

ISBN 978-602-73716-7-5



TEACHER TRAINING AND EDUCATION FACULTY
SYIAH KUALA UNIVERSITY
Department of Biology Education

PROCEEDINGS

The Southeast Asian Biodiversity,
Science Education and Humanity
International Conference
(SIBIOSEDUIC) 2018



Theme

**“Towards the Sustainable use of Biodiversity
in a changing environment :
Science Education and Applications“**

Banda Aceh, Indonesia
April 30 - May 01, 2018

ISBN 978-602-73716-7-5



9 786027 371675



Table of Contents

Study of seed dispersal by wildlife surrounding urban area in Syiah Kuala University, Aceh Province, Indonesia (Abdullah, Mimie Saputri, and Sofiani Sofiani)	1-5
Revealing the Potential of Gayo Highlands amaranth (<i>A.dubius</i> L.) as parental line for breeding high protein amaranth aiming for nutritional security and its photoperiod characteristics (R Andini, MI Sulaiman, Suwignyo and R Ohsawa)	6-15
Catching fish by using Jermal in Panteraja seaport, Pidie Jaya District, Aceh (Asmaul Husna, M.Ali, and Safrida)	16-22
Ornamental plants potentially as traditional medicine in Takengon (Cut Mutia Wulan Sari, Djufri and Cut Nurmaliah)	23-27
Autecology of <i>Acacia nilotica</i> in Baluran National Park, East Java, Indonesia (Djufri)	28-38
The duration of immersion in <i>Chromolaena odorata</i> L. extract on the color of <i>Capsicum annum</i> L. (Endang Rizeki)	39-41
The population of Earthworm in the garden horticulture Gampong Meerayeuk, Bireuen (Erlita)	42-46
Distribution of <i>Gandaria (Bouea macrophylla)</i> in Sumatera (Fitra Hayati Harahap)	47-54
Calung, rare citrus fruits from Aceh and its biological potencies (Hasanuddin, Ernawita and Volker Boehm)	55-59
Change of land used before and after the tsunami year of 2004 in Calang district, Aceh Jaya, Indonesia (Hasmunir)	60-63
Frequency of catching and status of shark conservation at TPI Lampulo Kuta Alam Sub-District of Banda Aceh (Hazia Awanis, M. Ali S and Djufri)	64-68
Forest inventory of ornamental plants in Banda Aceh as instructional media concepts biodiversity (Kiki Monita)	69-74
Composition of bottom aquatic biota species in mangrove aquatic ecosystem Reuleng Leupung used in Invertebrate Zoology learning (M. Ali S, Supriyatno, Asiah MD and Mimie Saputri)	75-80

Diversity and density of mangrove in Nusa Laut Island Beach (Marike Muskitta, Merri S Hartati, Irdalisa, Nopri Yeni and Safrida)	81-85
Edelweiss Density (<i>Anaphalis javanica</i>) in Burni Telong Mountain of Bener Meriah Regency (Milda Gemasih, Djufri and Supriatno)	86-89
Daily behavior of landak raya (<i>hystrix brachyura</i>) in Captive Deer Park Village, Lamtanjong, Aceh Besar District (Mira Salviana, Abdullah and Mimie Saputri)	90-94
Estimation of Carbon Stock (C) Various Vines (Liana) potentially applied in vertical garden at Banda Aceh city (Rizka Ora Aurora Yahya, Djufri and Supriatno)	95-101
Management and timing surgery meningioma in pregnancy: A case report (Roziana and Herman Supriadi)	102-112
The potential of extract <i>Empan (Z. acanthopodium)</i> as natural preservatives in <i>Rastreliger kanagurta</i> (Safrida and Muhammad Iwan Kurniawan)	113-119
Bird species of Bucerotidae family in Tahura Pocut Meurah Intan ecosystems of Aceh Province (Samsul Kamal, Elita Agustina, Rizky Ahadi, Azhari and Najmul Falah)	120-124
Improving the productivity and quality of Sigupai Rice with legowo row spacing arrangement, organic matters and NPK to support existence of premium quality rice (T. Fauzi and Cut Nur Ichsan)	125-128
The anxiety level of junior secondary students towards science subject (Physics) at Nurul Fikri boarding school, Aceh, Indonesia (Abdul Hamid)	129-133
The influence of Reading, Questioning and Answering (RQA) online learning model on students critical thinking skills (Cut Fajar Afridayanti, Ismul Huda and Hasanuddin)	134-137
The impact of Quiz Team learning model on students' learning outcome on the structure and function of plant tissue topic (Khairil and Cut Nurmaliah)	138-142
The implementation of contextual teaching and learning using audio-visual media on respiration system material at junior high school in Banda Aceh, Aceh, Indonesia (Intan Nirmala Hasibuan, Hafnati Rahmatan, Ismul Huda and Wiwit Artika)	143-146
Development of Microsoft Excel-Based Computer Simulation to improve student understanding concept on buffer solutions (Ibnu Khaldun, Sri Adelila Sari and Elfariyanti)	147-152

