



Digital Broadcasting System Integration for Strengthening Competence Capacity in Life-Based Learning Model

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Capacity of competence of students at Universitas Negeri Malang is the focus of learning outcomes as a consequence of the application of Life Based Learning models in curriculum. Strengthening the capacity of student competency requires flexible technology support. Learners with the characteristics of the present, the evolution of the generation and requires the services of the present. Broadcasting technology services leads to hybrid information. Analog delivery patterns in the form of text, images, audio and video, have evolved towards digital streaming technology. The method of development through the integration of Web 2.0 technology, based on the development models for web-based learning. Digital broadcasting system is a solution of professional change items, namely the change of the competence era into an era of competency capacities.

Key word: *competency capacity, life based learning, digital broadcasting system*

INTRODUCTION

Lembaga Pengembangan Pendidikan dan Pembelajaran (LP3), Universitas Negeri Malang (UM) is continuously working to develop technology education and learning as a form of service. Efforts by LP3 UM found the provision of various facility learning management system in the network (online) is integrated, providing hardware as a form of services such as access rights learning resources through digital technology kepenyiaran system. Both of these technologies managing in separate units. In general characteristics of these technologies support the activities of education and learning, especially the need for a source of learning (Keyes et al., 2016; Siam & Basri, 2019). LP3 UM require to optimise the delivery of education and learning, both in its planning and development.

The integration of digital technology broadcasting system with integrated online learning system has been in line with the commitment of UM LP3. Its main commitment is the development of information and communication technologies geared to the empowerment of all the facilities available in the Universitas Negeri Malang. Such commitments as a consequence that universities around the world largely depend on information and communication technologies to serve the needs of teaching and learning (Akhtar, 2016, 2016; Hong & Songan, 2011; Wang, Guo, & Chen, 2016). The impact of this commitment will support the delivery of education and learning in the execution of its programs, including the provision of learning services through the medium of learning easily, anytime and anywhere. Universitas Negeri Malang have a desire in the learning process through the latest learning media. For example, web-based learning media as a medium of learning activities, the impact of LP3 UM in the delivery of education and learning will be easier to control the activity of academic, lecturing and presenting related subjects.

Model Life Based Learning curriculum used in Universitas Negeri Malang proposes a framework for capacity building of competency learning ability of learners. Learning is not limited to work only and is also not limited by time. Life based learning recognises that the environment of life becomes a source of learning, which opens up opportunities for developing the capabilities and capacities of learners (DiBella, Nevis, & Gould, 1996; Jerez-Gomez, Céspedes-Lorente, & Valle-Cabrera, 2005; Yeung, 1999) whenever and wherever people learn. Learning is a fundamental need of every human being. A flexible learning system needs to be constructed in the Universitas Negeri Malang in order to support learning needs. Universities not only provide access to the academic community alone. With digital broadcasting system integration, network integrated learning in a real cloud computing (Bora & Ahmed, 2013; Mielke, 1968; Shukur & University-Erbil, 2019; Tsai & Shen, 2015) allows students, faculty, administrators, and users beyond the era of learning to be a



learning entity in the Universitas Negeri Malang. The most visible is the dichotomy between teachers and learners is almost non-existent.

Integration of Digital Broadcasting System with learning integrated online technology based on the "cloud computing" is a service using "Cloud computing" conveyed through the format analog/digital and streaming Internet data centers that have a high specification built in a location away from the user and institutional education providers (Cervone, 2012; Song & Pang, 2014; Zaharia, Chowdhury, Franklin, Shenker, & Stoica, 2010),

Strengthening the capacity of learning competencies that is expected of a digital broadcasting system that integrates with a model of life based learning adds specific functionality to support the profession. In line with the competencies coupled with certain factors, often termed a competency capacity (Martha C. Nussbaum, 2011; Martha Craven Nussbaum, 2001; Sen, 1993, 2004, 2005).

METHOD

Development style by Shivers and Rasmussen is based the suitability of the needs of development characteristics. The lesson is through system development activities like on-line web-based (Davidson-Shivers & Rasmussen, 2006a). Overall the model of Davidson-Shivers and Rasmussen is a development method that has the dominant characteristic in the development of web-based learning.

