



Validity and Practicality of Learning Tool for Independent Campus Learning (ICL) Study Program Diploma 3 (D3) Mechanical Engineering Bali State Polytechnic (BSP)

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ABSTRACT: The Independent Campus Learning (ICL) Policy is one of the policy studies that the government is currently promoting to be implemented in universities. Implementing this policy in educational programs, Study Program (SP) readiness is very much needed. This readiness is demonstrated by having appropriate learning tools that are in line with the ICL curriculum. Following up on this policy, SP D3 Mechanical Engineering BSP developed learning tools oriented to the ILC curriculum. This research aims to determine the level of validity and practicality of learning tools in the form of Semester Learning Plans (SLP), and ICL PS D3 Mechanical Engineering oriented textbooks. The research uses a research and development approach with the Borg & Gall model modified into three development stages, namely: define, design, and develop. The validity test results show that the validity level of the SLP and the ICL SP D3 Mechanical Engineering oriented textbook reached 84.9% and 82.7%, both of which were categorized as valid. The practicality level reached 84.9% and 82.7%, both categorized as practical, with several minor revisions. The implication is that the prototype after carrying out minor revisions can be used as a learning tool and can be continued to the next development stage, namely effectiveness testing.

KEYWORDS: Curriculum, Learning Tool, Independent Campus Learning, Validation, Practicality.

INTRODUCTION

The Independent Campus Learning (ICL) Policy was launched by the Minister of Education and Culture through the Minister of Education and Culture Regulation Number 3 of 2020 concerning National Higher Education Standards, on Learning Process Standards, especially in articles 15 and 18. ICL is one of the policy studies carried out. The government is currently encouraging it to be applied to the world of higher education. ICL is an independent and versatile higher education learning model designed to create a creative learning community without limiting student needs ¹. The ICL program is an educational revolution based on industrial development 4.0 ². ICL aims to encourage students to gain learning experiences with various additional competencies in study programs and/or outside campus ³. The ICL policy aims to create competitive humans: healthy, intelligent, adaptive, creative, innovative, skilled, dignified, productive, and with character in accordance with Pancasila values ⁴. The ICL program encourages students to be able to master various knowledge that can be used as preparation for entering the world of work and industry. In tertiary institutions, the ICL program is realized in a flexible and independent learning process so that it is able to create an active and innovative learning environment in accordance with student needs in terms of attitudes, knowledge and skills.

The ICL policy encourages students to understand various knowledge that is useful for entering the world of work and industry. ICL provides opportunities for students to choose the courses they want to take. The concept of independent learning aims to provide freedom for students to study outside campus. Independent campus is a new concept that allows students to have the freedom to study at university. This concept is a continuation of the concept of independent learning in higher education. To face the changes brought about by the ICL policy, the readiness of each Study Program is very necessary. This readiness is demonstrated by having appropriate learning tools that are in line with the ICL curriculum. Learning objectives achieve targets well, it is necessary to have learning tools that are appropriate to the learning methods and strategies used ⁵.

Learning tools are a form of preparation for an educator before they carry out the learning process ⁶. Learning tools are a basic need for an educator before starting the learning process. In detail, learning tools are a number of materials, tools, media, instructions and guidelines that will be used in the learning process ⁷. Learning tools are signs for a lecturer in carrying out lecture activities in class. Specifically, its function is as a learning guide for lecturers, as a benchmark for learning success in class, as a medium to increase lecturer professionalism, and as a tool to make it easier for lecturers to facilitate learning ⁸. Its main function is as evaluation material



for lecturers to determine the extent to which the competency standards that have been delivered have been achieved. Complete forms of learning tools include concept maps, course syllabi, Semester Learning Plans (SLP), Learning Process Plans (LPP), Student Assignment Plans (SAP), Student Worksheets (SW), and learning outcome assessment sheets. The SLP is a learning planning document prepared as a guide for students in carrying out lecture activities for one semester to achieve predetermined learning outcomes ⁹. The formulation of SLP refers to the description of learning outcomes that have been set in the curriculum.