The relevance and meaning of biological learning through the principle of constructivism for sub-concept of the nervous system and sense of sight (I. Sukowati)	153-163
Application Inquiry Learning to improve metacognitive ability of biology education students in anatomy of human physiology (Irdalisa, Paidi, Djukri, Nopriyeni, Merri Sri Hartati and Marike Muskita)	164-169
The correlation of knowledge level with the hygiene behavior of reproductive organs in female students at SMP 3 Banda Aceh (Isra Rinella)	170-173
Inquiry Learning based on practicum biodiversity concept to increase learning outcomes and student science skills in SMA Negeri 11 Kota Banda Aceh (Kamalliansyah Walil, Djufri and Cut Nurmaliah)	174-179
The application of inquiry strategies to understand genetic material concept on Modal Bangsa senior high school students (Khairina, Muhibbuddin and Ismul Huda)	180-186
Application of Contextual Learning Model to increase learning result on technology development topic in class IV SD Negeri 3 Muara Batu (Khairun Nisa)	187-192
Problem Solving Abilities based on conceptual and algorithmic on salt hydrolysis topic in class XI MAN Rukoh Banda Aceh (Latifah Hanum, Ratu Fazlia Inda Rahmayani and Nina Maulida)	193-201
The use of STAD model to improve learning outcomes on mastery the concept of sensory system at SMAN 2 Meureudu Pidie Jaya District (M. Ridha and E. Dewi)	202-206
Application of <i>learning starting with a question</i> with module toward students' critical thinking skills and learning outcomes on human sense system materials in SMA Negeri in Sigli, Pidie district (Makawiyah, M. Ali S and Safrida Safrida)	207-215
Student learning independence using STAD and LCE type learning with e-learning online (Merri Sri Hartati, Khairil, Marike, Nopriyeni, Irdalisa and Safrida)	216-220
The effects of visual mapping and science-related attitudes on students critical thinking skills (M. Jamhari, Syarifuddin and H. Sipahutar)	221-230
Implementation of learning model on contextual teaching and learning to increase learning results on the concept of life organizations in class VII-3 MTsN 2 Banda Aceh (Mulyani)	231-239
A review aspects <i>Pedagogical Knowledge</i> for perservice teacher (Nopriyeni, Zuhdan Kun Prasetyo, Djukri, Irdalisa, Marike Mushkita, Merri Sri Hartati, Bagus Endri Yanto and Safrida)	240-245

The props process fertilization to improve learning outcomes, motivation and student activities in laboratory science MTsN 1 Banda Aceh in the first semester of the academic year 2017/2018 (Nurmahni Harahap)	246-252
Implementation of guided inquiry learning model with miniature hydraulic lifter pump to improve anti-corruption attitude on grade VIII-11 students MTsN 1 Banda Aceh on concept pressure on the liquid (Nurmawati)	253-261
Effect of video media think about through class logic students in biological level materials in SMA Negeri 2 Peusangan (Sri Novayanti, Rahmawati and Siti Maryam Fadhilah Palestina)	262-266
Preparing a future generation who care about the environment through learning about carbon chemistry with character values (Septina Maulia Putri, Saminan and Sulastri)	267-271
The application of cooperative learning jigsaw type model based on lesson study on human respiratory system material in Public High School at Samadua of South Aceh district (Susi Susanti M)	272-275
Development the student worksheet on environmental pollution materials to improve student learning outcomes in Banda Aceh City (Suwidah)	276-279
Identification the student misconceptions about regulatory system using CRI (<i>Certainty of Response Index</i>) (Syukriah)	280-283
Analysis of difficulties in understanding the concepts solubility and constanta solubility products in Inshaffudin Senior High School in 2015/2016 (Tya Ulfah, I. Khaldun and Rusman)	284-290
The development of module based on misconceptions on the ecosystem concepts as a learning guideline for teachers and students at SMA Negeri 1 Banda Aceh (Yusnanda Sari, Cut Nurmaliah and M. Ali S)	291-295
Analysis of senior high school students' misconceptions of excretory system concept in Banda Aceh (Yusriati, Hasanuddin, and M Ali S)	296-300
Estimating students' thinking levels through two-tier multiple choice test on colloids concept (Fitri Zarlaida, Asyirah Darmia and Habibati)	301-304
Capability of internship chemistry students of teacher training and education of Syiah Kuala University on TPACK (Fitri Zarlaida, Wiguna Rizki and Erlidawati)	305-311