Methods Development of Web-Based Learning Design Model Davidson-Shivers and Rasmussen have the following phases of development (Figure 1): 1). Analysis; 2). Evaluation Plan 3) Phase Unison which includes design, system development, testing and implementation and evaluation Formative. This phase can be done many times as the time limit is not specified; 4). Thorough implementation; 5). Summative Evaluation and Research (Davidson-Shivers & Rasmussen, 2006a).

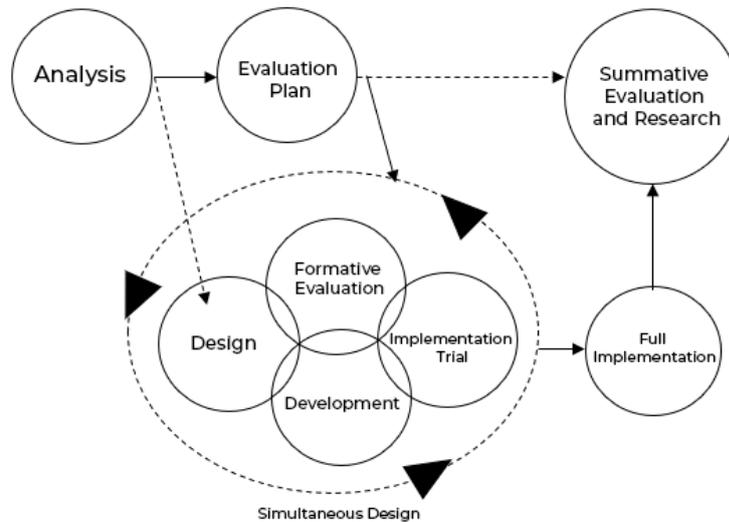


Figure 1. Model of Learning Model Development (Davidson-Shivers & Rasmussen, 2006b)

Based on the development model, the analysis of learning that is needed will be developed by each subject. The analysis of the needs of the digital broadcasting system developed is required for capacity development of competence through the learning environment and is enriched with various events related to professional development. Formative evaluation exercises are conditioned at the start of designing until the time of the development of the Digital Broadcasting System Integration with integrated online learning. Evaluation formative is intended to meriview the Digital Broadcasting System Integration design with an integrated online learning to show the weaknesses and is used to revise the design of the control management system in lecturers and web-based student autonomy. Trial implementation is done in the Department of Educational Technology. Full implementation is done in learning once implemented through the integration of the online learning network Universitas Negeri Malang.

Evaluation Plan

Planning evaluation is only up to the formative evaluation. The design phase of the formative evaluation includes effectiveness, efficiency, and attractiveness. The evaluation resulted in feedback, comments, ratings, and suggestions that will be used as the basis for revising the products developed. Stages will be in the evaluation set out in Table 1. The design of this instrument will be given to users that take a course in Educational Technology Professionals.

Table 1. Stages of Evaluation

EVALUATION CRITERIA	EXPLANATION	DATA SOURCE
<p>Effectiveness</p> <ul style="list-style-type: none"> • The main purpose • Learning Goals 	<p>How the achievement of learners to learn contextually desire of learning expected from the learners themselves.</p>	<ul style="list-style-type: none"> • The result of the development of lesson plan • The results of the learning outcomes in the form of pre-test, post-test, assignment, etc. • Results achievements of exercises about the form of quizzes, exams
<p>Efficiency</p> <ul style="list-style-type: none"> • Learning Media • Learning time 	<p>Investigations on learning tools and learning time-vitural form of learning as a learning resource, url address, hall forums, discussion etc.</p>	<p>The results of the data is a record of the activities of learners in the learning obtained through the reports of lecturers, managers and observation</p>
<p>The Attractiveness</p> <ul style="list-style-type: none"> • The attractiveness and ease of use of instructional media • The attractiveness and ease of access to learning resources 	<ul style="list-style-type: none"> • To review the activities against such as video, text, etc. • Activities to review the learning content • Navigation reviewing the activities of communication with a source of learning 	<ul style="list-style-type: none"> • Results of students' opinion that includes content, activity, message design and delivery system • The results of the data in the form of record access to learners in the learning gained through the application site administrators report

RESULTS AND DISCUSSION

The design of the Digital Broadcasting System

Universitas Negeri Malang constructed a digital broadcasting system to serve the learning model that allows students a shared environment able to construct any changes, one of which is the professional world. This step finishes because the digital broadcasting system that enables learning is not confined to the field of competence, but it can build a modern thinking construction by building connections in the ecology of learning science (Figure 2).

