

## The Analysis of Reward Systems Implementation in Basic Network Course: Case Study of a Vocational School in Solo, Central Java.

**Anisa Setyowati**

Informatics and Computer Engineering Education  
Faculty of Teacher Training and Education  
Sebelas Maret University  
Corresponding email: [anisa.ptik@gmail.com](mailto:anisa.ptik@gmail.com)

**Agus Efendi**

Informatics and Computer Engineering Education  
Sebelas Maret University

**Basori**

Informatics and Computer Engineering Education  
Sebelas Maret University

### Abstract:

The 2013 curriculum requires students to take an active and creative role in teaching and learning. Submission of materials in basic network learning process is still using a more dominant learning method that is owned by the teacher (teacher centered). It makes students in the learning process becomes more passive, so the students' activity in the learning process is still in the low category. One of the solutions to improve students 'learning activeness is by using tools or media that can attract students' attention. Learning tool or media is expected to help students to be interested and can play an active role in teaching and learning process. Learning tool or media used in this research is application of reward system. This study aims to (1) Know the difference between the use of reward system application in terms of activeness (2) to know the effectiveness of the use of reward system application in terms of student activeness. This research type is quantitative research with research design that is quasi experimental design with posttest only control design design. Techniques of collecting research data using questionnaires, interviews, and observation. Data analysis using t test and gain index analysis. The results of research are as follows: 1) there is difference of influence of using reward system application that is by t independent t test. Based on the analysis result obtained tcount of 3,790.  $t_{table} = 2.64208$  at 5% error level with  $df = 76$ . So  $t_{hitung} > t_{table}$ . 2) the reward system application is more effective with the experimental class result of  $t_{hitung} > t_{table}$  (76) while the Control class is  $t_{hitung} > t_{table}$  (2,642,76) (1,016  $<$  -2,642) and  $sig < 0,05$ .

**Keywords:** Activity Learning, Conventional, Basic Network, Reward Systems.

DOI : 10.20961/ijie.v2i1.13198



This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

## Introduction

Education is the most important part as an indicator of the progress of a nation. Success in the education sector is directly proportional to the human resources means the more advanced the education of a nation the higher the level of human resources. According to the Law of the Republic of Indonesia No. 20 of 2003 on National Education System article 18 explained that vocational education is secondary education that prepares learners primarily to work in certain areas. With the characteristics of vocational education that focuses on the achievement of skills and competencies, enabling learning in SMK is Student Active Learning so that in the learning process students are actively involved in learning and can master the competence in the field. Teachers also have a role as a facilitator that facilitate learners in learning process activities. The success of learning in the classroom cannot be separated from the model or learning tool used to improve learners' learning outcomes. In this 2013 curriculum students are required to be independent and active in learning because the learning process does not continue to center on the teacher.

The active learning of learners according to Indonesian dictionary, active is active (working, trying), while activeness is a state of matter where the student is active. Learning is a process of changing behavior towards a better and relatively fixed, and shown in various forms such as changing knowledge, understanding, attitude, behavior, skills, skills, etc. So the liveliness of learners is a situation where students are active in learning. The power of the child's natural activeness will develop in a positive direction as the environment provides a good space for the development of that activity (Aunurrahman, 2009: 119).

The learning process of curriculum 2013 learners is required to play an active role in the learning and teaching process. The development of internet media network, media technology, and communication media can help learners to find information learning materials on the internet media. However, with the internet and communication media does not make learners can think actively and dare to express opinions in the classroom. In Basic Networking study in Vocational High School (SMK) students are taught many theories than practice. In the process of learning theory many students who are not involved in teaching and learning process are as follows (1) lack of media or tools used by teachers to provide feedback (2) lack of confidence (3) lack of rewards for learners who play an active role.

One way to reduce the risk of failure in the delivery of materials or teaching and learning process required a learning tool to improve the activity of students is with the help of reward system applications. Application of reward system is expected to help students to take an active role in the learning process. The advantages of Reward system application is to improve the learner activity, based on mobile android, giving motivation and motivation, teaching and learning process is more lively because between teacher and learner give each other feedback, liveliness level of learners increase, can know the value in a real-time where anytime and anywhere. While the advantages of conventional model do not require a long time because it only explains the material and can be followed by the students, easy to prepare and implement it and the teacher easy to master the class.

