

DEVELOPMENT OF RESEARCH-BASED LEARNING TO INCREASE STUDENTS' LEARNING ABILITY

¹Rustam I. Husain, ²Zulaecha Ngiu, ³Masri Kudrat Umar ¹Faculty of Education, Gorontalo State University, Indonesian, ²Faculty of Social Science, Gorontalo State University, Indonesian, ³Faculty of mathematics and natural sciences, Gorontalo State University, Indonesian **E-mail:** ¹rustam.husain@ung.ac.id; ²zulaecha.ngiu@ung.ac.id; ³masrikudrat@ung.ac.id

ABSTRACT

Within the perspective of education technology, learning needs innovations to ensure its easiness and quality. Learning innovation can be within the lesson material, lesson management, and lesson delivery. This means that learning innovation can be developed to suit the needs. Development of learning model becomes one of the significant choice to bring innovation needed for learning itself. Learning innovation needs sources that can directly support its development. Learning innovation to develop the lesson materials used research outputs as part of the solution to provide up to date sources. It also indicates that research outputs which have been published in articles, books, and papers are new innovations that should be included in learning materials. Research-based learning model is an idea to be investigated to find the best model, its implementation, and the dissemination of the model. In its implementation, lecturers' and students' output will be included. Therefore, its implementation involves lecturers and students as the owners of the innovation and students as the objects of learning and as learners. Research-based learning model empowers various sources of learning such as, research outputs that are not currently being used to increase the quality of learning. Through this model, learning process will always be updated by using research outputs as the main component of this learning model

KEYWORDS: Research-Based, Learning

INTRODUCTION

Learning should be kept updated through various improvements. This improvement is most probably done through incorporation of research outputs. It is a well-known fact that many of the research outputs are still unused to enrich the learning. In university level, research products and outputs are made into various documents, such as; proceeding, research report, and other scientific writings.

Usage of these research outputs become the basis for the research-based learning model. It is expected that this model will not only be a model but also it will be well implemented by learning practitioners.

The obstacle in the development of this learning model is the availability of research documents. Easiness in accessing research information has guided us to obtain this research information in electronic forms and from the internet. This option is appropriate to overcome the current problem of limited access to quickly access the research outputs.

A research in the University of Missouri in Mentioned that, "the importance of using research-based practices to support the needs of all learners in general education settings

and to provide teachers with strategies for obtaining research-based practices. Students with diverse learning needs require that teachers utilize more effective and efficient practices in their teaching given that many are already behind academically, socially, or both", [2].

Scarcity of research output documents available should be become part of the job and commitment of the academics to resolve it.

Support staff should be valued and they need to be valued through their ability to be academic administrators, academic secretaries and academic technicians. In other words, recruiting support staff should not merely be a matter of transferring an individual from another large organization because the role in a university should be highly distinctive and specialized and, crucially, valued [5]

RESULTS DISCUSSION

It has to be admitted that the gap in education is partly due to the research outputs that are often segregated from learning activities [5] Research from academic world often just become the science learn by those who has specific interest on that

field, and unknown to the academic community in general where it was founded.

Research-based learning has been done by some experts such as; Kloser, Brownell, Shavelson, and Fukami, where their laboratory assignments were based on research to produce different results for the students' interest and motivation [4]. Research-based learning provides authentic research experience within the learning activity for the students. It significantly influences students' understanding on ability to effectively design research and interpret experiment data.

Usage of research-based learning in children's education is evident in study conducted by Kazura, K., and Tuttle, H. that "Students enjoyed making the connections between course content and children's behavior in a natural setting [3]. They recommended that future students would enjoy conducting research and advised them to utilize time-management skills to promote success in the course".

Research-based learning can be a trend to update learning which expected to have impact on the increase of lesson plan/learning administration (learning media).

This study used development method. The result of the study written in this article is the output of the research-based learning conceptual model. This conceptual learning model was derived from various literatures and the results of students and lecturers' works.

Out of 60 scientific writings made by students and lecturers, 80% were identified to discuss learning practices and the rest discussed science that support the learning. In addition, in-depth interviews were also held with teachers and lecturers.

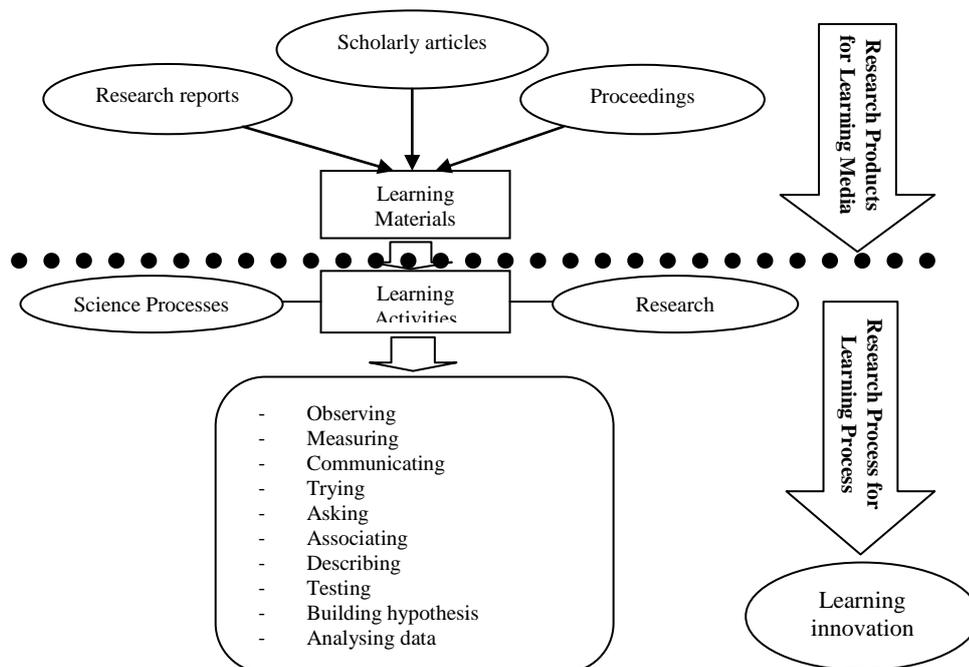
Three times Focus Group Discussions were held with teachers, lecturers, and students. The final findings were presented in a seminar and the results were written in this article.