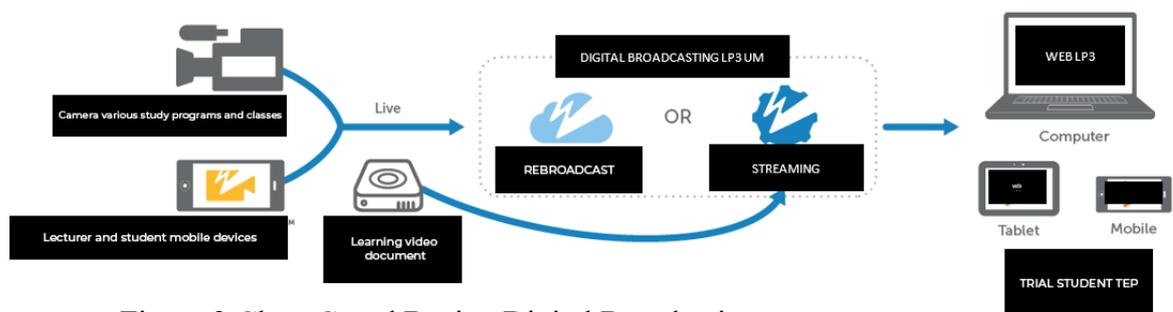


Figure 2 Chart Grand Design Digital Broadcasting
 (Life Based Learning and transdisciplinary)

The ecological system of learning is digital broadcasting system that enable that all inter-related learning so it is not easy to separate learning in their field of competence with the knowledge of other like adults. Students are allowed to explore the learning object professional competence and learning beyond the competence of the open fields like online courses that can affect student practice and thinking. Orientation learning is based on the ability of learners to learn thoroughly about growth and development of the individual and the organisation that houses individuals.

Staron (2011) describes life based learning as one concept that is a ecological study. Life based learning suggest that learning to work is not limited to learning in the workplace. The premise is that all learning is intertwined so it is not easy to separate the workplace learning from other types of adult learning. Learning is a multi-dimensional experience and adults are involved in a lot of learning in addition to professional development and most of the learning 'extra-curricular'. This affects our thinking and work practices (Cowan, n.d.; Staron, 2011; Staron, Jasinski, Weatherley, & ICVET, n.d.).

Ecology learning in life based learning utilises multi learning resources (Staron, 2011), elaboration of (Staron, 2011) Multi learning resources as illustrated in Figure 3.



Figure 3. The change of segmentation to integration

Staron (2011) describe multi learning resources is a learning resource that originated from a segmented point as one of mutual support to develop the capacity of competencies (Figure 3). Adaptation of the use of multiple learning resources for the implementation of digital broadcasting system integration is to entrenched the learning resource in the form of text, audio, visual, or audio-visual packaged in digital form (Chiu, Pan, & Chang, 2008; Hasegawa, 2005; Mitarlis, Sri Hidayati, Nurul, Suyatno, & Tukiran, 2014; Yamamoto & Mori, 2004). All files stored in the cloud that can be accessed by students individually.

Capacity of competence is the conception of the actual students rather than creating new competencies, but to optimise the potential of individuals in thinking as a whole (Jreisat, 2012; Rainbird, Munro, & Senker, 2005). Students at the Universitas Negeri Malang, are yet to have a comprehensive understanding of the thinking of competence capacity. A learning organisation needs to give an understanding to students about the capacity of competence. The creation of systems and procedures are robust enough to cope with the thought of individual profession (Yeung, 1999). An initial activity of lecturers in scope to build a professional world and act as a manager that serves to build a learning organisation that has a focus on individual learning and organisational learning. Learning the various observations are not a means for constructing a competency capacity and new individuals acquire competencies that occur when individuals within the organisations advance knowledge through education, experience, or personal experimentation. The activity

of thinking about the profession is not based systems and cultures to transfer them to other individuals who have differences.