This research is an effort to improve student activeness to the basic network subjects with the help of learning tool based on reward system application. the material, in theory, can be understood by students in practice. The purpose of this research is to (1) to know the difference of influence of use of reward system application (2) to improve student activeness and effectiveness or not application usage.

## 2. Theoretical Basis

### 2.1 Activeness

#### 2.1.1 Understanding Activeness

Active according to Big Indonesian Dictionary (2005: 23) means enterprising. Students activities during the learning process need to be considered by the teacher so that the learning process to achieve the maximum results. So teachers need to find ways to improve student activeness. Activity is an activity that is physical and mental, that is, do and think as a series that can not be separated (Sardiman, 2012: 98). So the outline play an active role in learning the same thing with the activity of students in learning. Students who play an active role in the learning process will perform activities that are physical and

nonphysical optimally and to encourage students to think critically can express opinions in the discussion and can convey questions and solve a given problem so as to create a conducive classroom atmosphere.

### 2.1.2 Classification of Student Activity

According to Sardiman (2012:100 – 101) liveliness students in learning can be classified as follows: (1) Visual activities. Reading, viewing pictures, watching the experiments, demonstrations, and watched others work; (2) Oral activities. A reconsideration of the facts or principles, linking an event, ask a question, make a suggestion, expressed the opinions, interviews, discussions and interruptions; (3) Listening activities. Listen to presentation materials, listening to the conversation or discussion groups, listen to music, speeches; (4) Writing activities. Write stories, write reports, bouquet, now, copy; (5) Drawing activities. Drawing, create charts, diagrams, maps; (6) Motor activities. Experimenting, selecting tools, implement exhibitions, make model, organizing games, dancing and gardening; (7) Mental activities. Reflect, remember, solve problems, analyze the factors, see relationships and make decisions and (8) Emotional activities Interest, differentiate, courageous, calm and others

### 2.1.3 Factors Affecting Activity

Classification by Sardiman shows that the activity in learning is quite complex and varied. Activities here are not limited to physical activity that can only be seen directly but also spiritual activity. The circumstance in which students do learning activities is called learning activeness. One assessment of the learning process is to see the extent to which students actively participate in the learning process. Activity of students is also very influential on the results of learning because students' activities include three domains of cognitive, affective and psychomotor.

### 2.1.4 Benefits of Learning Activity

Learning activity is one of the important components that must exist in the learning process. By doing activities in learning the students can seek their own experience, students can develop understanding and critical thinking, foster cooperation among students, students can work according to interests and talents respectively. Rousseau (Sardiman, 2012: 96) states that all knowledge must be obtained by self-observation, self-investigation, by self-employment, with self-created facilities, both spiritual and technical. This shows that everyone who learns must be active. Teachers should be able to develop a learning model that encourages student activity. By involving students play an active role in learning activities. Martinis Yamin (2007: 77), the activity of students in the learning process can stimulate and develop his talents, critical thinking, and can solve the problems he faced in his life.

## 2.1. Instructional Media

### 2.1.1 Understanding Learning Media

The word media is the plural of the word medium. Derived from the Latin *medius* which literally means middle, intermediate or introduction. In Arabic media is the intermediary or messenger of the sender to the recipient (Azhar Arsyad, 2011: 3). According to Yudhi (2008: 5) Media is a tool of information and communication, facilities infrastructure, facilities, supporting, liaison, distributors, and others. Meanwhile, according to Criticos cited by Daryanto (2011: 34) media is one component of communication, namely as a messenger from communicators to the communicant. Based on some opinions above can be concluded that the media is everything objects, tools, means, intermediaries and liaison to spread or convey something message from the sender to the recipient so that it can stimulate the thoughts, feelings, attention, and interest of students in the learning process. While learning is a system in which there are all components that work together to achieve a goal, from media exposure and learning above it can be drawn the conclusion that the media learning