In order to implement the current ICL curriculum, PS D3 Mechanical Engineering, Bali State Polytechnic, is developing learning tools based on the ICL curriculum. Learning tools developed in the form of SLP and textbooks. Learning is the process of student interaction with lecturers and learning resources in a learning environment. The real form of lecturer preparation is making learning tools before carrying out learning activities. Learning tools used as guidelines for achieving learning objectives are referred to as "guidelines and a common understanding" ¹⁰. The organizers really need to emphasize providing space for students for learning activities ¹¹. These learning tools need to be developed to be adapted to the 2020 National Higher Education Standards (NHES).

SLP is basically a one-semester learning plan for a particular subject and is a program that still needs to be elaborated. SLP is a standard part of the learning planning process, containing activities or actions to coordinate learning components so that learning outcomes, learning materials, delivery methods, activities (methods, models, techniques) and how to assess them become clear and systematic, so that the learning process during one semester becomes effective and efficient. The SLP is structured systematically and systemically and is oriented towards learning outcomes. SLP is developed by lecturers independently or together in expertise groups in a field of science and/or technology in one study program. is basically a one-semester learning plan for a particular subject and is a program that still needs to be elaborated. SLP is a standard part of the learning planning process, containing activities or actions to coordinate learning components so that learning outcomes, learning materials, delivery methods, activities (methods, models, techniques) and how to assess them become clear and systematic, so that the learning process during one semester becomes effective and efficient. The SLP is structured systematically and systemically and is oriented towards learning outcomes. SLP is developed by lecturers independently or together in expertise groups in a field of science and/or technology in one study program.

Textbooks are a set of teaching materials arranged systematically, displaying the forms of competence that will be mastered by students in the learning process ¹². Textbooks are a reading source that is often used in the world of education. Not only in school education but also higher education. Textbooks are widely used in the teaching and learning process and in libraries, because there is a positive correlation between the use of textbooks and learning achievement ¹³. Students and lecturers use textbooks as support for studying material. Textbooks have a significant and effective influence in absorbing information and knowledge related to the fields of science studied by students ¹³⁻¹⁵. Textbooks need to be adapted to students' conditions and the learning strategies used by lecturers.

The results of development research products play an important role in education Pendidikan ¹⁶. One of its roles is to increase the effectiveness of learning. To fulfill this function, the product must meet good criteria. The learning tools developed are said to be of quality if they meet three criteria, namely: validity, practicality and effectiveness ¹⁶. Learning tools are said to be valid and practical if the tools are easy and can be implemented, and are said to be effective if the learning objectives can be achieved through the use of the learning tools developed ¹⁷. Learning tools are said to be valid if they have a validity index (V) $\geq 70\%$ ¹⁸. This research aims to determine the level of validity and practicality of learning tools in the form of SLP and ICL-oriented textbooks at the Bali State Polytechnic D3 Mechanical Engineering Study Program.

RESEARCH METHODS

This research is a type of development research using the Borg & Gall model, which was modified into 3 development stages, namely: define, design, and develop. The define stage contains the first step of research and information collecting and the second step of planning. The design stage includes the third step of developing preliminary form of product, the fourth step of preliminary field testing and the fifth step of main product revision. The development stage includes steps six to step 10, namely, main field testing, operational product revision, operational field testing, final revision and dissemination and implementation.

The define stage consists of a preliminary study stage and information gathering including conducting an initial survey to inventory lecturers' needs regarding learning tools in the form of SLP and ICL curriculum-oriented textbooks. Carry out product design through reviewing the ICL Curriculum development guidelines according to Minister of Education and Culture Regulation Number 3 of 2020 concerning NHES and format selection.



The design stage is carried out by: 1) setting development objectives, namely: obtaining learning tools in the form of SLP and ICL -based textbooks, 2) constructing instruments to measure validity, practicality and effectiveness, and 3) determining the format of the learning tools being developed.

The development stage is constructing prototype I of the learning device, validating the product through expert appraisal. Carrying out revisions is carried out by analyzing trial results, inventorying input and deficiencies, conducting Focus Group Discussions, improving the product based on the results of trial analysis and input from each expert (prototype II). Carrying out field tests, namely the small-scale trial stage to determine the level of practicality of the SLP and textbooks (prototype II). Carry out practicality testing through limited trials and wide-scale field trials (prototype III) to determine effectiveness. Currently, the development progress only extends to testing the practicality of the product, while testing its effectiveness after knowing the level of validity and practicality of the product ¹⁹.