Research based-learning encompasses two important items, namely; utilization of research.

These three research outputs become the main element in designing lesson plan. The content of the lesson plan becomes more actual, even it is more appropriate with the learning objectives and needs. In research-based learning, research products enhance the preparation in learning activities. Through a complete learning material, learning media will be readier to use.

The next activity is to use the core research activities in learning and science process in learning. Thus, learning activity incorporates research activities on learners. There are several research activities, such as; observing, measuring, communicating, trying, asking, associating, describing, testing, building hypothesis, analyzing the data, concluding, and presenting.

In general, research-based learning is presented in the following scheme.



Description of Research-Based Learning

Based on the above scheme, it is clear that the stages of research-based learning are: (1) implementation of research outputs in designing learning media, and (2) implementation of research activities within the learning process.

Implementation of research outputs in designing the learning media consists of; (a) developing syllabus, (b) developing the lesson plan implementation, (c) selection of method, strategy, and learning approach, (d) developing the learning material, (e) developing students' worksheet, (f) learning media selection, and (g) assessment of the learning result. These documents should be supported with related research outputs.

Implementation of research outputs in learning process is carried out through the following stages; (1) introduction; (facts + knowledge) presenting research facts creates various perception, various interpretations that demand answers through learning activities, (2) Core, (observation + knowledge + skill) conducts activities that involve senses, correlates with prior knowledge, and models the intended activities, and (3) Closing (knowledge and attitude) concludes the discussion related to the topic, skill needed and its attitude.

In learning at university level, learning activities can be broadened by adapting several research activities adopted from supervised research writing activities, such as; Functional, Enculturation, Critical Thinking, Emancipation, and Relationship development [1]). In detail, approach to supervise research writings is presented below:

	Functional	Enculturation	Critical Thinking	Emancipation	Relationship development
Supervisor's activity	Rational progression through tasks	Gatekeeping	Evaluation challenge	Monitoring and supporting constructivism	Monitoring and supporting constructivism
	Consultation	Introduction to people and exemplars of high quality work	Enquiry-based learning		
Supervisor's knowledge & skills	Directing	Diagnosis of deficiencies	Argument	Facilitation	Facilitation
	Negotiating project management	Coaching	Analysis synthesis	Reflection	Reflection
Possible Student Reaction	Obedience	Role modelling	Constant inquiry, fight or flight	Personal growth, reframing	Personal growth, reframing
	Negotiation	Apprenticeship			

CONCLUSIONS

Research-based learning is an implementation of various research products in learning. The important steps in implementation of this research-based learning are; (1) implementation of research outputs in designing the learning media; and (2) implementation of research activities within the learning process.

Implementation of research outputs in designing the learning media consists of; (a) developing syllabus, (b) developing the lesson plan implementation, (c) selection of method, strategy, and learning approach, (d) developing the learning material, (e) developing students' worksheet, (f) learning media selection, and (g) assessment of the learning result. These documents should be supported with related research outputs.

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Gathering documents as reference in designing the research-based learning material has to become part of the co-commitment. Commitments among academics people also needed in ensuring the availability of these research result documents, easiness in accessing those documents, and to make accessing these research outputs documents as easy as accessing digital documents within the internet network.

REFERENCES

- [1] Anne, L., and Murray R. Supervising Writeng: Helping Postgraduate Students Develop as Research. *Innovations in Education and Teaching International*. Vol. 52. No. 5.558-570, 2015
- [2] Lembke, E.S., And Stormont, M. Using Research-Based Practices To Support Students With Diverse Needs In General Education Settings. *Psychology in the Schools*, Vol. 42(8), 2005.
- [3] Kazura, K., and Tuttle, H. Research Based Learning Approach: Students Perspective of Skills Obtained. *Journal of Instructional Psychology*, Vol. A good team member

- [4] Kloser, M. J., Brownell, S.E., Shavelson, R.J. and Fukami, T. Effects of a Research-Based Ecology Lab Course: A Study of Non volunteer Achievement, Self-Confidence, and Perception of Lab Course Purpose. Journal of College Science Teaching.
- [5] Smith, P., and Rust C. The Potential Of Research-Based Learning For The Creation Of Truly Inclusive Academic Communities Of Practice. Innovations in Education and Teaching International Vol. 48, No. 2, May 2011.