps, which should provide a better judgement on what students had acquired during the learning process. There were 22 biology Year 10 students from a secondary school in Brunei Darussalam that completed the pre- and post- tests, invited to Self- Explain their concept map, followed by a semi-structured interview. The quantitative analysis revealed a significant impact of the concept map intervention on students' learning performance. Further analysis using the Self-Explain strategy indicated a better picture of students' accurate understanding rather than only drawing from the results of the pre-and post-tests. These findings provide support for assessing students concept maps using Self-Explain strategy that would otherwise mask students' accurate level understanding of any learn concepts.

### **Keywords :**

Concept Map; Self-Explain; Pre-and Post-test; Mental Models; Brunei Darussalam

**Paper ID : SSE 228**

**Writing-To-Learn (WTL): exploring students' Cognitive-Affective-Behaviour learning domains in secondary Biology**

**Presenter :**

Siti Najibah Lailatul Nazirah Sheikh Hassan, Siti Norhedayah Abdul Latif  
norhedayah.latif@ubd.edu.bn

**Abstract**

The science curriculum encompasses a wide range of disciplines which are known to be factually and cognitively demanding. Written communication is a vital component of science academic performance as it is widely recognized as one of the most common pedagogical practices to acquire knowledge. Through writing, learners are able to articulate their knowledge, process information, and convey it into written form. Furthermore, writing also helps learners to gain a better understanding of science concepts. The aim of this study is to examine the use of writing as a tool for learning by integrating three learning domains: cognitive, affective and behaviour. Twenty-two biology year 10 and 11 students from a secondary school in Brunei Darussalam completed the pre- and post- tests followed by a semi-structured interview. Results of the quantitative analysis revealed a significant improvement in students' writing after writing-to-learn intervention. A closer look at the learning domains also showed a significant difference in students' learning outcome. On the other hand, the qualitative results provided an insight into students' perspective following writing-to-learn intervention. Generally, it was reported that students utilized writing-to-learn as a way of organizing scientific information and help better understand scientific concept. Some challenges were also discussed during this study due to students' unfamiliarity of the given task. Despite the mixed outcome, this research provided support for the use of writing-to-learn activities for the teaching of biology in the classroom.

**Keywords :**

Writing-to-learn, WTL, learning domains, Cognitive-Affective-Behaviour, Brunei

**Paper ID : SSE 229**

## **Using TikTok Application in Teaching “Light Energy” in Year 5 Science Classroom**

### **Presenter :**

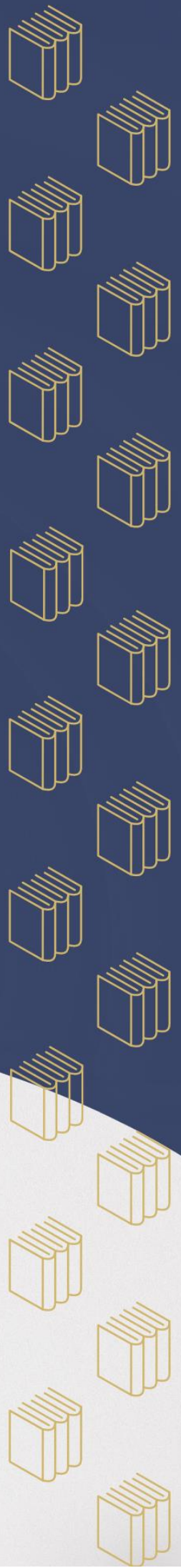
Amyzee Roberd  
amyzeeroberd@hotmail.com

### **Abstract**

To eliminate rote learning in primary Science and to divert students from seeing rote learning as the only way out of it is the main objective of this research. By exploring the versatility offered by social media such as TikTok, it is hoped that this may be seen as an alternative to help primary Science teachers to opt for this to create an enjoyable, fun yet meaningful learning experience for students. TikTok is very relevant to our young generations nowadays that taking advantage of this relevance of the application may be the wisest way to manipulate the application for educational purposes. Through the young generations' interests towards TikTok, logically, it is possible to instill interest towards Science. Teachers could use TikTok to show the 'fun' side of learning Science. There are vast number of pedagogies could be made through the utilisation of TikTok in teaching and learning. This research managed to show an increment of students' test scores. At the same time, students' views on the usage of TikTok were found to be weighing more on the positive aspect of it. Engagement levels of students as a whole through the intervention lessons were also found to be on a quite promising level. It is hoped that more teachers could use TikTok in their teaching and for students' learning. This is also indirectly raising awareness to students regarding the use of gadgets and social media namely TikTok, is not merely for leisure and for escapism but also it could be educationally fulfilling and interesting.

