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KONASPI IX 2019
Konvensi Nasional Pendidikan Indonesia
& International Conference

BOOK OF ABSTRACTS

INTERNATIONAL CONFERENCE ON EDUCATION, SCIENCE AND TECHNOLOGY (ICESTech)

MARCH 15, 2019
AUDITORIUM UNIVERSITAS NEGERI PADANG

EDUCATION, SCIENCE AND TECHNOLOGY IN INDUSTRIAL REVOLUTION 4.0

ORGANIZED BY UNIVERSITAS NEGERI PADANG

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Ruang Wakil Rektor I Bidang Akademik Universitas Negeri Padang
Gedung *Rectorate and Research Centre* Lantai 3
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FOREWORD

Rector of Universitas Negeri Padang

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

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

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

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

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

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

Sincerely,

Prof. H. Ganefri, Ph.D.

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that it could be used to measure students' discipline and self-confidence. The type of this research is a research and development that followed up with the development of education. Procedure development on Psysical Education and Sprorts Skills, Skills model through small games in instilling based on the ADDIE model, consisting of five stages, namely analysis, design, development, implementation, and evaluation. The location of this product trials conducted among students state state vocational high schoolI Bengkulu. The instrument used to collect the data were questionnaire and evaluation sheet. Data analysis techniques of this research use descriptive analysis technique in the form of the percentage The subject of this study was class X (34 students). Data were obtained by observation techniques and analyzed by descriptive analysis.The result of this research shown that learning model develop a in learning Psysical Education and Sprorts Skills model through small games in instilling a disciplined and confident attitude that was practical and effective to enhance the effectiveness of learning organized by teachers and attended by students sampled in this research. The results of this study use affective assessment by observasi , namely variable of students in instilling despline dan confidenee in learning psysical education and sprorts skills, with the acguisition of a good average score then the highest score of 76 % who got a very good criteria and criteria less than 0 % did not exist.

Keyword : Psysical Education and Sprorts Skills, Small Game, Dicipline and Confident, Volley Balls Materials

Topic : Others relevant Fields

[GS.AB-278]

Model Implementation Lesson Study in Increasing the Quality of Learning for Adaptive Students and Responsive to Industrial Revolution 4.0

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Abstract

In the era of industrial revolution, understanding about self express in the field of media literacy, understanding about information that will be shared with students and finding analysis to solve academics problems concerning digital literacy should be increased. One way to overcome those problems is by implementing a lesson study model to improve the adaptive and responsive learning quality of students while at the same time integrating various breakthroughs in the development of learning that supports the Industrial Revolution 4.0. This research was conducted during the Odd Semester of 2018/2019 Academic Year in the Physical, Health and Recreational Education Study Program, Faculty of Sport Sciences, Yogyakarta State University. The method of learning system development applied in this activity was lesson research by employing lesson study model by Lewis (2002). Data collection techniques in this activity included 1) collaboration between teaching lecturers and collaborators or observers, 2) observation, 3) questionnaire, 4) documentation of college student assignments (in the portfolio model) and 4) interview. Instruments used to obtain data included 1) observation sheets, 2) questionnaires, 3) interview guidelines as well as 4) camera and video recorder. The data analysis technique used was descriptive analysis technique based on collaborative reflection by groups and experts in the field of learning for enhancing collaboration towards digitalization of High Education. By conducting this Lesson Study, the character and mindset of students are expected to change. So that the instructors can sharpen and develop the talents of a college student and are able to develop learning models that are in accordance with the needs in the industrial revolution 4.0 era by preparing adaptive characters of a student to fit the current development without always making cognitive intelligence as a benchmark, but the process of creativity as habituation and instilling creative habits in all fields should be put forward, thus it will support the development of application-based education digitalization technology.