Student learning independence using STAD and LCE type learning with e-learning online

Merri Sri Hartati¹, Khairil¹, Marike², Nopriyeni¹, Irdalisa³ and Safrida⁴

¹ Muhammadiyah Bengkulu University

² Pattimura Ambon University

³ Jabal Ghafur University

⁴ Syiah Kuala University

e-mail: merrisrihartatie@gmail.com

Abstract. Lately, world education demands to hone creative thinking skill, attitude of faith and piety (Imtaq) and autonomous learning. Autonomous learning becomes one of the supporting factors of student achievement. This study aims to determine the autonomous learning using STAD and LCE type learning with E-Learning online media. The research method used is quasi experiment with pre-test design and post-test control group design. There are several differences in students' autonomous learning, the type of learning LCE with media e-learning online is considered better for knowing the autonomous learning of student.

Keywords: Autonomous Learning, LCE, STAD and E-Learning Online

1. Introduction

A student has great responsibility for his / her own learning, in the sense that he or she should be able to choose courses that are self-appropriate and self-motivating, or if he or she need to motivate their self to achieve the desired results. In its implementation is better known as self-learning (Hernawati, 2012) The essence of college learning is to build student's thinking patterns and cognitive structures and to develop the way of student thinking as it is a major tool in learning process. Along with the growth rate of Information and Communication Technology (ICT), the existence of multimedia-based learning becomes something that is felt necessary to transform knowledge from lecturers to students. This can be used as an additional supplement for students beside the regular face-to-face meetings. Even in some universities, E-learning becomes an option for students who cannot attend face-to-face lectures. On the other hand, nowadays education is required to hone creative thinking, learning independence and attitude of faith and piety (Imtaq). As stated in Law No. 20 of 2003 on the National Education system Article 3: "National education functions to develop the ability and form the character and civilization of a dignified nation in order to educate the life of the nation, aims to develop the potential of learners to become human beings who: conscious to the presence of the Almighty God, having noble character, healthy, knowledgeable, proficient, creative, independent and become a democratic and responsible citizens".

The meaning of independent here in the context of formal education system is having the characteristic that learning activities carried out by utilizing various learning resources. The courage to express an opinion on others is another characteristic of independent learning. It can be said that independent learning is not enough by listening, absorbing and reading only but also by acting or doing (Widiastuti: 2010). So it can be said that independent learning means a way to optimize the source of learning.

Self-reliance in learning or self-regulated learning has many definitions. Self-learning does not mean self-study (Mu'tadim, 2002). Self-study is not an attempt to alienate students from friends and lecturers. Students still may ask or discuss for explanations with others. Learning independence will be formed from self-learning. And the most important thing in the learning process is the improvement of skills, especially skills of students in learning process without the help of others, so in the end students are not dependent on lecturers, mentors, friends or others in learning.

Paris and Winogard (Utari, 2004) define the independence of learning as a process of someone initiating learning with or without the help of others, diagnosing their own learning needs, formulating their own learning objectives and evaluating learning outcomes. Wongsri, Cantwell and Archer (Utari, 2004) define learning independence as an individual learning process that has a sense of responsibility in designing its learning and applying, as well as evaluating its learning process. Bandaru (Utari, 2004) defines the independence of learning as the ability to monitor their behaviour and hard work of human personality.

