Constructing Collaboration Learning Outcomes as A Learning Object Through the Open Learning System

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Abstract: The idea of incising is to make learning happen objects from the results of students' thoughts on the *Sistem Pengelolaan Pembelajaran* (SIPEJAR). Most of student work as an outcome in collaborative learning is saved in task file in the learning management system. in development research conducted tor 108 students who were divided into 3 classes. Student development research produces learning objects that are flexible, open and have potential in constructing the student's own science or for other students. implementation in student learning activities produce student learning experiences that are built from student science gradually.

Keywords: *sistem pengelolaan pembelajaran* (SIPEJAR), learning management system, open learning system

1. INTRODUCTION

State University of Malang (UM) has an important part, namely learning, therefore the State University of Malang (UM) is called Learning University. Facilitating the realization of Learning activities and building resources to excel in learning are the tasks of the Department of Educational Technology (TEP) which is also a study program [1]-[3]. Development in various aspects of learning is one of several domains of educational technology [3]. One form Support from the Department of Technology for The Learning University is the ability to conduct research in several studies.

Students are the center of the learning design which is called the realization of support [4]. So that the Education Technology Department needs to develop student-centered learning materials to support the implementation of The Learning University at the State University of Malang. Management of learning resources is required for the Computer-Supported Collaborative Learning (CSCL) Course. Students need the management of learning resources [5], [6]. To build a scientific construction learning material that can be structured logically and systematically is needed by students [7].

Scientific courses have material with information management. One form of company service to its customers is information system management [8]-[10]. Based on economics, the impact of this form of service is a belief to ensure its sustainability [11]. The focus of the problem is not only on the economic field, which is very different from the course, but on the management of information systems that serve the public in fields such as education [12], economics, and business [8], electronic industry [11], and other vocational sectors. This shows that Information Systems Management is an interconnected science.

Students who are familiar with information and communication technology are Educational Technology Students. To communicate, students in the 2010s are already holding gadgets [13]. Students' abilities are not matched by knowledge of use. In general, students only have the ability to use and also only to watch it [14]. This condition is ironic even though almost all universities have almost the same problem, namely students are weak in information management. To influence themselves in developing their knowledge, students still rely on lecturers or other people [4]. So that the course teaching materials are needed by students to build student knowledge in knowing information [15] independently and autonomously.

To improve learning, lecturers often use assignment techniques. To build students' scientific constructions, a constructivist paradigm for the learning environment is needed [16]-[18]. However, teachers are often trapped in maintaining all assignments so that assignments are not used as objects that can teach students. Students construct learning objects so that they can be used for other students and the students themselves [19]. Students cannot be a continuous inspiration because according to the teacher the results in learning are only at the end of the lecture [20]. Without change, the presentation of the lecture becomes constant and continues to present the same thing. To encourage students to continue to change, teachers need systematic learning objects. Teachers find it difficult to avoid increasing scientific development.

Subjects require good management of learning objects. The most common content management technology is the Content Management System. The

appropriate scientific principles need to be used to build learning content [7], [20], [20]. Learning management technology has the ability to make learning accessible [9]. Internet technology has experienced tremendous development [6], [21]. As technology partners in the world of education, various fields of the study that the internet is defined as a medium that has high flexibility [22]. The interconnection built by the internet causes learning objects to be more accessible from cloud storage [23]. Storage in cloud storage makes it easy for learning materials to be accessed and inputted with the help of the internet.

Direction on technology that is friendly to students in the scientific development of learning technology. The teaching and learning process is facilitated by learning technology [13], [24]. From the scientific development of learning technology, student entities will benefit. Learning resources can be accessed anywhere and anytime easily by students and using a wiki database [25]. There are accesses to learning resources compared to access to learning resources in the 90s, such as cloud computing [23], the existence of learning objects [5], some well-known open-source MOOC learning [26] and can be accessed via the internet network easily [27]. The learning management system will be easily accessible in digital format storage. So, the need for an organization of student learning outcomes by teachers and lecturers to be prepared as an object in open learning for other students [19], [20], [26].

To facilitate the teaching and learning process, learning objects that have flexible and free constructs are developed by the research umbrella of the education technology department [1] - [3], [28]. Educational materials that are flexible and open are objects of learning that have the ability to reach students' independent devices [29] - [31]. So that learning objects that are flexible and open can be obtained by students and can reduce and make it easier to access content [5], [15], [32].