Excavation of professionalism is not based on the concept of the profession, but was rather approached by the emergence of the desire to have a very common profession through an ideals perspective. Excavation of professionalism is the foundation to focus on capacity development of student competence Universitas Negeri Malang. Competence capacity successfully developed is a student who can deal with life by looking within and outside scientific discipline. The following overview on Figure 4 is the learning process of integration of the digital broadcasting system on the model of life based learning:

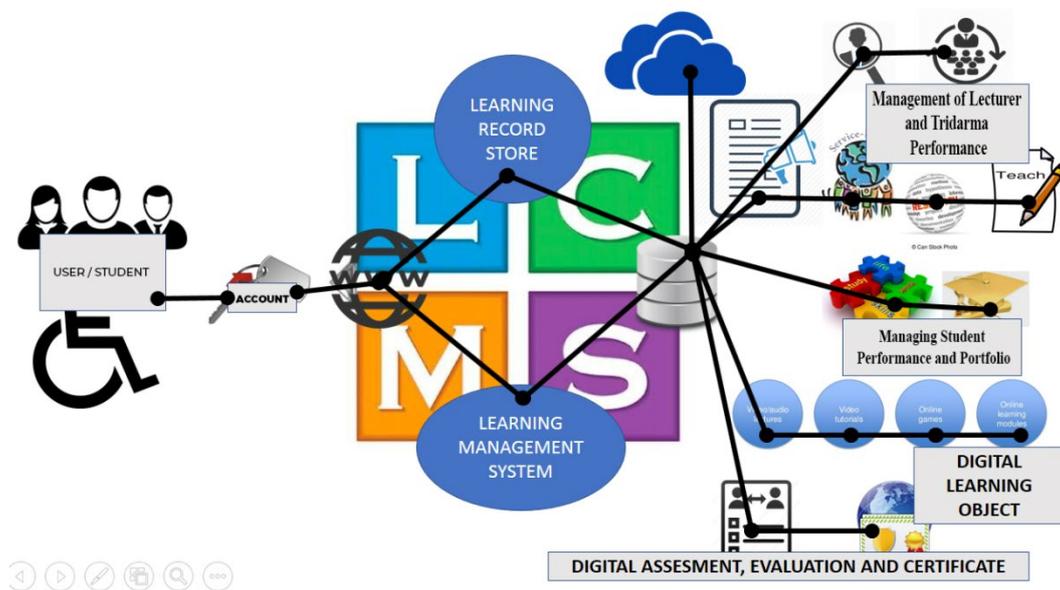


Figure 4. Flow learning processes and access to digital broadcasting system integration

Interactive information systems connect users with developers (students and professors) as well as educational and learning content. The system is a combination of a learning management system (LMS) with a content management system (CMS). (Praherdhiono & Pramono Adi, 2017a) reveals LMS and CMS is currently used as a tool for integration of education that leads to learning focused on the learner as in Figure 4.