### **Keywords :**

TikTok; Social Media Learning; Primary Science; Action Research



 **ABSTRACT COLLECTION:**  
**Technology for Education**



**Paper ID : TED 46**

## **Development of Automated Assessment Tool to Measure Student Creativity in Computer Programming**

### **Presenter :**

Ricky Eka Putra, Ekohariadi Ekohariadi, I Kadek Dwi Nuryana, Yeni Anistyasari  
Universitas Negeri Surabaya  
rickyeka@unesa.ac.id

### **Abstract**

Computer programming is one of the favourite learning topics among students in the 21st century. However, often the students' creative thinking skills are less able to compensate for this computer programming learning. One of the learning activities applied to hone students' creativity in the field of computer programming is digital storytelling. Through the results of these activities, teachers can measure the level of students' creativity. The measurement of student creativity uses 4 factors (fluency, flexibility, originality, and elaboration). The problems that arise in measuring creativity are the long-time consumption and the high level of subjectivity between each teacher. This study proposes an automated assessment tool system that can measure these 4 factors objectively and without requiring a long time. This software development process uses one of the software developments models, namely the waterfall model. The ease of use of this model makes developers use it a lot in making various software. The automated assessment tool can be a practical solution in supporting the improvement of students' creative thinking skills in computer programming.

### **Keywords :**

Automated assessment tool; creative thinking; computer programming; fluency; flexibility; originality; elaboration



**Paper ID : TED 63**

## **Strengthening Students' Motivation in Statistics Online Learning Through Interactive Animation Media on Android Smartphone**

### **Presenter :**

Ni Wayan Dewinta Ayuni, Agus Adi Putrawan  
Politeknik Negeri Bali  
dewintaayuni@pnb.ac.id

### **Abstract**

Students' motivation plays an important role in increasing students' ability and learning outcome, especially in online learning. Strengthening students' motivation can be conducted by using a proper and creative learning media. With an interesting media will make students enthusiastic in taking lessons. The learning process will also be effective, interesting and easier for educators in delivering messages by using an interesting learning media. To transform a learning media, technology can be a powerful tool to be used. The purpose of this study is to improve the students' motivation in Statistics Online Learning by implementing an interactive animation learning media that can be accessed by Android Smartphone. The data of students' motivation in an experiment class (52 students) and control class (52 students) were taken using questionnaire. Students' motivation then were classified as high or low motivation. The data were analyzed using Chi Square analysis. Results showed that there is a significant difference of motivation in experiment class and control class. Odd ratio between experiment and control class was 5.41. It meant that the Interactive Animation Media on Android Smartphone can increase the potential of students' motivation in Statistics Online Learning by 5.41 times.

### **Keywords :**

Motivation, statistics online learning, interactive animation media



**Paper ID: TED 92**

## **Design of Learning Media Application With The Rapid Application Development Method**

### **Presenter:**

Shinta Aprilisa, Zulkardi Zulkardi, Samsuryadi Samsuryadi  
Sriwijaya University  
shintaaprilisa97@gmail.com

### **Abstract**

The learning process from year to year has developed very rapidly and is accompanied by rapid technological developments, one of which is the use of learning media applications. Learning applications currently have learning standards consisting of basic competencies and indicators as a reference for materials, questions, and assignments. This study focuses on making learning media applications for math problems with the theme of object configuration and number lines. The purpose of this research is to develop learning media that can make it easier for teachers to convey material and students in understanding the existing material. Learning media applications will be developed using the Rapid Application Development (RAD) method with stages, namely requirements planning, system design, development process and feedback collection, as well as product implementation or completion. This application is built using Adobe Flash Professional CS5 and ActionScript as a programming language. The results of this study are to produce learning media applications for Mathematics subjects in junior high schools and are declared successful in application testing. In addition, this learning media can be an additional teaching material so that students can directly see the learning object. Based on these results, it can be concluded that this application is feasible to be implemented as a teacher's tool in the learning process in delivering information.

### **Keywords:**

learning media, rapid application development, adobe flash professional CS5

**Paper ID : TED 97**

**Paradigm of Connectivism: The Foundation of Theory in a New Era of Learning**

**Presenter :**

Mustaji Mustaji  
Universitas Negeri Surabaya  
mustaji@unesa.ac.id

**Abstract**

At this time there has developed a new learning theory known as connectivism. This theory integrates the principles explored through chaos theory, networking, complexity and self-organizing. The main principle of connectivism theory is that (1) learning is a process of connecting several sources of information, (2) encouraging and maintaining relationships to facilitate sustainable learning, (3) the updating and accuracy of knowledge is the purpose of learning activities, and (4) sorting, selecting and managing information for decision-making. The principle is to adapt a new era of learning. The tendency of the new learning era today, students learn a variety of different things, maybe even fields that are not related at all. Students learn informally as a learning experience, because today formal education is no longer the main learning vehicle. Learning can occur through various ways such as through practice in the community, personal work networks, and through the completion of work in relation to tasks. Learning is a continuous process, lasting a lifetime. Learning and working are no longer separate, the technology and tools used have changed and shaped the mindset of students both individually and collaboratively.