The characteristics of independent learners, according to Mynard (2002) are self-reliant, can make decisions about their learning, aware of their own strengths and weaknesses, build a relationship between what is learned in class and everyday events (connect classroom learning with the real world), responsible for their own learning, knowing and implementing different learning strategies (know about different strategic for learning), planning their learning activities and setting their learning goals, intrinsically motivating themselves by making progress in learning and often reflecting on the process of learning and development (often reflect on the learning process and their own progress). Utari (2004) describes the main characteristics of learning independence to be 3 i.e. designing goals, choosing strategies, monitoring the cognitive and affective processes that take place when a person completes an academic task. And Bandaru (Utari, 2004) also stated 3 independent learner characteristics of observing and supervising oneself, comparing the position of self with a certain standard and giving its own response (both positive and negative response).

Self-learning includes goals, what and where to learn, how to achieve them, and their achievement tools. This is as revealed by Chaeruman (2003) in education with independent learning system, the learner (student) is given independence (either individual or group) by determining: (1) learning objectives (what should be achieved), (2) which must be learned and state the source (the material and learning resources), (3) how to achieve (learning strategy), and (4) when and how the learning achievement is measured.

A person who masters learning independence skill will have the ability to manage cognition, the ability to regulate motivation and emotion and the ability to regulate behavior in the learning process (Zimmerman, 1986). The ability to organize cognition means that independent learners can set learning goals, set learning strategies, analyzes tasks, and monitor and adapt learning strategies.

The ability to regulate motivation and emotion means that independent learners can play a role in developing self-regulated learning in students, lecturers can develop student self-reliance by (Mynard & Sorflaten, 2002) encouraging group work (encouraging group work), encouraging students to estimate how well their exams work, determining learning goals (set some learning goals), finding and using appropriate handbook text, encouraging students to develop a learning agenda (involve learners to keep learner diaries), helping students to know the relationships about what students know about learning and what the students do about learning (build reflection and extension into activities), encouraging self-improvement (encourage self and peer editing). Lecturers can provide facilities and condition of lectures by choosing the right strategy or model, which in this research is online learning model, so it can help to improve student self-reliance.

There are three types of learning models (Judith and Rita-Marie Conrad, 1999) via internet or online lecture courses that can be offered as mentioned below:

- a. Web course lectures, in this course all materials are placed on the web site to enable students to access at any time, there is maybe only little or even no interaction between lecturers and students during online lectures. Interaction is done by face-to-face lectures.

- b. The type of web enhanced lecture is the interaction between the lecturers and students in the lecture one period is divided into two, partly done in face-to-face lectures and the rest is done in online lectures.
- c. Web centrist lectures, i.e. interactive lectures such as face-to-face lectures are only done in an online site with a separate web site address. This allows the number of lecturers to be larger than the number of participants in the face-to-face classes.

For the early stages of the online lecture modelling of college students, this type of web enhanced lecture is a kind of online lecture that is good to use compared to the type of web centric lectures. Lecture materials and various collaborative tasks can be delivered as student learning tasks so as to encourage them to think creatively and apply what they read. In web enhanced lectures, face-to-face lectures can be used to practice term such as case studies, simulations or presentations and online lectures can be used to discuss what students have read and other topics related to lecture material obtained by students outside the task read them.

Siahaan (2002) explains that the benefits of online learning can be seen from two angles, they are:

1. From the Student point of view

Online learning allows for the development of high learning flexibility. Students can access learning materials at any time and over and over again. Students can communicate with lecturers at any time so that students can further strengthen the mastery of learning materials.

2. From the Lecturer's Corner

Benefits obtained by lecturers through online learning include:

- a. Easier to update the learning materials to make it stays up to date in accordance with the demands of scientific developments that occur.
- b. Develop their selves or do research to improve their insights.
- c. Controlling student learning activities.
- d. Checking / monitoring whether the student has done the task or exercise after studying certain materials.
- e. Check student answers and inform students of the results.