### 2.1.2 The notion of the learning Media

The word media is the plural of the word medium. Derived from the Latin *medius* which literally means middle, intermediate or introduction. In Arabic media is the intermediary or messenger of the sender to the recipient (Azhar Arsyad, 2011: 3). According to Yudhi (2008: 5) Media is a tool of information and communication, facilities infrastructure, facilities, supporting, liaison, distributors, and others. Meanwhile, according to Criticos cited by Daryanto (2011: 34) media is one component of communication, namely as a messenger from communicators to the communicant. Based on some opinions above can be concluded that the media is everything objects, tools, means, intermediaries and liaison to spread or convey

something message from the sender to the recipient so that it can stimulate the thoughts, feelings, attention, and interest of students in the learning process. While learning is a system in which there are all components that work together to achieve a goal, from the exposure of media and learning above it can be drawn the conclusion that the learning media is anything that can convey and distribute messages from the source in a planned way to create a learning environment Conducive in which the recipient can perform the learning process efficiently and effectively.

## 2.2 Learning Methods

### 2.2.1 Conventional Learning Methods

Conventional learning is a learning that is often used by teachers in teaching and learning process. Learning by this method is one of the learnings that is still centered on the teacher. Sanjaya (2006: 259) states that in conventional teaching students become objects of study which acts as a passive recipient of information. Generally, this method is done by lecture, question and answer, and assignment. According to Djamarah, conventional learning method is a traditional learning method or also called lecture method, because since this method has been used as a means of oral communication between teachers with students in learning and learning process. In the conventional method of teaching, history is marked with lectures, accompanied by an explanation, and the division of tasks and exercises (in Kholik: 2011). According to Mushlihin (2013), the philosophy underlying the conventional teaching is behaviorism in objectivism adherents. This philosophical thought sees learning as an attempt to teach the various selected disciplines as the best-known guides. While teaching is transferring knowledge to people who learn. Students themselves are expected to have the same understanding with the teacher of the knowledge he or she has learned. Conventional learning is done in one direction means one way is the process of learning that learners at once do two activities of listening and taking notes. This conventional learning has long been used by teachers because of the traditional learning model that is by lecture method. The method is used as a means of oral communication between teachers and students in the learning process.

### 2.2.2 Based Learning Methods Reward System

A reward is a reward or appreciation for the good behavior of the students in the educational process (Arief, 2002: 127). Awards are very diverse and not always in the form of money, but can be in the form of praise, goods, value (school) and so forth. Application of reward system is learning to improve student learning activity, by student answer questions from the teacher, ask the teacher, can express the opinion, and other activity. Application reward system is an android based application that is used to store student rewards in the form of medals. Each medal represents a different value, is a platinum medal equal to 100, a gold medal equal to 75, a silver medal equal to 50 and a bronze medal equal to 25. The medal reward is awarded to students who play an active role during Learning takes place. Reward system applications will be used by teachers and students through their respective smartphones. The teacher access rights are to process the data value of students and process the basic competence data in accordance with subjects in the amp while students can only see the acquisition of values according to basic competencies that followed.

## 3. Literature Review

The result of this research is in line with the research conducted by Afifatul Khoiriyah, (2015) with the aim to know the level of activity of learning with Problem Based Learning model (PBL) on subjects KKPI class X1 TKJ in SMK Negeri 1 Sine. The result of the study gives an increase of learning outcomes and learner activity on KKPI students X1 SMK Negeri 1 Sine students. This is proved by the average of the percentage of students is 75.54% to 78.30%. Thus it can be concluded that learning PBL is more effective to improve students' liveliness compared with conventional learning. The research is also in line with Husni by knowing the learning outcomes of the flipped classroom model and conventional model this is proved by the calculation of Husni's research that the learning of flipped classroom is higher than the control class using conventional learning that is the experimental class gets the average value 72,07 Higher than the control class student learning outcomes of 65.88. Ramlan Dkk (2014) also conducted a study in line with the aim to determine the influence of learning styles and student activeness of mathematics learning achievement in SMP Negeri Klari District Karawang regency, the results showed there is a significant influence of learning styles on mathematics learning achievement, it is shown With sig value = 0.001 <0.05. There is a significant influence on the activity of learning and learning activeness

of students, this can be seen from the value of  $F_{\text{arithmetic}} = 13.418 > F_{\text{table}} = 3.08$  with  $\text{sign} = 0.00 < \alpha = 0.05$ .

