CIPP evaluation learning development model in vocational laboratories based on ISO 9001: 2008

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Abstract. The purpose of this study is to evaluate the learning process in vocational high school laboratory certified ISO 9001: 2008 using CIPP (Context Input Process Product) learning model. We conducted the combination of quantitative and qualitative research method in vocational high schools, West Java area. The instruments for collecting data consist of paper test, observations and discussions with the principals, teachers, students, and industrial representatives. The results showed that learning model is very appropriate because of fulfilling ISO requirements, that is, standards for input, process, product, infrastructure, and evaluation. This model can be used as a learning model by teachers in vocational high school laboratories.

1. Introduction
Vocational high school or Sekolah Menengah Kejuruan (SMK) having an ISO certificate: 9001:2008 is a quality school [1-3]. For instance, the state SMK categorized reputed schools in West Java are SMKN 1 Cimahi, SMKN 2 Garut, SMKN 1 Sumedang, and SMKN 4 Bandung. Most of graduates are absorbed in the industry in which they work in the 4.0 industry or other industries, such as in PT INTI, PT Tredio, etc. These schools have contributed to alleviate many graduates who are unemployed in this time. The role of the principal and teachers in learning in the classroom are very significant [4]. Implementing learning Model in SMK laboratory based on ISO: 9001:2008 showed a quality learning process [3]. High quality schools have indicators of availability, namely curriculum documents, tools and practice materials, qualified teachers [5,6]. There is a clear task description of the principal to the deputies, class guardian, teachers, administration, laboratory or practice space, new student acceptance guidelines and good test standards, besides having good cooperation with various industry or business [1].

This model was developed in SMK [7], especially electronics department since 2016, and evaluated using Context Input Process Product (CIPP) assessment [8]. This model was composed by Stufflebeam in 1967. The dimensions of context in the evaluation including curriculum 2013 used in SMK [8], ISO documents (input, process, output standards) with reference to the decision of the Ministry of Education. Input dimensions include an implementation of lesson plan compiled by teachers. Teachers have a certain expertise proved by a teaching certification. Additionally, the students have passed several examination for being a student in such SMK. The process dimension here is the implementation of the learning performed by teachers in the class room or laboratory [9], in which this laboratory should confirm to infrastructure standard [9,10]. The excellent vocational high school features curriculum...
consists of hours of teaching theory and practice [9]. SMKN has theoretical learning space and practice study in the laboratory [5,6]. The product dimensions are related to vocational high school graduates.

The components of learning model in SMK laboratory based ISO: 9001:2008, namely competence, laboratory room, implementation of lesson plan, teachers, students, documents, learning materials, and learning method [5]. So, in this study we will elaborate learning model procedure in SMK Laboratory consisting of teaching and learning process in the laboratory (teacher, student) and toolmen.

2. Methods

The learning model in SMK laboratories based on ISO: 9001: 2008 uses quantitative and qualitative methods or the Mix method [11]. Determination of population and research sample related to the data source. The population in this study was vocational high school on technology and technical expertise in the field of electronics in West Java, which was ISO 9001: 2008 certified. In 2016, research was conducted at SMK Negeri 1 Cimahi. For year II the development of learning models is carried out at State Vocational Schools based on ISO 9001: 2008 in the city of Bandung [12,13].

In the second year it is intended to find out the results of the implementation of ISO-based learning models and develop instruments for the development of models that will be evaluated in year III. In the second year, the application of learning and evaluation models subsequently became the development of ISO-based learning models in vocational schools so that it became a model that could overcome the gap between vocational education and the industrial world and as an effort to prepare graduates to be able to work in the industrial world. In this study determined through the stages of orientation by obtaining information about what is important to be found, reviewing problems, and developing research indicators.

Non-external research instruments were carried out through the distribution of opinion polls and the determination of response scales. The scale used is the Likert scale [8], where the answer option consists of SS = strongly agree, S = agree; KS = Disagree, SKS = very disagree. Data processing is done by processing statistical Products Moment and Cronbach. Furthermore, the internal instrument is the researcher himself. Other forms of instruments used are questionnaire, field notes, recordings, and videos.