Keyword : Lesson Study, Adaptive and Responsive Learning, Industrial Evolution 4.0

Topic : Others relevant Fields

[GS.AB-279]

Purple Sweet Potato (Ipomoea batatas L.)Extract Attenuates Oxidative Stress In Rats Induced-Exhaustive Swimming Exercise

Anindya Mar'atus Sholikhah, Noortje Anita Kumaat, Dita Yuliatrid, Nanda Rimawati
Universitas Negeri Surabaya

Abstract

Exhaustive exercise has been shown to induce free radicals, which later generates lipid peroxidation. The aim of this study was to investigate the role of PSP extract on oxidative stress markers in healthy and nontrained Wistar

MODEL IMPLEMENTATION OF LESSON STUDY MODEL IN IMPROVING ADAPTIVE AND RESPONSIVE LEARNING QUALITY OF COLLEGE STUDENTS TOWARDS INDUSTRIAL REVOLUTION 4.0

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Abstract

In the era of industrial revolution, understanding about self express in the field of media literacy, understanding about information that will be shared with students and finding analysis to solve academics problems concerning digital literacy should be increased. One way to overcome those problems is by implementing a lesson study model to improve the adaptive and responsive learning quality of students while at the same time integrating various breakthroughs in the development of learning that supports the Industrial Revolution 4.0. This research was conducted during the Odd Semester of 2018/2019 Academic Year in the Physical, Health and Recreational Education Study Program, Faculty of Sport Sciences, Yogyakarta State University. The method of learning system development applied in this activity was lesson research by employing lesson study model by Lewis (2002). Data collection techniques in this activity included 1) collaboration between teaching lecturers and collaborators or observers, 2) observation, 3) questionnaire, 4) documentation of college student assignments (in the portfolio model) and 4) interview. Instruments used to obtain data included 1) observation sheets, 2) questionnaires, 3) interview guidelines as well as 4) camera and video recorder. The data analysis technique used was descriptive analysis technique based on collaborative reflection by groups and experts in the field of learning for enhancing collaboration towards digitalization of High Education. By conducting this Lesson Study, the character and mindset of students are expected to change. So that the instructors can sharpen and develop the talents of a college student and are able to develop learning models that are in accordance with the needs in the industrial revolution 4.0 era by preparing adaptive characters of a student to fit the current development without always making cognitive intelligence as a benchmark, but the process of creativity as habituation and instilling creative habits in all fields should be put forward, thus it will support the development of application-based education digitalization technology.

Keywords: Lesson Study, Adaptive and Responsive Learning, Industrial Evolution 4.0

Introduction

The challenge of education in the industrial revolution 4.0 era is in the form of changes in the way of learning, thinking patterns and how college students act in developing creative innovations in various fields that can change the way people think in the digital era. The emerging characteristics in the digital world of 21st century are, among others, the academic community should always explore the traces of technology, share in creating ideas and knowledge that will be created, interact and collaborate in social matters by looking at various aspects that will be applied. Education in the 18th century relied more on conceptual understanding manually. Humans living in the century had intellectual abilities through

literature references provided in the library. However, that was very ineffective because education was only available for established countries in the industrial sector. Then, education developed in the 20th century along with the advent of modern telecommunication tools that changed the human lifestyle. Subsequently, the digital era began to enter the global technology market to improve the mindset of innovation. In this case too, there were many aspects that can change the way people think in the digital era. The emerging characteristics in the digital world of 21st century are, among others, the academic community should always explore the traces of technology, share in creating ideas and knowledge that will be created, interact and collaborate in social matters by looking at various aspects that will be applied. The digital era has many threats if it is not watched out first. To face the industrial revolution 4.0 era, education that can yield a creative, innovative and competitive generation is needed. One of them can be achieved by optimizing the use of technology as an educational aid which is expected to produce output that can follow or change the era for the better. Indonesia also needs to improve the quality of graduates according to the needs of work sector and the demands of digital technology.

Sports Health course is one of the courses that support the achievement of main competencies by graduates in health and recreational education. Even so, during the implementation of this course so far, students of the Sports Health course still has a lot of difficulties in integrating various basics of the courses that had been taken to be applied later in the planning of sport health program. It is the time for the lecturers to leave the learning process which tends to prioritize memorization or simply find one right answer from the problem. That difficulty generally occurs because students do not have adequate learning characters. Learning characteristics that have not been possessed include independence in learning, self-confidence, hard work, focus and integrative abilities. Learning method of education in Indonesia must begin to turn into visionary thought processes, including sharpening the ability of creative and innovative ways of thinking. This is needed to deal with various developments in technology and science. The educators in the industrial revolution era must increase understanding in expressing themselves in the field of media literacy, understanding information to be shared with students and finding analysis to solve the problems of digital literacy academics. The hope is that all parties must increase collaboration in the future education orientation and change the performance of education system that can develop the quality of student mindsets and strengthen application-based digitalization of education.