2. DEVELOPMENT METHOD

The web-based learning development method has development phases, among others: (1) analysis; (2) evaluation plan; and (3) concurrent phase which includes design, system development, testing and implementation, and formative evaluation. how to develop learning object management applications the stages in the development of web-based learning are as follows:

a. Analysis. There are two analysis processes fields, namely problem analysis: (1) why students need the preparation of learning objects to asking questions in learning objects that it has been read (Q1); and (2) analyzing the components of the formation of learning objects by asking what components are needed (Q2) [33], [34].

b. Evaluation Design. Web developers, whether students can use learning object management applications, in terms of formative evaluation instruments determined by the researcher. Evaluation

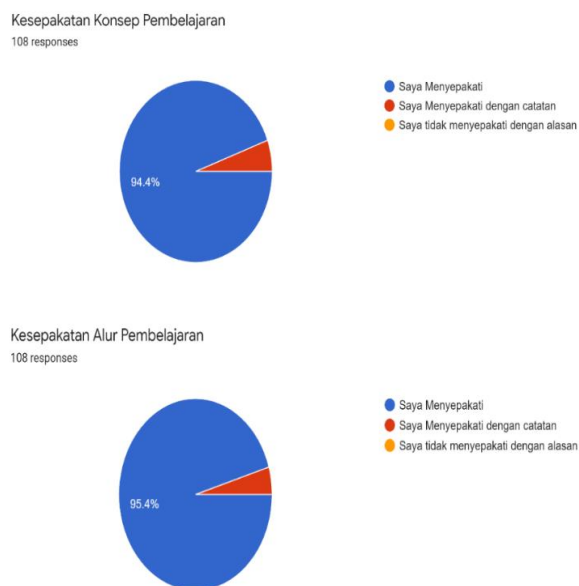design in the form of questions about learning objectives (Q3).

c. Concurrent Design. The activity of developing the whole system is called Concurrent design. The series of development activities influence each other [33].

d. Activity Planning. He did not explain the activity planning stages in the drawing process because at this stage it is only the stage that starts the design process.

e. Design Process. Activities in the design process are carried out by examining the object specifications, making an assessment concept or better known as the Objective Assessment Item Blueprint (TOAB). The first grouping of blueprints is an example of assessment, learning procedures, user data, learning models, and learning strategies. The second blueprint is the adjustment of learning, delivery models and learning content, measurement of the learning process and conclusions.

f. Development Process. The trial process, formative evaluation, and design process are all development processes. To form a learning product, this process is required. Assessment more than once in the development process is carried out to make a product that is considered good. Which means repetition is also experienced in other processes.
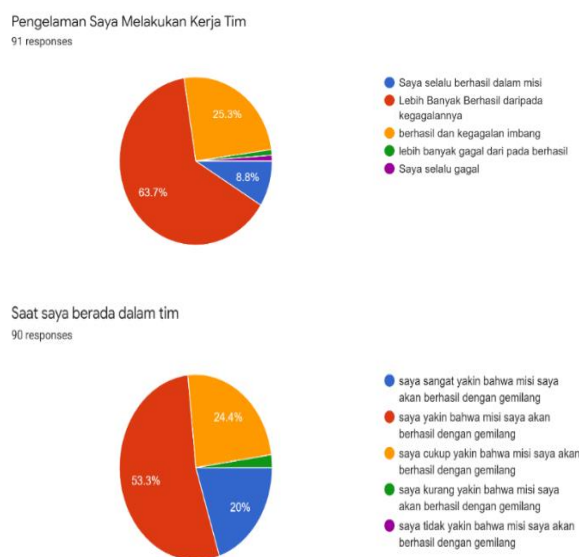
3. RESULTS AND DISCUSSION

Learner as an information user society has the ability that continues to increase every day in improving thinking and producing the capacity of individuals who rely on effective educational information systems. In the Q1 group, the students explained the learning object they saw. One of the questions in Q1 is in Figure 1. Student failure in reading learning objects issued by their own social media groups and not reading learning objects from other countries.

So that most students study in a narrow taxonomy, memorize and listen in real life conditions as fact conditions which are also confirmed by other researchers [4], [8], [9], [35]. In addition, In the learning and teaching process, changes are expected of deviants or hoaxes in the production of information in society is not realized [12]. Learning activities with the WSSCL system received appreciation from students. This learning model gives students the ability to collaborate to build a life that is not always competitive.

During activities, the ability to collaborate has decreased. This occurs when there are individual clashes, both conflicts of interest and construction of thought. Student experiences also contribute to collaboration skills. Of the 108 student participants who succeeded in making groups of around 90 students and had succeeded and provided explanations. Students have trauma in collaborative activities. Students already have tools that are able to access learning objects. In Q2 the results obtained, students already have the tools, one of which is the question in Figure 2.