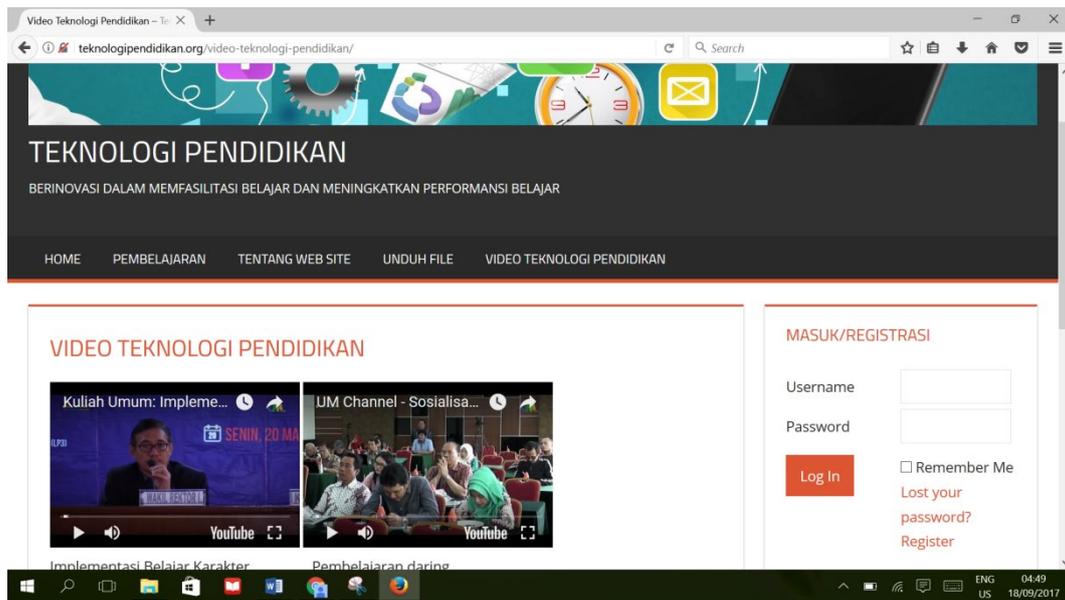


Figure 5. Digital broadcasting in web site

The result of the development is a web site with the address pendidikan.org technology (Figure 5). The web site was developed to model life based learning. Digital content broadcasting attempted to develop study in a place of learning. This is because life based learning declares all inter-related learning so it is not easy to separate its study on the training ground with other training such as the behaviour of adult learning in life (Chisholm & Blair, 2006, 2006). It is based on the fact that learning for adults is a multi-dimensional experience.

The trans-discipliner learning approach, seeks to expand the knowledge and insights of learners, by providing curriculum learning authentic and relevant to the real world. Learning is not confined by learners or educators in the field alone but was supported and enriched by anyone they can engage in the learning system. Each transdisciplinary theme covers a wide array of universal understanding common to all humanity and open enough to embrace a variety of content areas.

Recapitulation of votes from experts and subjects the user to know the average value obtained from the development of the open educational system on a web-based resource. It indicates that the Digital Broadcasting System Integration product is suitable for use in enriching the learning at the Universitas Negeri Malang. Table 2 show the results of the assessment recapitulation.

Table 2 Summary of Results Assessment

No.	Subject	Maximum score	Earned score	Percentage %	Information
1	Expert Learning Resources	80	70	87.5%	Very Decent
2	Expert Media	80	65	81.25%	Very Decent
3	Respondents Lecturer	400	337	84.25%	Very Decent
4	Respondents Students	2000	1807	90.35%	Very Decent
5	Respondents General	400	344	86%	Very Decent
Total Score Overall		2960	2623	88.61%	Very Decent

Overall recapitulation of the experts and respondents associated the development of open educational system that is a web-based resource indicates that the products developed entered the category of very feasible to implement, totalling 88.61%.

Products have been developed is a system of open learning resources based on websites. The system is a learning resource that is presented in the form of an open system on a web-based educational resource, with the goal of Universitas Negeri Malang student, and general users. The birth of the digital revolution in this century is marked by collaboration technologies that blur the space between physical, digital, and biological (Wihadanto, 2017) and the impact of the digital revolution must be able to respond quickly and appropriately, in the field of education.

Generation Z has high proficiency in information technology so they can find information for educational purposes or other purposes easily and quickly. Z generation is often associated with the virtual world, ranging from the searching of information, communication and entertainment and education. One characteristic that needs extra attention of this generation is the curiosity of various things that are broad and complex that need facilitating with appropriate learning (Ardiasri, Priyatni, & Andajani, 2017).

In the transdisciplinary approach (as developed at the University of Malang) the system of open learning resources becomes very important, because of the availability will carry the learning activities. Open learning resources or open educational resource (OER) are learning resources that are available for use by teachers and learners, without the need to pay royalties or license fees (Atenas & Havemann, 2014; Mielke, 1968).



OER is digital materials offered freely and openly for educators, learners, and self-learner to use and reuse for teaching, learning, and research (D'Antoni, 2009; "Open Education and OERs Repositories," 2017; Tsai & Shen, 2015). Ease and speed of access to learning resources such as books, speakers, tools, and other information across study programs and faculties has become a necessity that must be considered, especially if it can be presented online and packaged in accordance with the characteristics of learners. One of the criteria in the selection of learning resources is following the characteristics of learners (Dick, Carey, & Carey, 2006).

