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**International Seminar on Electronic & Mobile Learning
8 August 2016**



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ELECTRONIC & MOBILE LEARNING SEMINAR**
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ELECTRONIC AND MOBILE LEARNING

International Seminar Proceedings

International Seminar on Electronic & Mobile Learning
8 August, 2016

**International Research Clinic and Electronic & Mobile
Learning Seminar in Educational Technology**

Editors:
Basuki
Wibawa
Seipah
Kardipah
Edy Mastoni

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Host:

Postgraduate Program, Universitas Negeri Jakarta

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Editors:

Basuki Wibawa

Seipah Kardipah

Edy Mastoni

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Telp. (021) 4721340, Fax (021) 4897047, website:
<http://www.pps.unj.ac.id>, e-mail: tu.pps@unj.ac.id

Foreword

The role of Educational Technology in teaching is great importance because of the use of Information and communication technologies; therefore it needs continuous research to meet dynamics needs in rapid change environment recently. International research clinic and E&M Seminar in Educational Technology was a two days' workshop and seminars schedule to meet those needs.

Proceedings have been prepared for papers of the keynote speaker, facilitators, and all presenters who have participated in this seminar. In accordance with the title of the seminar an outline of the paper in these proceedings can be grouped on seven topics, namely: Electronic & Mobile (E&M) Learning Design, Electronic & Mobile (E&M) Learning Development, Electronic & Mobile (E&M) Learning Implementation and Management, Electronic & Mobile (E&M) Learning Evaluation, Electronic & Mobile (E&M) Learning Program in Practice, and Trends, Issues in e-Learning Research for Education and Training, and Teaching and Learning Research in Education and Training. Papers were written by various agencies and groups such as lecturers, teachers, researchers, practitioners and observers with a lot of interest in education in Indonesia.

Finally, we realized that these proceedings are far from perfect. To that end, advice and input from all parties is expected to make improvements forward. Finally, we hope that these proceedings may give a significant contribution to improving the quality of education and dissemination of knowledge.

The Organizing Committee of IRCEMLSET

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REMEDICATION OF MISCONCEPTION MOMENTUM AND IMPULSE WITH 5E LEARNING CYCLE APPROACH

Yaspin Yolanda, M.Pd.Si.

Physics Education at STKIP PGRI LUBUKLINGGAU

Email: yaspinyolanda@gmail.com

ABSTRACT

This study aims to determine the percentage change misconceptions Momentum and Impulse after remediation approaches Learning Cycle 5E class XII IPA.4 SMAN 4 Lubuklinggau of Year 2015/2016, amounting to 32 students. The method used is descriptive qualitative. The instrument used multiple choice questions with opened reason and 20 items test and documentation. The results showed that remediation of misconceptions with **5E** Learning Cycle approach shows that of the 20 items tested before remediation average misconceptions percentage of 97% (earlier researcher) and after remediation becomes 33.9% resulting in a decrease of 63.1%.

Keywords: Remediation, misconceptions, Learning Cycle 5E

BACKGROUND

Misconceptions that occur in students will affect their understanding in linking concepts prior to that has been studied as well as occurring obstacle in resolving the problems that relavan, therefore misconceptions students must be addressed immediately. Suparno (2005: 123) explains that there are several methods used to diagnose student misconceptions include multiple choice test with open reasoning and interviews. In the multiple choice test with open reasoning, students must answer and write why he has such an answer. After detecting the misconceptions, it means we must be able to distinguish between students who understand the concept, did not know the concept, and students miskonsepi with an identification method known as CRI (Certainly of Response Index).

Based on the results of previous studies conducted Lusiana, N.(2015:11) on the Analysis Student Misconceptions Momentum and Impulse XII IPA.4 SMAN 4 Lubuklinggau in academic Year 2015/2016. Based on a multiple choice test with open reasoning, of the 20 items tested there are 16 items that misconceptions and 4 items controlled by students well. The number of students who have misconceptions of each item because as much as 31% - 97% of 32 students. All material momentum and impulse tested experiencing misconceptions.

During this time, the learning model is applied to the learning process, especially physics has not centered on students, but rather centered on the teacher as the main source of knowledge, so the ability of students untapped optimally. the purpose of the use of Learning Cycle approach is to place the teacher not as a source of learning, but as a facilitator and motivator of student learning. so as to develop students' thinking skills toward solving the problem systematically and students get an answer on the basis of their curiosity.

Based on the above issues, to minimize misconceptions about physics, the authors want to continue to follow up previous research, entitled "The misconception Remediation Momentum and Impulse With Learning Approach Learning Cycle 5E".

THEORY

a. Description of Beginning Student Misconceptions

Suparno (2013: 4) defines that misconceptions or wrong concept refers to a concept that is incompatible with the scientific sense or understanding that received the experts in that field. Pure (2013: 205) defines misconception is a conception which deviates from the conception of the experts and attached firmly to the students. So, from some expert opinions can be concluded that misconception is a concept based on previous study results that are inconsistent with the concept of the scientists.