The research subjects involved lecturers and students at SP D3 Mechanical Engineering BSP. Data for validity and practicality were collected using validation and practicality questionnaires. Validation involves content experts, media experts and practitioners. The aspect of measuring the feasibility of SLP refers to the level of conformity with the SLP components recommended in Minister of Education and Culture Regulation no. 3 of 2020 concerning ICL. The measurement aspects for textbooks include components of appropriateness of content, presentation, language and graphics graphics ^{20,21}. Meanwhile, practicality is through small group trials, large groups and limited trials. The measurement aspects include: ease of use, attractiveness of the presentation, benefits, and relevance ^{22; 23}. The validation questionnaire was completed by content experts, media experts and practitioners. Meanwhile, the practicality questionnaire is filled in by lecturers and students who have different abilities. Criteria for interpreting validation/practicality results using percentage intervals: $85.01\% < V \leq 100\%$ very valid/practical and can be used but needs minor revision; $70.01\% < V \leq 85.00\%$ valid/practical, can be used but needs minor revision; $50.01\% < V \leq 70.00\%$ less valid/practical, can be used but needs major revision; and $0.01\% < V \leq 50.00\%$ is invalid/practical, should not be used ¹⁸.

RESULTS AND DISCUSSION

Definition Stage

Analysis of learning tools is carried out by means of document studies, namely analysis of RPS and textbooks that are being used by lecturers. The results of the analysis show that the SLP and textbooks used by lecturers do not yet refer to Minister of Education and Culture through the Minister of Education and Culture Regulation Number 3 of 2020 concerning National Higher Education Standards. The formulation of graduate learning outcomes (GLO), especially aspects of attitudes and skills, is generally not in accordance with ICL. There has not been found a student's learning experience which is manifested in a description of the tasks carried out by students during one semester, nor has complete harmony been found between GLO - Course Learning Outcomes (CLO) - SUBCLO. The incomplete CLO formulation contains knowledge, skills and attitudes that can be observed, measured and demonstrated at the end of the learning process. The accumulative CLO formulation cannot provide an overview of the GLO achievements imposed on related subjects. The GLO matrix with CLO has not been stated in the SLP.

GLO is Expected Learning Outcomes (ELO) which is general and determined by the Study Program. The formulation of the GLO needs to refer to the provisions of the Graduate Competency Standards (GCS) contained in Minister of Education and Culture Regulation Number 3 of 2020 concerning NHES. GCS is a minimum criterion regarding the qualifications of graduates' abilities which includes attitudes, knowledge and skills stated in the GLO formula. CLO are specific according to the course study focus.

The learning activities outlined by the lecturer in the learning tools are more focused on the teacher center where during the learning process the lecturer is more active in explaining the concepts of the material being studied, students become passive in accepting the lecturer's explanation. The learning process becomes less effective and even ineffective. Effective learning is learning that succeeds in achieving student learning goals optimally as expected by the lecturer ²⁴. In order to improve the quality of student learning outcomes, the form of learning designed in SLP is an effective learning model or active learning method, or an innovative learning model that is more likely to create a more independent learning environment for students according to their abilities and potential. Moreover, lecturers can design forms of learning with innovative learning by utilizing advances in ICT developments. With ICT the learning process tends to happen easily and really allows students to learn independently, be happier and have more independence in learning. There are many innovative learning models utilizing ICT advances that have proven effective in improving the quality of learning outcomes, one of which is Blended Learning ²⁵⁻²⁷. The form of learning in the implementation of ICL emphasizes the portion of innovative and effective forms of learning such as: problem-based learning methods, project-based



learning, collaborative learning, blended learning, more than other conventional methods²⁸. The level of conformity with the Minister of National Education Regulation number 22 of 2006 concerning teaching material content standards is not yet known.