A.W Bates and K Wulf in Siahaan (2002) explain that benefits online lectures are as follows:

1. Increasing the level of interaction of learning between students and lecturers.
2. Enabling learning interaction from where and at any time (time and place flexibility).
3. Reaching students (students) in a wide range (potential to reach a global audience).
4. Facilitate the refinement and storage of learning materials (easy updating of content as well as archivable capabilities)

In addition to the benefits expressed in the description, online learning can also train, shape and improve students' learning independence in following the learning process.

Online learning can be done by utilizing the Moodle E-Learning Portal. One of the Moodle E-Learning Portals is the LMS Moodle Learning Management System (LMS) or Course Management System (CMS), also known as Virtual Learning Environment (VLE) is a software application used by educators, universities / colleges and schools as an online learning medium based internet (e-learning). By using LMS, lecturers / teachers / instructors can manage programs and classes and able to exchange information with students. In addition, access to learning materials that take place within a predetermined time frame can also be done. LMS enables learners and educators into the "digital classroom" room to interact (discuss, do online quizzes, etc.) and access learning materials anywhere and anytime while connected to the internet. (Amiroh, 2012).

According to revelation, the definition of 'e-learning' or electronic learning is often changing in harmony with technological advances in the present. This is also often misinterpreted in educational promotion advertisements. In general, 'e-learning' is any teaching and learning that uses electronic circuits (LAN, WAN or internet) to convey content, interaction or simplification. Internet, Intranet, Satellite, audio / video tape, interactive TV and CD ROM are some of the electronic media intended in this category.

Dougiamas (2006 in Mahendra 2013) states that E-learning is a system that utilizes several technologies, which basically provide a set of tools to educators to create and manage learning web sites accessed

from various places around the world by participants educated with internet connection, therefore E-learning greatly helps educators to create effective online learning mechanisms.

The term e-learning contains a very broad understanding, so many experts who describe the definition of e-learning from various points of view. One definition that is quite acceptable to many parties such as Darin E. Hartley states: e-learning is a type of teaching and learning that allows the delivery of teaching materials to students by using Internet media, Intranet or other computer network media.

Cisco (Suyatno 2005 in Mahendra 2013) reinforces the following opinions: First, e-learning is the delivery of information, communication, education, online training. Second, e-learning provides a suite of tools that can enrich the value of learning conventionally (conventional learning model, textbook study, CD-ROM, and computer-based training) so as to respond to the challenges of globalization. Third, e-learning does not mean replacing the conventional learning model in the classroom, but it reinforces the learning model through content enrichment and the development of educational technology. Fourthly, the capacity of the students varies greatly depending on the shape of the content and the way it is delivered. The better the alignment between the content and the conveyor with the learning style is, the better the student capacity which in turn will give better results.

The e-learning program has 3 (three) functions to the learning activities in the classrooms, they are supplement, complement and substitution. It is said to function as a supplement (additional) if learners have the freedom of choice, whether to utilize e-learning materials or not. In this case, there is no obligation / obligation for educators to access e-learning materials. As complement means e-learning material is programmed to become reinforcement material (enrichment) or remedial for learners in following conventional learning activities. E-learning materials can also function as enrichment, if the learners who can quickly master or understand the subject matter presented by the teacher in a face-to-face (fast learners) are given the opportunity to access e-learning material that is specifically developed for them (Siahaan, 2002).

Today many e-learning portals are developed with the Learning Management System (LMS) software called Moodle. Moodle is open source software that supports the implementation of e-learning with an integrated paradigm where various learning support features can easily be accommodated in an e-learning portal. Key features of such learning support are task, quiz, communication, collaboration, and key features which can upload various learning material formats.

According to Herman Dwi build e-learning portal by using one Learning Management System (LMS) device called Moodle. Moodle is an open source LMS opensource in the world to create an integrated e-learning portal. Therefore, when we are looking for web hosting especially free ones we should pay attention whether the webhosting can be easily installed Moodle or not.

This research is a type of quasi-experimental research, to know the ability of creative thinking, learning independence and attitude imtaq student using STAD learning type, LCE with online e-learning media, as well as with conventional class. The design used in this research is pretest posttest design, which is divided into three groups namely STAD type learning group with E-Learning online media, LCE type with E-Learning media online and conventional learning group.

Differences in student self-reliance using STAD and LCE type learning models using online e-learning media with conventional class can be seen from the questionnaire score of student learning independence given to the three classes. Based on the questionnaire scores, the independence of learning provided indicates that the questionnaire score of learning independence in the STAD and LCE learning classes using the e-learning online media is better than the conventional learning class.

