

# Evaluation of Learning Programs in Indonesian Naval Technology College with the Context, Input, Process, and Product (CIPP) Model

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## Abstract

Education system must always be improved and evaluated in order to increase the quality of the education system itself. In evaluating and improving the quality of the education system, it must be measured and quantified so that it can be known the extent of the effectiveness and efficiency of the efforts that have been made, this is to improve how the education system can be figured out. In measuring the success of a work program, We can use the CIPP evaluation model approach. CIPP is an acronym for Context, Input, Process and Product. CIPP is an evaluation model that requires the evaluation of context, input, process and product in judging a programme's value. CIPP is a decision-focused approach to evaluation and emphasises the systematic provision of information for programme management and operation. Educational system development is a never-ending process, including planning, implementation and evaluation which in this study will be focused on the field of curriculum in the STTAL (Sekolah Tinggi Teknologi Angkatan Laut/Indonesian Naval Technology College). Evaluation of the curriculum itself is an integrated part that is absolute because it is directly related to each component in the instructional system throughout all stages of design, so that it has meaningful value to improve the quality of learning.

**Keywords:** CIPP, STTAL, Curriculum, Evaluation, Education System, Improvement

## 1. INTRODUCTION

Indonesian Naval Technology College (STTAL), has vision to produce excellent electrical engineer and become a center for the development of reliable defense science and technology in maritime, defence, and maritime affairs at the regional level in realizing the independence of the main weapons system tools, and has three main tasks as education, research and development, and community service (Tri Dharma College) as well as fostering its entire range of strengths including its organic supporting facilities and infrastructure to support the task of the Indonesian Navy. STTAL which was founded in 1966, is now 53 years old and has produced 1,466 graduates.

Education system must always be improved and evaluated in order to increase the output of the education system itself. In evaluating and improving the quality of the education system, it must be measured and quantified so that it can be known the extent of the effectiveness and efficiency of the efforts that have been made to improve the education system can be figured out.

In measuring the success of a work program, one can use the CIPP evaluation model approach. The CIPP evaluation model in its implementation is more widely used by evaluators, because this evaluation model is more comprehensive than other evaluation models. This evaluation model was developed by Daniel Stufflebeam, et al (1967) at Ohio State University. This evaluation model was initially used to evaluate the ESEA (the Elementary and Secondary Education Act). The CIPP model is oriented towards a decision (a decision oriented evaluation approach structured). The aim is to help administrators (principals and teachers) in making decisions. According to Stufflebeam, (1993: 118), "the CIPP approach is based on not to prove but to improve." The concept is offered by Stufflebeam with the view that the important goals of evaluation is not proof, but to improve.[1]

Curriculum evaluation is absolutely necessary in periodic quality improvement. The curriculum evaluation activities are carried out in the form of a process of applying scientific procedures to determine the value or effectiveness of the ongoing curriculum so that it becomes a consideration in making decisions about curriculum programs that will be applied later. Curriculum evaluation aims to measure and compare the success of the curriculum as well as knowing the potential success of the curriculum, monitoring and overseeing the implementation of the program, identifying problems that arise, determining the usefulness of the curriculum, the possibility of further development, measuring the impact of the curriculum on the competency level of college students.

## 2. LITERATURE REVIEW

### 2.1. Curriculum Development

The curriculum is a program, facilities and activities of an educational or training institution to realize the vision and mission of the institution. The curriculum is a tool to achieve dynamic educational goals. The curriculum must always be developed and refined so that it is in accordance with science and technology and the people who are developing. The curriculum is a circle of instruction or a teaching circle where the lecturer and college student are involved in it.

The curriculum is: (1) a set of plans and arrangements regarding the learning content and (2) learning material, and (3) the methods used to guide teaching and learning activities. The curriculum is one of the decisive aspects in the success of education, because it plays a strategic role in achieving

institutional goals on the relevant educational institutions and eventually will make the title of institution as a good institution.

College education curriculum and assessment of college student learning outcomes refer to the curriculum structure based on learning objectives, that is : 1. Learning to know; 2. Learning to do; 3. Learning to live together; 4. Learning to be. Based on the thinking about the learning objectives, the courses in the college curriculum are divided into five groups, that is : 1. Personality Development Courses; 2. Scientific and Skills Courses; 3. Skills and Work Courses; 4. Behavior Courses Work and Course in Community Life.