The creation of the learning ecology digital broadcasting system enables all inter-related learning that is not easy to separate learning in their field of competence with the knowledge of other like adults in learning. Students are given the opportunity to explore the learning object of professional competence and learning beyond the competence of the open fields like online courses can affect work practices and student thinking (D'Antoni, 2009; Praherdhiono, Adi, Prihatmoko, & Oktaviani, 2019; Praherdhiono & Pramono Adi, 2017b; Wasan, Darmawan, & Kustandi, 2019). Orientation learning is based on the ability of learners to learn thoroughly to grow and develop.

The product is the integration between face to face with the on-line classes. Grades can be accessed on-line on the page e-learning.um.ac.id, Faculty of Education, Department of Educational Technology, Educational Technology Professionals course. An on-line class must be chosen by the learners. The next display is an introductory course as the initial description. In the description of the learning outcomes contained graduates course and course learning outcomes. The integration of the digital broadcasting system capable of creating a learning ecology learning life base, to develop the capacity of student competency (Smith, 2016).

Aside from the website e-learning.um.ac.id teknologipendidikan.org there is still one more product that was developed as a companion to a digital broadcasting system integration in the Life Based Learning to develop the capacity of student competence. The resulting product is a companion website which is used as a container gathering a variety of learning resources. The resulting product can be accessed at [http:// bebasbelajar.tep.ac.id](http://bebasbelajar.tep.ac.id). The product comes with guidelines of use and media templates to simplify the harness and contribute to the learning resources (Molina, Navarro, Ortega, & Lacruz, 2018). The product can be used by faculty, students, and the general public. Each user has different access rights according to the capacity of each. Figure 6 shows a glimpse of the look of the products developed.



Figure 6. Initial View Website

Besides displaying on the website, this learning is also supported by the use of guidelines for learning applications (Figure 7). Utilisation guidelines have so far been considered trivial and left alone without being read (Norris, Plonsky, Ross, & Schoonen, 2015). The utilisation guidelines are very important to read before operation. From reading you can find out what is not allowed when using certain products. The smooth operation of the learning website is also guaranteed to be very fast in contrast to someone who does not read the usage guidelines. The utilisation guide will explain in detail how to optimise website utilisation during learning (Nivens & Moran, 2016; Olympia, Ritter, Brady, & Bramley, 2016). Of course the

explanation is equipped with clear images so that the reader can see it and compare it with the appearance on the website directly. You can also practice every available website function by reading its function in the usage guide. The importance of reading the utilisation guidelines in Indonesia must be accustomed to. Many people ignore it altogether. Reading is very useful because it can show the website usage guidelines and features on the website, so that in practice it will further optimise the functions of the website that have been provided.