Design Stage

The development aims to obtain learning tools in the form of SLP and ICL-based textbooks. The validity of the SLP refers to the components recommended in NHES Minister of Education and Culture Regulation No. 3 of 2020 concerning NHES, while for textbooks it refers to Minister of National Education Regulation no. 22 of 2006 concerning the content of teaching materials and the National Education Standards Agency in 2014.

The practicality of SLP is based on the implementation of learning and its practicality seen from the aspects of attractiveness, ease of use and usefulness. Meanwhile, testing the practicality of textbooks based on lecturer and student responses consists of several aspects: attractiveness, development process, ease of use, usefulness and relevance. Meanwhile, responses from students consisted of aspects: attractiveness, ease of use, and product usefulness. Effectiveness is seen from student learning outcomes. The SLP format was adopted from the recommendation of Minister of Education and Culture Regulation No. 3 of 2020 concerning NHES.

Development Stage

Based on preliminary stages and information gathering, the SLP and textbooks are adjusted to the learning outcomes set in the ICL. SLP is a learning program document designed to produce graduates who have abilities according to the GLO that has been determined, so that it must be implemented by students at every stage of their learning. The SLP focuses on how to guide students to study so that they can have abilities in accordance with the graduate GLO assigned to the course, not on the interests of the lecturer's teaching activities.

The SLP format is modified according to the National Higher Education Standards (Permendikbud. 2020). Components in the RPS in ICL format: a) name of study program, name and course code, semester, credits, name of teaching lecturer; b) graduate learning outcomes assigned to courses; c) final capabilities planned at each learning stage to meet graduate learning outcomes; d) study materials related to the abilities to be achieved; e) learning methods; f) the time provided to achieve abilities at each learning stage; g) student learning experiences which are manifested in descriptions of assignments that must be carried out by students during one semester; h) criteria, indicators and assessment weights; and i) list of references used. Meanwhile, ICL-oriented textbooks are teaching materials whose material is designed and compiled taking into account its breadth and depth in accordance with the content standards in NHES, and is provided by a lecturer or team of lecturers and can always be adapted to developments in science and technology. The level of breadth and depth of learning material refers to the GLO as stated in NHES clause 9, paragraph (2)²⁹

Textbooks are prepared and developed based on the learning outcomes that students are expected to master. These learning outcomes include material standards or content standards and achievement standards (performance standards). Material standards contain the type, depth and scope of lecture material that students must master, while performance standards contain the level of mastery that students must display. Learning activities are adjusted to learning outcomes so as to enable students to learn a course's achievements in a coherent, systematic, innovative manner so that all competencies are expected to be achieved in a complete and integrated manner^{30, 31}.

Textbooks are formatted in the form of printed and non-printed teaching materials, developed by paying attention to the structure, content and online resources that are integrated into printed learning materials. The structure consists of the main topic, objectives of studying the material, description of the material, sub-topics, exercises, summary of the material, formative tests, ending with a glossary and reading material. The selection of material is based on the principles: relevance, consistency and sufficiency³⁰). Depth refers to the aspects contained in learning outcomes, course learning outcomes, and learning sub-achievements, while the order is based on a hierarchical approach³. The delivery approach uses student-centered learning or student active learning. Learning evaluation uses the form of tests packaged in competency tests at the end of each sub-chapter and chapter.

The initial prototype (prototype I) of the ICL-oriented textbook, the material refers to the 2017 Indonesian National Qualifications Framework (INQF) curriculum, the structure: Introduction page, Nas page (body of the book), and ending page. The introductory page consists of a title page, table of contents, list of figures, list of tables, introduction, foreword and discourse. The nas page (body) contains detailed descriptions of each chapter, sub-chapters accompanied by examples, practice questions. At the end of each chapter, a summary is given to make it easier for readers to remember important things.



The draft SLP and textbooks that have been constructed are referred to as initial prototypes or prototype I, then they are theoretically validated by 3 validators to obtain prototype II. Expert validation involves experts: 1) content (V1), media (V2), and 2) practitioners (V3) ^{22; 23;18}. Practitioners from senior lecturers or colleagues in the engineering field.