## 2.2. CIPP Evaluation Model

In the science of evaluation, there are many evaluation models that are used to evaluate a learning or program. The evaluation model is categorized according to the object and the purpose of the evaluation. One of evaluation model that is used in this research is the CIPP evaluation model. This CIPP evaluation model is an evaluation model that is widely known and applied by evaluators. The CIPP model was developed by Stufflebeam (1974). This model stands for the initial letters of four words: Context evaluation, Input evaluation, Process evaluation, Product evaluation (evaluation of results).

A lecturer can be called a professional lecturer if he has four lecturer competencies, that is: pedagogic competence, professional competence, personality competence, and social competence. Lecturer competency in carrying out evaluation of processes and learning outcomes is part of pedagogical competence so teachers must be able to carry out evaluations. The scope of evaluation in the field of education in general is an evaluation of the learning program, the learning process, and student learning outcomes.



**Figure 1.** Context, Input, Process, Product (CIPP) Evaluation Model

Research on the learning process is very important. The benefit of it is that the lecturer will know the factors of college students difficulties, then making the alternatives on how to overcome these difficulties. Besides that, research on the learning process is also beneficial for the college students themselves. Students will be able to enhance their learning process and finally enhance their outcomes. Examining the learning process of students is not an easy job. This requires time, energy, thought and experience. The lecturer can use a method to assess the

learning process by paying attention to the principles of context, vocalization, socialization, individualization, and sequence of the learning process.

Context, Inputs, Process, and Product or known as CIPP evaluation assist a decision-maker to response to four basic questions which are::

- What should we do?

The answer to this question are data collecting, analyzing, and assessment to determine goals, priorities and objectives of a program, for example; an analysis of the existing objectives of the literacy program involved context evaluation of a literacy program, test scores, staff concerns, policies and plans and community concerns, perceptions or attitudes and needs.[2]

- How should we do it?

To answer this question, steps and resources need to meet the new goals and objectives, it might include successful external programs identification and materials as well as information's gathering.[2]

- Are we doing it as planned?

The answer to this question involves the decision-makers' sharing of information(s) about how well the program is being implemented. Through a program monitoring, decision-makers learn how well the program goes with plans and guidelines, arising conflicts, staff support and morale, strengths and weaknesses of materials, delivery and budgeting problems.[1]

- Did the programme work?

This question will be answer by measuring the actual outcomes and comparing them to the anticipated outcomes. It is better for decision-makers to evaluate and decide if the program should be continued, modified, or dropped altogether..[2]

## 2.3. Education Management

According to James A.F. Stoner (1996), the definition of management itself is a process of planning, organizing, leadership, and controlling in achieving a goal by utilizing all available resources. So it can be interpreted as the skill of a manager in achieving goals by utilizing resources and in achieving these goals through the activities of others.

The management process focuses more on the administration through the process of planning, organizing, and controlling which is the main fact to achieve the goals of an organization. Managerial activities take place in business organizations, government, education, social and other organizations by focusing on the human element and physical resources in an integrated manner in the process of achieving the stated objectives.

Education in general has a definition, namely an effort to improve the skills and general knowledge of students. Education is a basic requirement of every human being in developing himself. According to Edwin B. Flippo (2002), education is related to adding general knowledge and understanding of the whole environment, which is needed for the formation and development of one's personality.

Education is a process where a person acquires knowledge and develops the skills he has, and shapes attitudes and characters. Education is the process of developing students to achieve goals according to the type and function of education that they follow. Viewed from a social point of view, education makes one able to act more effectively from the experience gained during education, and if viewed from an individual perspective, students are expected to later obtain a more satisfying and productive, in welcoming the development of quality of life in future.

Management of education, according to Made Pidarta (2013), is an activity that combines educational resources in planning, organizing, directing and supervising so that they are centralized in the process of achievement that has been planned and determined. The components of education management include teaching (instructional), staff, college students, facilities, evaluation, teaching and learning process, funding and enforcement of existing regulations.

Education management is an effort to improve the quality of the education system, based on research carried out by Balitbangdikbud (research, development, education and culture institution, 1991) that education management is one of the crucial factors in improving the quality of education. Education management will directly influence and determine the effectiveness of the curriculum, infrastructure, time and teaching and learning process.

#### 2.4. Excellence in Science and Technology

Excellence in Science and Technology nowadays is an important key in facing future challenges. The need for science and technology at this time has become an absolute thing. Literal to important science is mastered by each college student to understand the environment in which better life, towards health, economics, and basic problems that have certainly arisen in communities that depend on modern technology.

