Resource Sharing - Blended Project Based Learning (RS-BPBL©) Model Development

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Abstract
Badan Akreditasi Nasional Pendidikan Tinggi (BAN-PT) has authority to implement accreditation system higher education in Indonesia. BAN-PT sets standard availability of e-learning facilities to good use ranging from study program to institution. E-learning combined with face to face learning called blended learning. The development of blended learning requires resources of computer hardware, software, internet, people, and content. This development will cost tens to hundreds millions rupiahs. Results observation activities "Evaluation Application Blended Learning in Environmental Kopertis Region X (West Sumatra, Riau, Jambi and Riau Islands", in May and October to December 2015. The 63 institutions Colleges, 84% which there do not currently have facility e-learning. The results of analysis implementation blended learning 4 semesters in STMIK Indonesia Padang illustrates need development of blended learning group models better. The research aims develop a model Resource Sharing - Blended Project Based Learning (RS-BPBL©). This paperless concept model of sharing resources in one group for project based learning in blended learning. Furthermore, it can be one solutions blended learning facilities available. Quantitative research design, with Research and Development (R & D) use models ADDIE (Analysis, Design, Development, Implementation and Evaluation). The case studies in STMIK Indonesia Padang courses Operating Systems, population and sample set Yount Table and Roscoe. Data collection techniques such as questionnaires, interviews, observations, and tests. Descriptive data analysis techniques, processed with SPSS. The study concluded, model RS-BPBL© can be blended learning facilities on the course or institution.

Keywords: blended learning, project-based learning, RS-BPBL©

INTRODUCTION
National Accreditation Board - Higher Education or Badan Akreditasi Nasional Pendidikan Tinggi (BAN-PT) was established in 1994. The establishment of this board refers to the regulation of National Education System No. 2/1989 and is formally reinforced by the government regulation No. 60/1999 on Higher Education. BAN-PT has authority to implement accreditation system to all higher education institutions such as State Universities, Private Universities, Religion Higher Education, Perguruan Tinggi Kedinasan (PTK), long distance education programs, and other educational cooperation programs with other higher education institutions in the country that offered by higher education institutions from overseas. In Book 6 [1], it includes matrix accreditation of undergraduate study program. Item 6.5 includes standard of the availability of e-learning facilities. In Book 6 [2], it consists of Matrix assessment and self-evaluation accreditation higher education institution and in item 6.3, it deals with the standard of Information System which has e-learning facilities.
Garrison and Kanuka (2004) [3] explains, "blended learning is both simple and complex" (p. 96), simplest of blended learning is blended from face to face classroom activities and learning activities supported by online technology. Blended learning complex in sense: “How big composition blended used?” this definition widely used in higher education.

Detailed Bencheva (2010: 66) [4] illustrated in Fig. 1, it was clear advantages and disadvantages of traditional learning and e-learning. The merged accordance and correct composition, then discovered all the advantages of traditional learning and e-learning in blended learning.

"Workshop Application Blended Learning Method Based On Higher Education Resource Sharing for Lecturer in Environmental Kopertis Region X" in Pekanbaru, 17 September 2014. Hasibuan (2014) [5] expressed "Implementation Strategy of Blended Learning in Higher Education: A Paradigm Shift from Teacher-Centered to Student-Centered". He describes in developing learning systems blended learning preparation required supporting technologies: a) Hardware (servers, videoconferencing, computers, etc.), b) Software (LMS, LCMS, Authoring Tool, etc.), c) Internet networks, d) Preparation of human resources supporting such a system administrator, instructional designers, technical team content (recorder, animators, etc.), e) Centre content development. This exposure drawing complexity and the amount of costs that must prepared to support equipment. One server unit purchased with the cost IDR 12 - 700 million and development costs of learning blended learning system IDR 45 - 150 million.

Evaluation of Application Blended Learning in Environmental Kopertis Region X (West Sumatra, Riau, Jambi and Riau Islands) in October - December 2015 held in four provinces: a) West Sumatra Province, on October 22, 2015 held at Office Kopertis Region X Padang, b) Jambi Province, on November 2, 2015 held at STMIK Dinamika Bangsa Jambi, c) Riau Islands Province, on November 7, 2015 held at the International University Batam, d) Riau Province, on December 12, 2015 held at STMIK Hang Tuah Pekanbaru. Sixty-three (63) private higher education institutions evaluated May and October to December, 2015 got by result 84% of institutions do not have the facility of e-learning.