**Keywords :**

Connectivism, learning theory, new learning era

**Paper ID : TED 104**

**Mathematics and Natural Sciences Students' Expectations towards the Blended Learning Support System**

**Presenter :**

Ulfa Rahmi, Abna Hidayati, Yohannes Telaumbanua, Azrul Azrul  
Universitas Negeri Padang ; Politeknik Negeri Padang ; Universitas Islam Negeri Imam Bonjol  
Padang  
ulfia@fip.unp.ac.id

**Abstract**

The online learning has become a critical policy direction in conducting the lectures, including in LPTK educating the Mathematics and Natural Sciences (MIPA) prospective teachers. For LPTK administering and organizing face to face meetings, the implementation can be through a Blended Learning system. As an LPTK that fully maintains face-to-face learning, what are the expectations of the MIPAs prospective teacher towards the blended learning support systems? This research was conducted by distributing questionnaires to the MIPAs students randomly. The opened-ended question questionnaires were developed based on the indicators of a support system for the blended learning. The results of the data analysis show that there are high expectations for the learning support system with some notes to improve Lesson Plans and interactions, Content, LMS (Learning Management Systems), assignment, Networks, Quota, and time management.

**Keywords :**

Blended learning; support system

**Paper ID: TED 126**

## **The Information and Communication Technology (ICT) in Thematic Learning Model Classroom Resources for Hyperactive Students in Inclusive Primary School**

### **Presenter:**

Sri Joeda Andajani  
Universitas Negeri Surabaya  
sri.joeda@gmail.com

### **Abstract**

This study aims to examine the effectiveness of audio and video programs in thematic learning, classroom resources learning models for hyperactive students learning together with regular students. It shows great results by the existence of target compatibility with the availability of learning facilities for hyperactive students with regular grade I students in inclusive primary schools. Based on the assessment of accuracy, it indicated that learning resources based on video and audio programs could improve learning objectives precisely without any obstacles in a heterogeneous classroom environment. The changes in learning behavior that were examined on the theme "Self", the program title "Knowing the Parts of the Body", obtained 91.22%. The title of the program "Rules at Home and School", the results of data analysis obtained 92,57%. The primacy of this study is the use of communication and information technology by modifying materials, methods, media, and evaluations based on individual needs. Public elementary schools that organize service programs in an inclusive manner must strive for classes that are equipped with various learning resources so that students could participate in the learning optimally, easily socialize among friends without differentiating by communicating, friendship, collaborating, and helping each other among regular students and hyperactive students.

### **Keywords:**

ICT, classroom resources learning model

**Paper ID: TED 140**

## **The Impact of Online Learning Media on Student's Learning Motivation During The Covid-19 Pandemic**

### **Presenter:**

Mohammad Bahtiar Arofah, Mochamad Nursalim, Endang Pudjiastuti Sartinah  
Universitas Negeri Surabaya  
mohammadbahtiar.20007@mhs.unesa.ac.id

### **Abstract:**

In this era, technology in people's lives is growing very rapidly. This is evidenced by the development of information technology used in society. As for what is happening in the world of education, one of them is in the development of online learning media, this media is used during the current covid-19 pandemic, and this policy is used in preventing the spread of this virus among students. The purpose of this research is to find out the impact that occurs in the use of online learning media by teachers in delivering learning materials to students and helping students in carrying out their learning, especially during the covid-19 pandemic at SMP Negeri 2 Sumenep. The method used is to use quantitative approach development method that is to use T-test analysis. while in collecting the data the author uses observation methods, motivation polls, pre-test and post-test. The result that the author hopes is that by using this online learning media can help and improve the motivation of students.

### **Keywords:**

online learning media, e-learning, learning motivation

**Paper ID: TED 164**

## **Reshaping the EFL Students' Writing and Language Learning through Automated Writing Feedback**

### **Presenter:**

Oei Bing Bing, Ali Mustofa, Syafi'ul Anam  
Universitas Negeri Surabaya  
oei.20017@mhs.unesa.ac.id

### **Abstract**

Technology acceleration has made a significant impact on education, including the learning of the language. It gives the learners access to acquire another language instantly. Numerous kinds of software and app are now available to assist the students in writing by providing feedback or suggesting corrections. However, a long debate questions the impact of automated writing feedback on students' writing quality. This paper aims to find out the use of automatic writing feedback students' writing in the manuscripts sent to any international journal and how it transforms the students' linguistic performance.

### **Keywords:**

automated writing feedback, writing, language learning