Based on the results of previous research conducted Lusiana.N.(2015) on Momentum and Impulse misconception XII IPA.4 SMAN 4 Lubuklinggau using 20 questions diagnostic test multiple choice open reasoning given to each student items include certainty of response index (CRI), student misconceptions based on Earlier Researcer on the concept as outlined in table 1.

Table 1. Documentation misconception Students Based on Earlier Researcer

Concepts of Physics	Misconceptions
Concept of momentum	<ol style="list-style-type: none"> 1. Momentum in the same with Force 2. Momentum in line with the speed and trajectory 3. Only objects that have large masses will have great momentum.
Concept of impulse realations	<ol style="list-style-type: none"> 1. Impulse is the change of momentum 2. Objects that have a great impulse when mashing instantly destroyed
Concept of impulse and momentum	Momentum is equal with impulse
Concept of the law of conservation of momentum	Do not understand the concept of the law On the concept of conservation of momentum
Concept of collision	<ol style="list-style-type: none"> 1. Do not understanding the concept of perfectly elastic collisions. 2. Do Not understanding the concept of elastic collision portion. 3. Do Not understanding the concept of the collision is not elastic at all. 4. Many high school students think that if there are two cars collide, both cars will stop for a total of zero speed. 5. Assume that the speed is a scalar quantity so that the same $v \pm$ sign on. 6. Some students think that if the trains at the same speed but opposite direction collide, they will stop because the total speed to zero. ($\Delta V = 0$). They forget that the conservation of momentum requires $\Delta m.v = 0$. Then if its mass difference they will not stop immediately.

Reference: Lusiana. N.(2015)

b. Misconceptions Cause

Suparno (2013: 30) explains that the cause of the misconceptions in students is as follows:

1. Students, when the students themselves who construct knowledge without justification from a teacher, it is not impossible can cause miskonseption.
2. Teacher/Lecturer, misconceptions students may also occur because of misconceptions brought by physics teacher. Teachers who have not mastered the material or understand the physics of materials incorrectly will cause a student to get misconceptions.
3. Textbook, Textbooks can also spread the misconception because the language is difficult or because the description is not correct. Textbooks are too difficult for students who are learning level may also lead to misconceptions because they are difficult to catch it. Consequently they catch some or even do not understand at all.
4. Context, context consists of the student experience, everyday language that is different, another friend or friend is wrong discussion, explanation of the parents/ others wrong, all of which can lead to misconceptions.
5. Teaching Method. Some of the teaching methods used by teachers, especially those emphasizing only one face of the concept of material that was involved, although help students catch material, but often have bad effects, which led to misconceptions students.

Based on the results of previous investigators interview then generally it can be concluded the cause of students experiencing student misconceptions XII IPA SMAN 4 Lubuklinggau TP 2015/2016 can be seen briefly in table 2.

Table 2. Documentation Cause misconceptions at XII IPA.4 SMAN 4 Lubuklinggau based on interviews Earlier Researchers

Sebab Utama	Sebab Khusus
Student	<ol style="list-style-type: none"> 1. The low student motivation 2. Lack of interest of students towards physics lesson 3. The difference between the ability level of students 4. The lack of confidence of students to ask the teacher 5. Reasoning students the wrong caused by information obtained is not complete so that students draw conclusions wrong. 6. students lazy to read textbooks
Textbook	<ol style="list-style-type: none"> 1. Explanation of the material in the textbook incomplete 2. The language used in textbooks elusive students 3. The images used in the book fails to demonstrate the physics of material information to students How about the workmanship of the book is less clear
contex	<ol style="list-style-type: none"> 1. Students are often distracted, unfocused, because a lot of thought, classroom noise, and friends who often invite conversation. 2. One in choosing friends discussions
conten	The more difficult the students understand the material more difficult to understand the concept
Learning Resources	Students simply use the worksheets so that the lack of resources of books used by students
How to teach	Teachers teach using conventional method

Reference: Lusiana. N.(2015)

c. Implementation of Remedial Education with 5E Learning Cycle Approach (LC)

Learning is essentially remedial assistance for students who have learning difficulties or delayed. In connection with that, the steps that need to be done in the provision of remedial learning involves two main steps: first diagnose learning difficulties, and both provide treatment (treatment) remedial learning.

Having in mind the learning difficulties faced by learners, the next step is to give treatment in the form of remedial teaching. Forms implementation of remedial learning, among others:

- a) The provision of re-learning the different methods and media. Re-learning can be delivered by way of simplification material, variations in the way the presentation, simplification tests / questions. Re-learning to do when most or all of the students have not reached mastery learning or learning difficulties. Educators need to provide an explanation back by using the method and / or a more appropriate medium.
- b) Giving guidance specifically, for example, individual guidance. In terms of classical learning of students experiencing difficulties, need to have an alternative follow-up for the provision of guidance on an individual basis. Giving individual guidance are the implications of the role of educators as tutors. Tutorial system implemented when there are one or several learners who have not managed to achieve mastery.
- c) Providing training tasks in particular. In order to implement the principle of repetition, the tasks need to be multiplied exercises that the students have no difficulty in doing the final test. Learners need to be given intensive training (drill) to help master the competency.
- d) Use of peer tutoring. A peer tutor classmates who have the speed of learning more. They should be used to provide a tutorial to a colleague who is experiencing a delay learning. With peers expected of students who have difficulty learning to be more open and intimate.