When viewed from the average score of learning independence between STAD and LCE class is not significantly different from the LSD Advanced Test with a significant level of 0.90. this is because the two treatment classes / experiments using online e-learning media where students can access the material and ingredients that have been presented in the online portal e-learning portal. This is in accordance with the opinion of Siahaan (2002) which states online learning allows the development of high learning flexibility. Students can access learning materials at any time and repeatedly so that students can better establish mastery of learning materials.

Based on the results of questionnaire independence study analysis by referring to the mean value of the questionnaire scores between classes STAD, LCE and Conventional in sequence are: 80.04, 80.24, and 44.91 of the three classes can be explained that the LCE type learning model has the highest average value. This is possible considering that in LCE type learning, it requires learning independence of learners as expressed by Jhonson (2002) contextual learning in this case LCE type learning requires learners through the eight components of CTL, namely: 1) make real relationships between schools with real life; 2) do meaningful work, i.e. work that has a purpose, for others and learners themselves, and produce works that are tangible or tangible such as ideas or ideas; 3) self-regulated learning. An independent person in learning has characteristics that are able to diagnose learning conditions and can choose the appropriate strategy according to the condition of the results of his analysis, and always monitor himself in applying his chosen strategy until the learning process is complete; 4) collaborate, cooperate, communicate; 5) think critically and creatively; 6) achieving high standards; 7) using authentic assessment; 8) caring for the individual (scaffolding).

From the above description, there are differences in student learning independence using online learning e-learning media through STAD type learning, LCE with conventional learning in animal physiology course. To improve the ability of creative thinking, learning independence and imtaq attitude lecturers / teachers should use STAD and LCE type of learning. In addition, students can use the internet as a positive activity as a medium to get as much information as possible to add insight and knowledge related to lecture materials and other general materials.

2. Research Methods

3. Result and Discussion

4. Conclusion

5. References

- Amiroh. 2012. Kupas Tuntas Membangun E-Learning. Moodle : Jombang.
- Boettcher, Judith and Rita-Marie Conrad (1999), 21st Century Teaching and Learning Patterns: What Will We See?, Syllabus Press Inc.
- Chaeruman, U.A. 2003. Sistem Belajar Mandiri. Jurnalteknodik. Vol VII nomer 13:82-95
- Hernawati, K. 2012. Model Pembelajaran Web Enhance Learning untuk Meningkatkan Kemandirian Belajar Mahasiswa. Jurnal LSM XIX. UNY
- Jhonson, E.B. 2008. Contextual Teaching and Learning. Mizan Learning Center: Bandung.
- Mahendra, I Gede Jaka. Pengembangan Media Pembelajaran Berbasis Blog Pada Mata Pelajaran Teknologi Informasi Dan Komunikasi Kelas VII SMP Negeri 1 Sukasada.
- Mu'tadin, Z. 2002. Kemandirian Sebagai Kebutuhan Psikologi Pada Remaja. Jurnal Psikologi tersedia dalam <http://www.e-psikologi.com>. Diunduh pada tanggal 20 Desember 2017
- Mynard & Sorflaten. 2002. Independen learning in Your Classroom, <http://ilearn.20m.com/research/zuinde.htm>
- Siahaan, S. 2002. Pola Penyelenggaraan Pendidikan dan Pelatihan Jarak Jauh bagi Peningkatan Kompetensi Guru. Jakarta. SEAMOLEC
- Utari, S. 2004. Kemandirian Belajar : Apa, Mengapa, dan Bagaimana dikembangkan Pada Peserta Didik, FPMIPA UPI.
- Widiastuti. 2010. Penerapan Model Pembelajaran Problem Base Learning (PBL) Disertai Media Gambar Untuk Meningkatkan Kemandirian Belajar Siswa Dalam Pembelajaran Biologi Di SMA Negeri 3 Surakarta Tahun Ajaran 2009/2010. Surakarta.
- Zimmerman, B.J. & Pons, M.M. 1986. Development of a Structured interview For Assessing Student se Of Self-Regulated Learning Strategis. American Educational Research Journal 23, no. 4: 614-628.