#### 4. Research Methods

This research uses the true experimental design or real experiment using post-test only control group design method. This research was conducted in SMK Batik 2 Surakarta. Data collection using interview technique, observation, and questionnaire. This study used the entire class X MM. This study uses a sample of class X MM2 amounted to 39 as NHT experiment class and class X MM3 amounted to 39 students as a Control class. The topic of this study is the comparison of students' learning activities between conventional learning and learning-based reward system applications on basic network subjects.

Table 1 Research Design

Kelas	Tindakan	Posttest
Eksperimen	X <sub>1</sub>	Q <sub>1</sub>
Kontrol	X <sub>2</sub>	Q <sub>2</sub>

Information :

Q1: Posttest Experiment Group

Q2: Posttest Control Group

X1: Treatment in the form of application of reward system

X2: Without treatment of reward system application

Sumber : Sugiyono (2013: 112)

Analysis of research data intended to analyze the questionnaire related to the learner's learning activeness to the basic network subjects. Analytical techniques used are descriptive statistical analysis, t-test related analysis and gain index analysis. The descriptive statistical analysis is intended to describe the level of interest of students of SMK Batik 2 Surakarta before and after treatment of the application of reward system with frequency distribution table. In testing the hypothesis is test related t-test with significance level 0,05 with criterion "Ho rejected if  $t_{\text{hitung}} > t_{\text{testable}}$  and Ho accepted if  $t_{\text{hitung}} < t_{\text{testable}}$ "

#### 5. Research Results and Discussion

Tabel 2. Descriptive statistics of interest scores of experimental class and control class

Class	Posttest		
	Maksimum Score	Minimum Score	Average
Eksperimen	178	132	155,46
Kontrol	160	128	144,79

Based on the above table can be seen the results of initial measurements before the treatment, both the experimental group and the control group showed the average learning activity is relatively the same. However, the results of final outcome measurements after treatment by using reward system applications in the experimental group and conventional model in the control group. The liveliness of learners increased significantly between the two groups with the higher level experimental group. The following also presents a control group diagram and an experimental group between pretest and posttest.