Kesepakatan Konsep Pembelajaran
108 responses

- Saya Menyepakati
- Saya Menyepakati dengan catatan
- Saya tidak menyepakati dengan alasan

94.4%

Kesepakatan Alur Pembelajaran
108 responses

- Saya Menyepakati
- Saya Menyepakati dengan catatan
- Saya tidak menyepakati dengan alasan

95.4%

Figure 1 Student Activity Data Looking at the Collaboration Learning Object

Pengelaman Saya Melakukan Kerja Tim
91 responses

- Saya selalu berhasil dalam misi
- Lebih Banyak Berhasil daripada kegagalannya
- berhasil dan kegagalan imbang
- lebih banyak gagal dari pada berhasil
- Saya selalu gagal

25.3%
8.8%
63.7%

Saat saya berada dalam tim
90 responses

- saya sangat yakin bahwa misi saya akan berhasil dengan gemilang
- saya yakin bahwa misi saya akan berhasil dengan gemilang
- saya cukup yakin bahwa misi saya akan berhasil dengan gemilang
- saya kurang yakin bahwa misi saya akan berhasil dengan gemilang
- saya tidak yakin bahwa misi saya akan berhasil dengan gemilang

24.4%
20%
53.3%

Figure 2 Student Traumatic Data Seeing Collaborative Learning Objects

Learners have been able to link new information and skills by comparing new information with old skills. So that the learning object is no longer controlled by the lecturer, but has depended on themselves and participated, thought [6], Several studies have been able to find effective educational indicators using learning objects [22], [23], [36]. With the development of technology, the hopes and needs of an effective educational community can be realized with a different approach. Given this point of view, in recent years learner-centered education has been an acceptable approach as well as a significant one.

Building learning capacity through object learning can be done through a web-based open learning system. Because to make students an information society, student-centered education is a very effective phenomenon. In this approach, basically to improve contextual thinking, Individual development, learning, and learning and requires active student participation [37]. One of the principles of the approach is that students' tasks and learning are prioritized by the learning object [38]. Students who are the center of education [39].

That the education period for individuals who have scientific thinking skills (Button et al., 2014), learn to study, can reach out to information and communication, is productive, has skills in communication, and understands universal values, can use technology effectively and recognizing that in itself is a reconstruction capable of providing for student participation at every stage [19].

As can be seen from the definition above, the role of students is not only listening and learning, but students must also be active and responsible [40]. Students can gain experience in individual or group work. Also, students learn to ask questions and find answers [41]. Then what has been learned by students can be applied by students in real conditions in the learning environment [6].

The ability of students to build knowledge with an open learning system is quite good. In Figure 2, as one of the questions in Q3, it is proven that students are able to contribute to scientific development. Information and communication technology are a contributor to a student-centered approach [39], [42]. Students use smartphones, computers, data shows, modems, iPods and tablets, as well as technological devices such as the internet. This condition is clearly characteristic of generation z or doing everything with the existing technological sophistication tools.

This is in line with several studies that some gadgets are put into use [21]. The condition found was that educators no longer needed introducing the internet in learning, because some learning tools have changed to the digital version. It is defined as most of the learning objects from student learning outcomes and the learning process. The development of information and communication encourages students to easily access material [43] - [45].

The new chapter of the Electronics business is also known as SIPEJAR. With the increasing number of technology users, the development of communication and information technology, the adaptation of this new generation of technology is able to facilitate the use of SIPEJAR, an e-portfolio [19], [38]. It is hoped that in the coming years SIPEJAR, e-portfolios, CMS, and LMS can become an integral part of education which will be used as evaluation materials and educational tools in many countries. Student-centered education will be supported by increased applications by developing technology infrastructure.

4. CONCLUSION

In this new era, web-based learning has developed. In constructing science, students get benefits even though their research still rests about the disadvantages and advantages of using digital devices. Several studies in detail show the benefits of open learning, in previous studies, have mentioned and explained the concept of SIPEJAR and e-portfolio, which shows the differences and similarities. In realizing scientific constructions for students, it is carried out by presenting learning objects that are developed by themselves [36], [38], [43], [45], [46]. Thus the aim is to form the basis of the learning concept and also explain that students can use learning objects developed by students themselves in different and flexible formats in education. This research is important in accordance with these objectives to improve student achievement. Successfully building learning objects about the Learning Management System (SIPEJAR) starting from student learning outcomes 'thoughts is the main effort in making this article. In addition, web-based learning development research produces learning objects that are flexible, open and have potential in constructing the student's own scientific construction or for other students.

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