Science literacy is related to college students capacity to understand the information process of the occurrence of science and facts that exist in everyday life and the application in current life and its development in the future, as well as the ability to engineer and apply in future employment. In addition, the college students gave more value to the surrounding community.

Technological progress is something that cannot be avoided in human life, and along with technological advances, of course, it is still balanced with science. The development of science and technology has an exponential characteristic, which is getting faster and faster, because the results of a stage are the basis and the reason for the next stage. Innovations created and developed are basically motivated to provide benefits for the lives of

human beings, so that they can be enjoyed and used as new ways of doing their activities.

Mastery of the latest technological advances is always compared to prestige and indicators of the progress of the adherents' countries. A country can be called advanced when they have technological advances in their country (high technology), on the contrary countries that can only be the users of technology products will be left behind in that prestige. Countries that have succeeded in mastering the technology eventually become powerful, prosperous, and prestigious countries by relying on the technology sector. Therefore all countries have fundamentally changed the ways to develop and transform technology into the production sector that produces high-tech goods and services. In brief, the advances in technology today have truly been recognized and felt to provide a lot of convenience and comfort for the life of mankind.

### 3. RESULT AND DISCUSSION

This research carried out is focused on the evaluation of learning process especially the curriculum of STTAL. The results obtained from the data analysis process through the CIPP evaluation model include four stages, namely context, input, process, product in learning process / curriculum of STTAL as follows:

#### 3.1. Context Evaluation

Context evaluation helps plan decisions, formulate program objectives and determine or identify the needs to be achieved by a program. Based on the data above, context evaluation is a learning curriculum planning from STTAL that uses the curriculum system of the Directorate General of Higher Education. In preparing the curriculum, the syllabus is compiled and evaluated every year.

The purpose of the context evaluation is to determine the organizational context, identify program goals & assess their needs, identify opportunities to meet their needs, diagnose problems that underlie those needs, and assess whether the objectives set are responsive to needs that have been rated it. The implementation is carried out by using system analysis methods, surveys, document analysis, hearings, interviews, diagnostic tests, and Delphi techniques. The main purpose of context evaluation is to find out the strengths and weaknesses that have been taken. By knowing these strengths and weaknesses, evaluators will be able to provide the direction of improvement needed. Context evaluation is an attempt to describe and specify the environment of unfulfilled needs, population and sample served, and project objectives. To improve the curriculum implemented by evaluating any needs that have not been fulfilled by the program, what development goals have not been achieved by the program, what development goals can help develop the community, which goals are most easily achieved.

The curriculum at STTAL is regularly observed, then adjustments are made to the needs of graduate users and the ability of college students to understand it, the provision that there are discrepancies with the needs of graduate users and not

optimum with students' abilities will be input when adjusting the next curriculum.

Curriculum improvement has been carried out because of the need for technological advances that will be manned by STTAL graduates and the trend of the globalization era, it is necessary to improve the content of the curriculum. The realization of quality graduates is the responsibility of education, especially in developing a quality curriculum

The determination to succeed in implementing curriculum improvement in accordance with the policies outlined was responded by top management, that is by gathering people involved, including the directors so that there was commitment, the same agreement had to realize the curriculum used, so that graduates were produced professionally. The management level of the strategy is carried out through workshops, training and discussion groups.

### 3.2. Input evaluation

Input evaluation helps regulate decisions in providing information to determine how to use resources to achieve program objectives properly. The purpose of input evaluation is to identify & assessability system, alternative strategy program, design procedure for apply strategy, budget & scheduleprogram. The method is inventory and analyze human resource and resource material, strategy solution, feasibility & finance; and other methods like a study library, see the program directly, form a team reviewer, use the test such as: does the curriculum have a clear impact on student development, how many students happily accept the curriculum, how do students react to the lesson, how high is the grade of students after receiving the content of curriculum.

The entire management team believes that educational resources play an important role for the success of an educational program starting with lecturers, students, mentors, education staff, infrastructure including libraries, laboratories and educational calendars and also curriculum and various necessary procedures or rules such as cooperation with other institutions. The educational resources such as facilities and infrastructure, adequate class needs both in quantity and capacity, engineering laboratories and consumable laboratory materials, language laboratories and supporting computers and sufficient budget for implementing the daily learning process.

Achievement criteria based on material, time, method, media, evaluation, and syllabus. the implementation of the evaluation carried out on the implementation of the curriculum content is a theoretical examination which is an ordinary written test such as mid test and final examination, then tested in the laboratory by following the procedures of the provisions in the existing laboratory. All tests are carried out comprehensively starting from the assessment until the documentation.