Figure 1. Diagram of Pretest Score of Control Class and Experiment Class

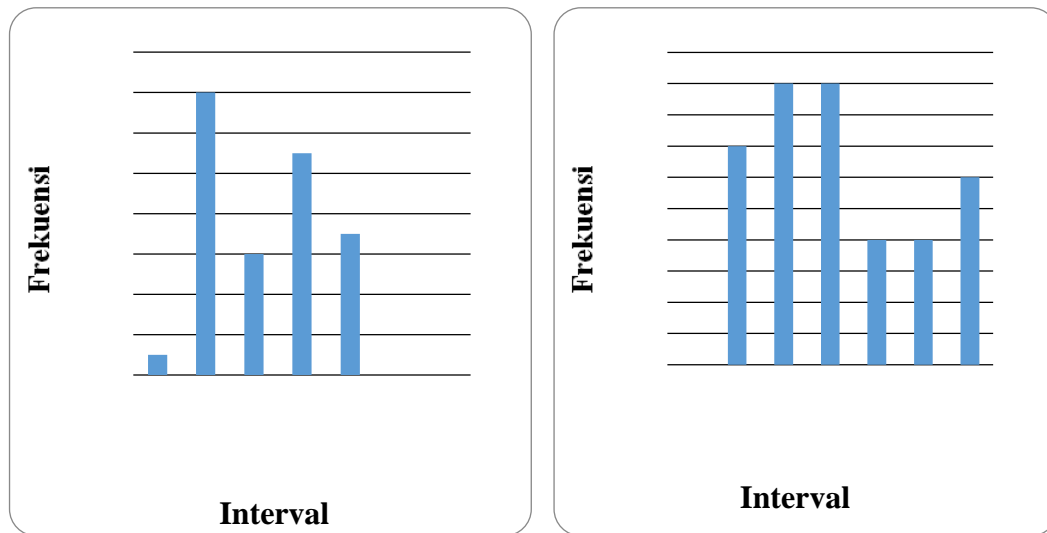
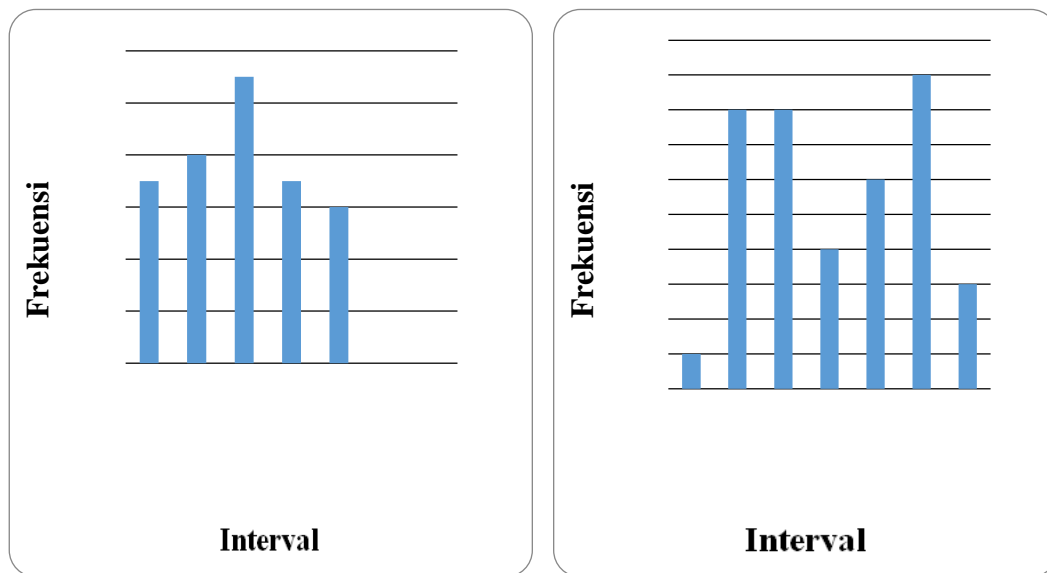


Figure 2. Diagram of Posttest Score of Control Class and Experiment Class



From the above graphic can be seen that the use of reward system applications that apply to the experimental class become the attraction of learners to do the activity in the learning process because it is different from the previous learning process.

### Discussion

This study aims to determine the differences in the learning activities of learners as well as the effectiveness of the use of reward system applications on the subjects of basic network class X multimedia techniques between learners who use reward system applications and learners without the use of reward system applications. Technique of collecting data in this research there are 3 that is observation, interview and questionnaire. The population in this study were all students of class X Multimedia SMK Batik 2 Surakarta academic year 2016/2017. The sample in this research is 2 classes from the existing population of the class X MM 2 and X MM 3 and 1 class that is used as a trial class. Class X MM 2 gets learning by applying reward system application, while class X MM 3 gets learning by using conventional learning. This study is comparing the results of students' learning activities between the two classes, then before the study began the two classes have been declared balanced value keaktifannya. Before doing research the researcher need to find the initial data to see whether the activeness of both classes is already balanced. Then performed a prerequisite analysis using T test. The researcher also took observation data with 10 existing aspects and the result of experiment class 8,2 is

bigger than control class 4.1. The average result of pretest grade of control class is 142,54 while control class is 145,69 so it can be concluded that there is no significant difference of initial activity between students who get learning with application of reward system with conventional learning or it can be said that both classes have learning activeness the same one. The next step of the two classes is treated with different teaching methods, then given posttest for data retrieval. The data obtained were then analyzed using t-test to test the research hypothesis.

**1) The difference of the liveliness of students who follow the learning by applying the reward system application and following the lesson without the application of reward system application on the subjects of Basic Network of Students of Class X SMK Batik 2 Surakarta**

Based on the result of hypothesis test, it is known that  $t_{hitung} > t_{table}$  then  $H_0$  is rejected and  $H_a$  accepted, so it shows there is difference of learners' learning activity toward the basic network subjects of posttest score of each experimental class and control class with sig 0.000 value means sig  $< 0,05$  so that the difference after the treatment of each class there is a significant difference. From the value obtained, the average increase of learning activity of the experimental class is higher than the control class that is in the experimental class 3,790 while the control class is 1,151. Therefore, this test accept alternative hypothesis that is the difference of learning activeness increase learners to the subjects of basic network by using reward system application.