LC is a series of stages of activities (phase) is organized in such way so that learners can master the competencies that must be achieved in learning with the active role.

Table 3. Syntax LC 5E Approach

Tahapan	Kegiatan Pembelajaran
<i>Engagement</i> (keterlibatan)	<ol style="list-style-type: none">1. The teacher creates a learning environment that is more responsive to condition means that students are better prepared to carry out learning activities.2. The teacher explains the objectives, topics and learning outcomes are achieved by learners3. Teacher explains the various principal activities to achieve learning goals4. Teacher build apersepsi beginning with beginning students gain knowledge by asking students' opinions about the application of the concept of momentum and impulse in everyday life.
<i>Exploration</i> (Eksplorasi)	Students collect learning resources that have been assigned to the search for reference from Handout, physics textbook, LKS etc.

Explanation (Penjelasan)	Teacher explains the material momentum and impulse and discuss concepts that often have misconceptions.
Elaboration (Elaborasi)	Students are invited to discuss some concepts that tend to have misconceptions with the guidance of teachers
Evaluation (Evaluasi):	<ol style="list-style-type: none"> 1. Students discuss the reasoning Multiple choice open equipped CRI of momentum and impulse contained in the handout and apply what they have learned. In case of ambiguous students ask the willingness of teachers to guide the discussion questions. 2. Teacher draw conclusions on the material being studied and provide reinforcement to the concepts of momentum and impulse. 3. Teachers can conduct an evaluation by a test at the end of each stage. If not reach back to the dominant phase Learning Cycle run into problems.

RESEARCH METHODS

The research was conducted from 25 July s.d 2 August 2016 for XII IPA.4 SMAN 4 Lubuklinggau of The Year 2015/2016, amounting to 32 students. The method used is descriptive qualitative. The instrument used was multiple choice questions with open reasoning comprising 20 items which include certainty of response index (CRI) and documentation.

RESULT

Remediation of misconceptions with 5E Learning Cycle approach shows that of the 20 items tested before remediation average misconceptions percentage of 97% (previous investigators) and after remediation becomes 33.9% resulting in a decrease of 63.1%. After remediation approach 5E Learning Cycle obtained average percentage of students who know the concept has increased the percentage and added confidence in the answer selected by CRI. Like wise students' understanding of the concept of matter after remediation occurs achievement in understanding the concept of the right as shown in Table 4.

Table 4. Remediation Concept Training after using a diagnostic test

Physics concept	Misconception	misconception Percentage after Remediation
Concept of momentum	<ol style="list-style-type: none"> 1. Momentum in the same with Force 2. Momentum in line with the speed and trajectory 3. Only objects that have large masses will have great momentum. 	11.2% of students experiencing misconceptions
Concept of impulse realations	<ol style="list-style-type: none"> 1. Impulse is the change of momentum 2. Objects that have a great impulse when mashing instantly destroyed 	0% of students experiencing misconceptions
Concept of impulse and momentum	Momentum is equal with impulse	0% of students experiencing misconceptions
Concept of the law of conservation of momentum	Do not understand the concept of the law On the concept of conservation of momentum	7% of students experiencing misconceptions

Concept of collision	<ol style="list-style-type: none"> 1. Do not understanding the concept of perfectly elastic collisions. 2. Do Not understanding the concept of elastic collision portion. 3. Do Not understanding the concept of the collision is not elastic at all. 4. Many high school students think that if there are two cars collide, both cars will stop for a total of zero speed. 5. Assume that the speed is a scalar quantity so that the same $v \pm$ sign on. 6. Some students think that if the trains at the same speed but opposite direction collide, they will stop because the total speed to zero. ($\Delta V = 0$). They forget that the conservation of momentum requires $\Delta m.v = 0$. Then if its mass difference they will not stop immediately. 	15,7% of students experiencing misconceptions
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CONCLUSION

The results showed that remediation of misconceptions with 5E Learning Cycle approach shows that of the 20 items tested before remediation average misconceptions percentage of 97% (earlier researcher) and after remediation becomes 33.9% resulting in a decrease of 63.1%.

REFERENCES

- Lusiana, N.M. 2015. *Analysis of Student Misconceptions Highlights Momentum and Impulse Class XII IPA.4 SMAN 4 Lubuklinggau in academic year 2015/2016. STKIP PGRI Lubuklinggau*. Unpublished Skripsi.
- Sugiyono. 2013. *Quantitative Approach Educational Research Methods, Qualitative and R & D*. Bandung: Alfabeta.
- Suparno, P. 2013. *Misconceptions & Changes in the Concept of Physical Education*. Jakarta: Grasindo.
- Trianto. 2007. *Innovative Learning Models oriented Constructivistic*. Jakarta: Prestasi Pustaka.