The results of the assessment by each validator show that: the average percentage score of the validator's assessment of the SLP reached 87.5%, categorized as very valid. This means that the SLP developed is in accordance with the SLP components contained in Minister of Education and Culture Regulation Number 3 of 2020. The SLP design has implemented aspects of abilities recommended in Minister of Education and Culture Regulation Number 3 of 2020. In particular, the SLP design has been prepared systematically and uses innovative learning models and effective. The learning methods are very varied and focused on student activities or student active learning. However, the conclusion of the three validators is that the SLP design needs to be revised slightly, by adding learning models that are appropriate to the application of industry 4.0, such as problem-based learning, project-based learning, blended learning, collaborative learning, cooperative learning, or other learning methods, which can more effectively facilitate improving the quality of graduate learning outcomes. It is recommended that the assessment weighting be more varied according to the level of difficulty of the material. The formulation of CLO and Sub-CLO needs to pay more attention to the use of action verbs, because this is closely related to the graduate's qualification level, measurement and GLO achievement.

The average percentage of validator assessment scores for textbooks reached 84.6%, which is in the valid category. This means that the material construct in the textbook is in accordance with the level of breadth and depth of material contained in the content standards in NHES. This textbook is suitable for use as accompanying teaching material for student learning in implementing ICL. Meanwhile, validator input for the textbook includes: practice questions at the end of each chapter of the textbook are more focused on training high-level thinking, communication and problem solving skills and indicators of learning outcomes that have been determined.

Taking into account the suggestions provided by each validator, prototype I was revised to become prototype II, then a practicality test was carried out. Practicality based on lecturer and student responses. Testing the practicality of SLP is based on learning implementation and practicality. Meanwhile, testing the practicality of textbooks based on lecturer and student responses consists of aspects: attractiveness, ease of use, usefulness and relevance. Meanwhile, responses from students consisted of aspects: attractiveness, ease of use, and product usefulness. Practicality tests on students are carried out through small group tests, large groups and limited trials and are carried out at the D3 Mechanical Engineering Study Program at the BSP. A recapitulation of the practicality test results from each respondent is presented in tables below.

Table 1. Recapitulation of RPS Practicality results in terms of Learning Implementation

Learning	Percentage Observation Rating		Average Total (%)	Category
	P1	P2		
Learning 1	79	84	81.5	Practical
Learning 2	80	85	82.5	Practical
Learning 3	84	86	85	Practical
Level of practicality of SLP			83	Practical

Table 2. Recapitulation of SLP Practicality results in terms of Lecturer Responses

N0	Rated aspect	User					Average
		P1	P2	P3	P4	P5	
Attractiveness	RPS Format Accuracy	5	5	5	5	5	5
	The language used in the SLP is in accordance with the Improved Spelling	4	5	4	5	4	4.4
	The presentation of sentences is easy for lecturers to understand	4	5	4	4	4	4.2



Ease of use	Clarity of the language used so that it does not give rise to multiple interpretations	4	4	4	4	4	4
	Average score obtained	4.25	4.75	4.25	4.5	4.25	4.4
	Sub Average (%)	85	95	85	90	85	88
	The instructions in the SLP make it easier for lecturers to convey the aims and objectives of various activities to students	4	5	4	5	4	4.4
	SLP makes it easier for lecturers to teach material to students.	5	4	4	4	4	4.2
	The steps in the RPS are according to the available time allocation	4	4	4	4	4	4
	The learning methods used are in accordance with the material presented	4	4	5	4	4	4.2
	Average score obtained	4.25	4.25	4.25	4.25	4	4.2
	Sub Average (%)	85	85	85	85	80	84
	SLP makes it easier for lecturers to attract students' interest in learning	4	5	4	4	4	4.2
Usefulness	This SLP can be used as a source of data for assessing the learning process	5	4	4	5	5	4.6
	Average score obtained	4.5	4.5	4	4.5	4.5	4.4
	Sub Average (%)	90	90	80	90	90	88
	Average percentage: 86.7						
Level of practicality: Very practical							

Information

P1, P2, P3 and P4 teaching lecturers. P5 other users outside the Mechanical Engineering Study Program