In this study, students were planned to be grouped into several groups which then got a task to analyze a part of the lecture material and discuss it thoroughly by integrating the basic sciences. The results of the analysis are then presented by all groups on an ongoing basis. The evaluation technique used was a portfolio evaluation model to emphasize students to appreciate the learning process rather than just emphasizing the final results. Portfolio evaluation technique also philosophically supports constructive learning that is proven effective in learning. In addition to portfolio-based instruments, during the Sports Health learning process, track record will be assessed to assess independence in learning, self-confidence, hard work, focus and integration by using observation and interview methods.

The application of lesson study with the Lewis model has 6 stages: 1) Forming lesson study groups, 2) Focusing lesson study, 3) Planning the Learning, 4) Carrying out classroom learning and observing it (observation), 5) Discussing and analyzing the learning that has been carried out , and 6) Reflect on the learning process and planning the next stage.

Research Methods

The method of developing learning systems that will be implemented during lesson study activities is Lewis lesson study model (2002). The stages in the application of the Lewis lesson study model include:

1. Forming lesson study groups which consists of 4 activities, namely: recruiting group members consisting of 3 lecturers from the teaching team of Sports Health course and 1 teaching expert as well as determining a lecturer from group members as the teaching lecturer.
2. Focusing lesson study which consists of 3 activities, namely:
   a. Agreeing on the theme of the problem, focus of the problem and the ultimate goal of problem solving, including identifying the quality of students, the ideal quality of students and the gap between the ideal quality and the quality possessed by students.
   b. Determining the sub-field of study, in which during the application of lesson study activities is the Sports Health course
   c. Determining the topic and unit of the study in the Sports Health course that are tailored to the advancement of science and technology and are needed in the work sector.
3. Planning the Learning.
   At this stage, besides studying ongoing learning process, it is also developing a plan to guide learning. During this stage, the group members form a Learning Implementation Plan, teaching guide for Student Worksheet, dictate or learning module, media or teaching tools, instrument for assessing process and learning outcomes and learning observation sheets.
4. Implementation of Learning and Observation
   The learning plan that has been compiled together is implemented in the classroom by a teaching lecturer who has been agreed upon by the group and observed by other members of the group and an expert. Observers collect data during learning. Documentation of the process of learning implementation carried out using handycams, cameras and narrative observation notes. The lecturer needs to inform students that the presence of observers in the classroom is to assess the learning process and must master the learning plan, student worksheets, teaching guides, modules or dictates and observation sheets.
5. Reflecting and Analyzing Learning Process that has been Done.
   The learning plan that has been implemented needs a reflection and analysis as soon as the learning process is complete. The results of reflection are used as input for improvement or revision of the learning plan. Reflections on the implementation of learning process include the following:

a. Reflection from the learning instructor
b. General response from observers.
c. Presentations and discussions about the results of data processing from observers.
d. Feedback and advices from the expert.

6. Planning the Next Steps
   The results of reflection and data analysis are used as inputs for planning the next stages. The good things during learning process need to be maintained and improved in the next stages while the bad things need to be planned to be overcome so that they will not be repeated in the next stage.

Research Results

This activity will be held during the odd semester of the 2018/2019 academic year in the Sport Sciences Study Program (Bachelor degree) of the Faculty of Sport Sciences, Yogyakarta State University. The object or the focus of this activity is the Sports Health course at the Physical, Health and Recreational Education Study Program of the Faculty of Sport Sciences. The lecturer team involved in the implementation of lesson study model onto the Sports Health course consists of 4 people. While the problem solving technique that will be applied in this activity is the development of a learning model that refers to Lewis (2002) Lesson Study model. According to Lewis (2002), lesson study-based learning activity should be done because of several reasons including lesson study is an effective way that can improve the quality of learning conducted by lecturers and student learning activities. This is due to (1) the development of lesson study carried out and based on the results of professional knowledge sharing which built upon the process and results of teaching carried out by the lecturers, (2) the fundamental emphasis regarding the implementation of a lesson study is to make the students having quality learning, (3) competencies expected to be possessed by students are used as the focus and main focal point of classroom learning, (4) based on real experience in the classroom, lesson study can become the basis for the development of learning, and (5) lesson study will place the role of lecturers as learning researchers. According to Wang Iverson and Yoshida (2005), lesson study has several benefits, among others (1) reducing lecturer alienation from the community, (2) helping lecturers to observe and criticize their learning, (3) deepening lecturers' understanding of lecture material, scope and material sequence in the curriculum, (4) helping lecturers to focus their assistance on all student learning activities, (5) creating an exchange of knowledge regarding the understanding of thinking and learning from students, and (6) increasing collaboration among fellow lecturers.