**2) Use of reward system application more effective to improve learners learn activeness to the basic network subjects compared with conventional model.**

Based on the hypothesis test in Table 4.11. It is known that  $H_0$  is rejected and  $H_a$  accepted, thus indicating that the use of reward system application is more effective than conventional method to the basic network subjects of pretest and posttest of each experimental class and control class. For experimental class value  $-t_{hitung} > -t_{table}$  (2,642 ; 76) (- 3,703  $<$  -2,642), for control class  $-t_{hitung} > -t_{table}$  (2,642,76) (1,016  $<$  -2,642) and sig  $< 0,05$ . This shows that  $t_{hitung} > t_{table}$  then  $H_0$  is rejected, in this case it can be concluded that there is a significant difference between pretest and posttest of both classes. This calculation is also reinforced by the calculation of the gain index analysis with the result of the average value of the two classes having an increase from before the treated and after treatment. Both of these improvements were compared with using the gain index calculation to obtain the numbers of 0.302383 for the experimental class and for the control class 0.128941. The experimental class is classified as moderate, while the control class is in the low category. In this test accept the alternative hypothesis that is the increase of learner activity with application of reward system is higher compared with learning by conventional method. So learning by applying a reward system app is more effective than conventional learning.

## Conclusions

Based on the results of the study, it can be concluded that there is a difference in student learning activity on the subjects of basic tissue given treatment by using tools reward system tools compared with without using reward system applications. Students treated with reward system application is higher with t-test calculation with result 3,790 while for the class that without treatment of reward system application with the result of 1,151 with the low category. so that learning with reward system application is more effective than conventional learning.

## Reference

- Arsyad, A. (2011) *Media Pembelajaran*. Jakarta : Rajawali Pers.
- Departemen Pendidikan Nasional. (2005). *Kamus Besar Bahasa Indonesia Pusat Bahasa*. Jakarta : PT. Gramedia Pustaka Utama.
- Dzamarah & Zain, (2006). *Strategi Belajar Mengajar*. Jakarta : Rineka Cipta
- Hake, R.R. (1999). *Analyzing Change/Gain Store*. Diperoleh pada 21 Februari 2017 dari <http://www.physics.indiana.edu/~sdi/AnalyzingChange-Gain.pdf>.
- Hamalik, O. (2001). *Proses Belajar Mengajar*. Jakarta: PT. Bumi Aksara
- Kholik, M. (2011). *Metode Pembelajaran Konvensional*. Diakses melalui alamat web <http://muhammadkholik.wordpress.com> Pada tanggal 25 Desember 2015

- Muhlisiin. (2013). *Pengertian umum Pembelajaran Konvensional*. Diakses melalui halaman web <http://www.referensimakalah.com/2013/05/pengertian-umum-pembelajaran.html>. pada tanggal 25 Desember 2016
- Purwanto.(2009). *Evaluasi Hasil Belajar*.Yogyakarta : Pustaka Pelajar
- Sanjaya, W. (2006). *Strategi Pembelajaran : Berorientasi Standar Proses Pendidikan*. Jakarta : Kencana Prenada Media Group
- Sanjaya, W.(2006). *Strategi Pembelajaran : Berorientasi Standar Proses Pendidikan*. Jakarta : Kencana Penada Media Group
- Sudjana, N. (2014). *Penilaian Hasil Proses Belajar Mengajar*. Bandung : PT Remaja Rosdakarya
- Sugiyono, (2013). *Metode Penelitian Pendidikan*. Bandung: Alfabeta.
- Undang-Undang RI No. 20 Tahun 2003, tentang *Sistem Pendidikan Nasional*.
- Yudhi, M. (2008). *Media Pembelajaran (Sebuah Pendekatan Baru)*. Jakarta: Gaung Persada Press.