### 3.3. Process Evaluation

Process evaluation includes a collection of research data that has been determined and applied in the practice of implementing the program. Process evaluation emphasizes

three objectives: "1) to provide information for programmed decisions, 2), to predict in procedural design or implementation during implementation stage and 3) to maintain a record of the procedure as it occurs". Process evaluation is used to detect or predict the design procedure or design implementation during the implementation phase, providing information for program decisions and as a record or archival procedure that has occurred. Process evaluation includes a collection of assessment data that has been determined and applied in the practice of implementing the program. Basically the process evaluation is to find out to what extent the plan has been implemented and what components need to be improved, is the implementation of the program in accordance with the schedule, will the staff involved in the implementation of the program be responsible for handling activities during the program and the possibility of continuing, are the facilities and infrastructure provided optimally utilized, what obstacles are encountered during program implementation and the possibility if the program continues.

The learning process must be supported by a good curriculum, contain of goals and strategies, and varied learning methods. Students are required to be active which is different from the conservative method which tends to involve students passively. Learning methods that use the lecture method, accompanied by demonstrations that will move students by using the student center learning method and equipped with comprehensive practicum. The method used is not only discussion but added with independent assignments, looking for literature to the library, independent learning in the laboratory, and tutorials with lecturers.

Assessment is done through observation, seeing college students practice the material that has been taught, such as to what extent is the ability of college students to practice, be competent or incompetent. Practice in the laboratory is the underlying provision for field practice. For laboratory practice exams, which then are put together between theory and practice, then enter the field and final examination.

College students who are not competent will continue to be tested until competent. Examination activities to determine competency are carried out using time effectively by taking special time to ensure that a student is competent in a subject area. To achieve these goals, the right learning strategy is needed to realize these goals, and the impact is that it takes extra energy and time, especially for lab work that is required quite long time. The practice includes activities in groups and individuals. where the assessment is individually.

### 3.3. Product evaluation

Product evaluation is an assessment carried out to measure success in achieving predetermined goals. Product evaluation are "to allow the project director (or teacher) to make a decision of the program". From process evaluation, it is hoped that it can help project leaders or teachers to make decisions relating to continuation, end, or modification of the program. product evaluation to help make further decisions, both regarding the results that have been achieved and what was done after the program was running. Teaching and learning activities are

influenced by certain factors that can make learning is successfully or not.

It can be concluded that product evaluation is an assessment carried out in order to see the achievement/success of a program in achieving predetermined goals. In this evaluation phase an evaluator can determine or provide recommendations to whether the program can be continued, developed/ modified, or even stopped, have the goals set been achieved, what statements might be formulated related to the details of the process with the achievement of objectives, in what ways can various student needs be met during the process, what impact did students have in a relatively long time with this supplementary food program.

Graduate user satisfaction determines the value of the success of product evaluation, by conducting interviews and questionnaires on graduate users from STTAL, and STTAL graduates feel very satisfied and positively look at the curriculum development that has been implemented at STTAL

The CIPP evaluation model is more comprehensive among the other evaluation models, because the object of evaluation is not only the results but also includes the context, input, process, and results. In addition to these advantages, on the one hand this evaluation model also has limitations, including the application of this model in the field of learning programs in the class that has a low level of implementation if there is no modification

#### 4. CONCLUSION

The CIPP evaluation model is a more complete evaluation model because it includes formative and summative evaluations. Evaluating contexts, inputs, processes and products can be practiced in the framework of decision making (formative role) and presentation of information about accountability (summative role).

However, the CIPP model cannot be separated from several weaknesses including:

- (1) because it focuses on information needed by decision makers and staff, evaluators may be unresponsive to significant problems or issues;
- (2) the evaluation results are aimed at top management leaders, so that this model can be unfair and undemocratic; and
- (3) the CIPP model is complex and requires a lot of funds, time and other resources.

Decisions that can be taken are based on the results of an evaluation program, including: Stopping the program, because the program is seen to have no benefit or cannot be implemented as expected; Revise the program, because there are parts that are not in line with expectations; Continuing the program, because the implementation of the program shows that everything has gone ahead with expectations; Disseminate the program, because the program has succeeded well, it is very good if it is implemented again at another time. Graduate user satisfaction determines the value of the success of product evaluation, by conducting interviews and questionnaires on graduate users from STTAL, and STTAL graduates feel very

satisfied and positively look at the curriculum development that has been implemented at STTAL

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