By using the right education learning method, it is expected that the young generation of Indonesia can be ready and confident in facing various challenges and changes that occur due to the influence of industrial revolution 4.0. Contributions in order to improve the quality of learning towards the era of industrial revolution 4.0 can be seen in two main aspects, namely improvement in the learning process by lecturers and increasing collaboration between lecturers. The most obvious thing is that students become more active both in discussions and

practices in their respective groups. Lesson study provides many things considered effective in changing the learning process, such as:

1). Use of concrete learning materials using Big Data. Big Data itself is a technology system that was introduced to overcome the "explosion of information" along with the growing ecosystem of mobile and internet data users that is getting higher. To focus on more meaningful problems.
2). Taking the context of learning and lecturer experience explicitly.
3). Providing support for the lecturers' solidarity
4). Reducing the alienation of lecturers (from the community) in the planning and implementation of learning as well as its improvement.
5). Helping lecturers to observe and criticize their learning activity
6). Deepening the understanding of lecturers about subject material, scope, and its sequence.
7). Helping lecturers to do an improvement that focusing on all student learning activities.
8). Increasing collaboration between lecturers in learning activity.
9). Improving the quality of lecturers and the quality of learning which in turn results in the improvement of graduate quality.
10). Providing opportunities for lecturers to make educational ideas in learning practices meaningful so that they can change perspectives on learning, and learn learning practices from the perspective of students.
11). Improving learning practices in the classroom or in the laboratory (practice site).
12). Improving the skills of writing scientific papers for students.

This gives a meaning that lesson study provides many opportunities for lecturers to make meaningful education ideas during the learning process, to change the perspective of lecturers about learning and to learn to see the teaching process conducted by lecturers from the perspective of students. In lesson study, things that occur during learning can be seen objectively and such things help lecturers understand important ideas in improving the learning process.

CONCLUSION

The education sector in Indonesia needs to also prepare themselves to enter the industrial revolution 4.0 by making a number of changes in applying the fundamental learning method including by changing the character and mindset of students, honing and developing talents, as well as requiring educational institutions to change learning models which can adapt to the times. The challenge of education in the industrial revolution 4.0 era is in the form of changes in the way of learning, thinking patterns and how college students act in developing creative innovations in various fields. With this, hopefully it can reduce unemployment rate in Indonesia, especially in facing global market competition. It is expected that after performing Lesson Study, college students have the competence to enter the era of industrial revolution 4.0, including: the ability to think critically, creativity and innovative abilities, communication abilities and skills possessed by students, cooperation skill, collaborative skill and self-confidence. In addition, in order for graduates to be competitive, the curriculum requires a new orientation, it is not enough to understand old

literacy, but it also needs to understand the literacy in the era of industrial revolution 4.0, namely data literacy with the ability to read, analyze and use information in the digital era. Second, technology literacy by understanding the workings of machines and the application of technology and the third is human literacy, in which must be able to understand the aspects of humanities, communication and design. In general, the application of Lesson Study towards the industrial revolution 4.0 era in the learning process facilitates the lecturers and students to complete their tasks faster and more controlled with clear evaluation. Students are easier in understanding and absorbing knowledge because it is directly applied. Besides, by using this learning model, learning process is better evaluated and recorded properly.

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OBSERVATION SHEET FOR LEARNING ACTIVITIES

Faculty :
Observer :
Courses :
Date and time :

No	Components of Student Activities	Observation Descriptions	Time
1.	Interaction between students and students (for example discussing or chatting)		
2.	Interaction between students and lecturers (eg asking questions, answering questions, etc.)		
3.	Interaction between students and the media / learning resources (eg reading books, doing assignments, using experimental equipment, etc.)		
4.	Students are passive (eg daydream, support chin, etc.) or play games (pencil, ruler, finger, ball-point, etc.)		
5.	Students are silent because of thinking and attention (for example listening to lecturers 'questions, paying attention to lecturers' explanations, paying attention to questions or explanations of friends, etc.)		

6. Valuable lessons that can be taken from observation of learning