Table 3. Recapitulation of Textbook Practicality Results by Lecturers

Aspect	User					Average (%)	Category
	P1	P2	P3	P4	P5		
Ease of use (%)	86.7	80.0	86.7	80.0	86.7	84.0	Practical with minor revisions
Attractiveness (%)	86.7	80.0	80.0	86.7	86.7	84.0	Practical with minor revisions
Benefits (%)	80.0	85.0	80.0	80.0	85.0	82.0	Practical with minor revisions
Relevance (%)	85.0	80.0	80.0	80.0	75.0	80.0	Practical with minor revisions
Average percentage (%)	84.6	81.3	81.7	81.7	83.3	82.5	Practical with minor revisions

Information

P1, P2, P3 and P4 teaching lecturers. P5 other users outside the Mechanical Engineering Study Program.

Table 4. Recapitulation of Textbook Practicality Results by Students

Teaching Materials	Aspects	Testing Group			Average (%)	Category
		K ₁	K ₂	K ₃		
Textbook 1	Ease of Use (%)	83.3	85.6	84.2	84.4	Practical with minor revisions
	Interesting Course (%)	83.3	73.3	80.5	80.5	Practical with minor revisions
	Benefit (%)	80.0	85.2	86.8	84.0	Practical with minor revisions
	Average (%)	81.9	82.8	85.4	83.4	Practical with minor revisions



Textbook 2	Ease of Use (%)	83.3	85.6	84.2	84.4	Practical with minor revisions
	Interesting Course (%)	80.6	75.6	86.1	80.7	Practical with minor revisions
	Benefit (%)	79.1	83.6	85.3	82.7	Practical with minor revisions
	Average (%)	81.4	82.3	84.0	82.9	Practical with minor revisions

Information: K1 = small group; 2 = large group; K3 = Limited test

The practicality test of the SLP was carried out by 5 potential users, namely course lecturers and other potential users outside the BSP mechanical engineering study program. The aspect of testing the practicality of SLP by lecturers includes two aspects, namely the implementation of learning and aspects: ease of use, attractiveness, and usefulness. The average practicality of SLP in terms of learning implementation achievements reached 73.4% in the practical category. Meanwhile, the average practicality of SLP in terms of lecturer responses reached 86.7%, categorized as very practical. In terms of aspects of convenience, attractiveness and benefits, each reached: 84.0% categorized as practical, 88.0% categorized as very practical, and 88.0% categorized as very practical. The practicality level of the SLP reached 84.9% in the practical category.

The practicality test for textbooks has an average percentage of 82.7% in the practical category. Practicality by lecturers reached 82.5% in the practical category and by students the average reached 82.9% in the practical category. The SLP and textbooks developed are practically used as learning tools for the ICL-oriented curriculum, but minor revisions are still needed, so that the material studied by students becomes more meaningful and systematic. The implication is that after revisions have been made, prototype II can proceed to effectiveness and dissemination testing at the next development stage.

CONCLUSION

The validity of the SLP and textbooks reached 84.9% and 82.7%, both categorized as valid. The level of practicality of the SLP and Textbooks reached 84.9% and 82.7%, both of which were categorized as practical, with several minor revisions. Both are feasible and practical to use in implementing the ICL curriculum in the D3 Mechanical Engineering study program at the BSP, however minor revisions need to be made. The implication is that after revisions have been made, prototype II can be continued to the next development stage, namely effectiveness testing.

ACKNOWLEDGEMENT

We would like to thank the Ministry of Education and Culture for financial support through the BSP Research and Community Service Center according to contract number 1731/PL8/AL.04/2023, dated 10 April 2023, so that this research can be carried out. We also thank: all validators, practitioners, lecturers, all BSP Mechanical Engineering D3 students, reviewers and the editorial team for their cooperation so that this article can be published.

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Cite this Article: I Ketut Darma, I Wayan Suastawa, I Putu Darmawa (2024). Validity and Practicality of Learning Tool for Independent Campus Learning (ICL) Study Program Diploma 3 (D3) Mechanical Engineering Bali State Polytechnic (BSP). International Journal of Current Science Research and Review, 7(1), 473-480