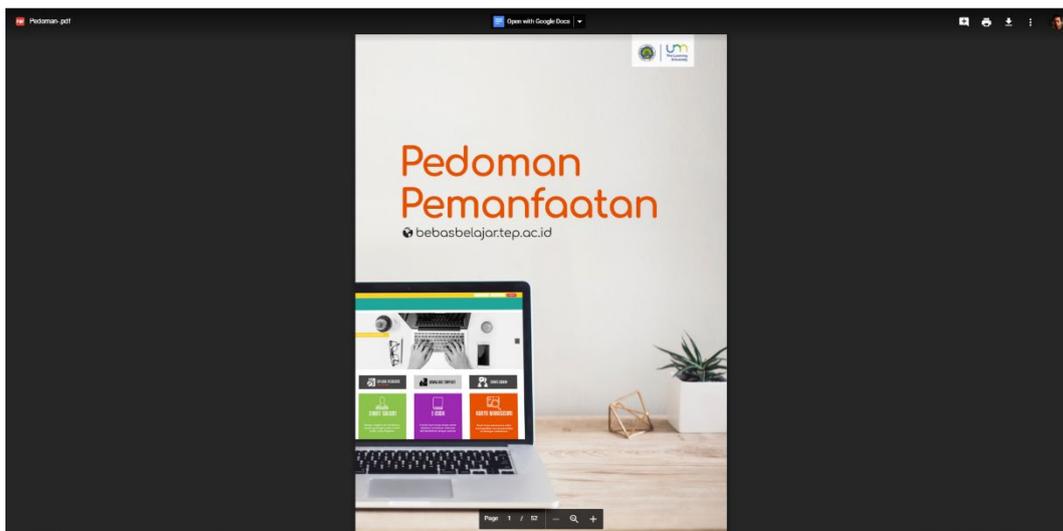
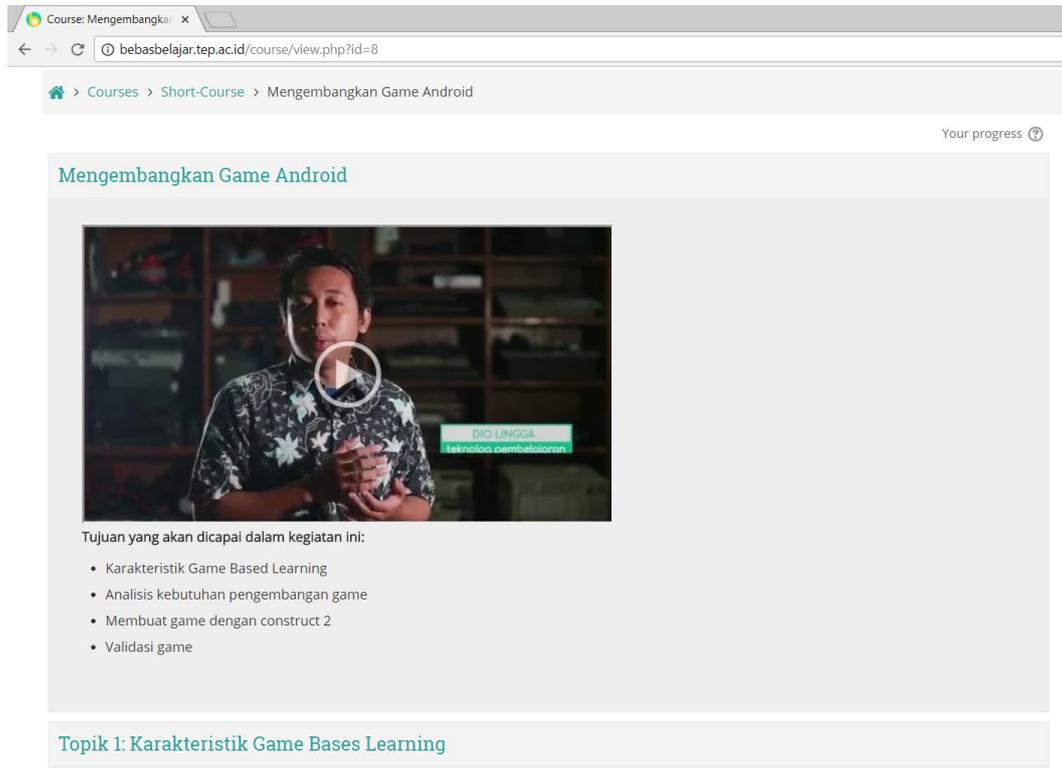


Figure 7. Utilization guidelines

Learning resources can be used to help everyone learn and display their competencies (Olympia et al., 2016). Learning resources are everything to how to find something useful. Learning resources complete all resources that can be used by students for learning behavior to occur. In the learning process the source components can be used singly or in combination and good learning resources are used (Brookfield, 2015). Diverse learning resources, both designed and non-designed, need to be utilised optimally in learning (Dunleavy & Dede, 2014; Lynch, Smith, & Menter, 2016). So far, the only learning resources that has been used are textbooks. Utilisation of learning resources involves the willingness of teachers to be able to optimise learning resources, and the ability of teachers to be able to use learning resources in learning. For online learning, the use of the website can be very important. The learning website contains learning resources that can be utilised while learning takes place (Figure 8).



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Tujuan yang akan dicapai dalam kegiatan ini:

- Karakteristik Game Based Learning
- Analisis kebutuhan pengembangan game
- Membuat game dengan construct 2
- Validasi game

Topik 1: Karakteristik Game Bases Learning

Figure 8. One Learning Resources Available

CONCLUSION

Digital broadcasting system development activities is the support of the Universitas Negeri Malang curriculum model. The research activity is a series of in-depth methods of capacity development competence of learners through the elements of the profession that made life in the model of curriculum-based learning. A study reported getting an overall picture of the competence capacity to be realised in life-based learning, based on their competencies in certain professions. Digital broadcasting system is a step to anticipate changes in the profession of competence era into the era of competence capacity. Digital broadcasting system is how to make fundamental changes in the learning paradigm.

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