Preliminary research conducted Odd semester of 2014/2015 in STMIK Indonesia Padang device ownership results obtained on line learning students 34%, as in Fig. 2. Ownership low devices need to sharing device.
Continued research conducted on 4 next semesters. Starting even semester 2014/2015 until even semester 2015/2016 found problem: a) Learning in groups not managed properly; b) Process monitoring group work difficult; c) Teaching materials did not well organized; c) Learning facilities on line not being used either in a good learning system.

Project Based Learning is learning-focused creative thinking, problem solving, and interaction between students. Thomas, Mergendoller, and Michaelson, (1999) [6]. define: Project-based learning (PBL) is a model of learning that organizes around projects. According to the definitions found in PBL handbooks for teachers, projects are complex tasks, based on challenging questions or problems, that involve; students in design, problem-solving, decision making, or investigative activities; give students the opportunity to work are relatively autonomously over extended periods of time; and culminate in realistic products or presentations.

PBL make students work team, skills plan, organize, negotiate and build consensus on issues task to be done, who is responsible for each task, and how information will be collected and presented scientifically. One of strategies can help students have creative thinking, problem solving, and interaction as well as assist in investigation leading to settlement real problems (Turgut, 2008) [7]. PBL stimulates motivation, processes, and improve achievement of students with use problems associated certain courses in real situations.

This study aims develop a model Resource Sharing - Blended Project Based Learning (RS-BPBL©). This paperless concept models sharing resources possessed by students in one group project-based learning in blended learning. Furthermore, it can be one solution to availability of e-learning facilities for institutions Private Universities Kopertis Region X (West Sumatra, Riau, Jambi, and Riau Islands).

**METHODOLOGY**
Quantitative research design, with Research and Development (R & D) use models ADDIE (Analysis, Design, Development, Implementation and Evaluation). The case studies in STMIK Indonesia Padang courses Operating Systems, population and sample set via Yount Table and Roscoe. Data collection techniques such as questionnaires, interviews, observations, and tests. Descriptive data analysis techniques, processed with SPSS.

**RESULTS AND DISCUSSION**
Four types of Learning Management of System (LMS), namely: Carmen, E7, Moodle and Edmodo analyzed and tested, results: Edmodo is the LMS most efficient to be used as an e-learning facility that is used both by institution, program study or faculty members personal learning.
Furthermore, results of model RS-BPBL© after stages process analysis, design, development, implementation and evaluation.

Fig. 3: Learning Management System Tested.

Fig. 4. Operating System E-Books

Fig. 5. Menu Design: Learning System RS-BPBL © Model: Content Operating Systems
Fig. 6. Start Menu: Content Operating System

Fig. 7. Menu: Content Operating System Windows 10

Fig. 8. Menu SAP: Content Operating System Windows 10

Fig. 9. Menu Description: Content Operating System Windows 10

Fig. 10. Menu Learning Objectives: Content Operating System Windows 10

Fig. 11. Menu Content: Content Operating System Windows 10
Fig. 12. Menu Summary: Content
Operating System Windows 10

Fig. 13. Menu Assignment: Content
Operating System Windows 10

Fig. 14. Menu Quiz: Content Operating System Windows 10

Fig. 15. Menu Enrichment: Content Operating System Windows 10

Fig. 16. Menu Assignment Enrich: Content Operating System Windows 10

Fig. 17. Menu Quiz Enrichment: Content Operating System Windows 10
Fig. 18. Menu Bibliography: Content Operating System Windows 10

Fig. 19. Menu Closing: Content Operating System Windows 10

Fig. 20. Desain Menu Group Project Sistem Pembelajaran Materi Sistem Operasi Model RS-BPBL

Fig. 21. Menu Group Project: Content Operating Systems Windows 10
Fig. 22. Menu Group Project: SAP, Content Operating Systems Windows 10

Fig. 23. Menu Group Project: Description, Content Operating Systems Windows 10

Fig. 24. Menu Group Project: Learning Objectives, Content Operating Systems Windows 10

Fig. 25. Menu Group Project: Submission Proposals, Content Operating Systems Windows 10

Fig. 26. Menu Group Project: SAP Making Work Plan, Content Operating Systems Windows 10

Fig. 27. Menu Group Project: Making Work Plan, Content Operating Systems Windows 10

Fig. 28. Menu Group Project: SAP Progress Reports 70%, Content Operating Systems Windows 10

Fig. 29. Menu Group Project: Progress Reports 70%, Content Operating Systems Windows 10

International Conference on Technology, Innovation, and Society (ICTIS) 2016
CONCLUSIONS

The study concluded, model RS-BPBL© can be blended learning facilities on the course or institution.
ACKNOWLEDGMENTS
A special thanks to Yayasan Amal Bakti Mukmin Padang support and motivation, STMIK Indonesia Padang and Padang State University.

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