This research is naturalistic, evaluative, and is intended as a way to analyze learning quality assurance policies, and find out how much the benefits of ISO in vocational education. The human instruments used are arranged in a team based on the acquisition of roles, perspective values, discipline, strategy, methodology, internal examination, and mutual support. Table 1 illustrate research indicators.

The instrument in the form of a questionnaire was compiled after the research indicators were established. This instrument is distributed to several SMKN teachers who have ISO certificates. In addition to collecting data by polling, observations, interviews and document analysis are also carried out [11].

The research method of the CIPP (Context, Input, Process, Product) [7,10,14], evaluation model uses descriptive analytic methods with a focus on the quality of laboratory learning as shown in Figure 1.

### Table 1. Research indicators.

| No. | Aspects | Components | Indicator |
|-----|---------|------------|-----------|
| 01  | Context | Implementation of cipp assessment components in accordance with the model of learning in SMK laboratory berasis ISO 9001:2008 | Assessment of cipp evaluation model used at ISO 9001:2008 |
|     |         |            | Assessment materials in accordance with the basic Performance-appropriate assessments used |
| 02  | Input   | Student    | 1.performance and learning achievement |
|     |         | Teacher    | 1.teacher competency |
Table 1. Cont.

| 03 Process | Implementation instrument | 1. **Student-evaluated information** |
|-------------|--------------------------|------------------------------------|
| 1.          | Student-evaluated information |
| 2.          | Teacher-evaluated aspects of information |
| 3.          | Information on the graduates’ aspect evaluated |
| 4.          | Students are able to learn theory and practice |
| 5.          | Learning models can be used for proven graduates working in the industry |
| 6.          | Graduates working well in schools and industries |
| 7.          | Teachers work well |
| 4 Product   | The result of cipp assessment of learning model of SMK laboratory based on ISO 9001:2008 s |
| 1.          | Cipp instruments can produce students who are acceptable in the industry |
| 2.          | Cipp instrument can determine which students work in the industry |
| 3.          | Cipp instrument can see the competency of teachers and quality SMK |
| 4.          | Cipp instrument can see good performance and student performance |

**Figure 1.** Collection methods and procedures.

At the data collection stage, it is done through determining the subject matter that will be discussed, starting and opening interviews, conducting interviews, confirming an overview of the results of the interview, writing the results of the interview in the field notes, and identifying the follow-up results of the interviews that have been obtained.

The documents in this study are used to support the credibility of the results of interviews, observations, and polls. In most qualitative research traditions, the phrase personal document is widely used to refer to a first-person narrative produced by an individual who describes his own actions and experiences [11]. The documents used in this study are in the form of writing, drawings, and important notes related to the object of research about the laboratory. The triangulation in this study is intended to test the credibility of the data from the data collection techniques that have been carried out (Figure 2).
3. Results and discussion

After distributing questionnaires to a number of teachers at SMK 1 Cimahi, SMK 4 Bandung, SMK 1 Sumedang, SMKN2 Garut, PT. Tredio, and PT INTI, data processing results obtained as shown in table 2. As shown in table 2 that the learning model in ISO 9001: 2008-based SMK laboratories is valid because 0.371 to 0.507 is greater than v count 0.301. This learning model is expected to be used for teachers as an alternative to teaching [4,8,9,15,16].

| No | Components | Instrument | V   | Note |
|----|------------|------------|-----|------|
| 01 | Context    | User answers | 0.436 | Valid |
| 02 | Input      | Student achievement and performance | 0.355 | Valid |
|    |            | Teacher competency | 0.359 | Valid |
| 03 | Process    | Instrument implementation | 0.311 | Valid |
|    |            | Teacher, students, and industry response | 0.507 | Valid |
| 04 | Product    | User response | 0.373 | Valid |

Table 3. Reliability test.

| No | Components     | Cronbach’s |
|----|----------------|------------|
| 01 | Context        | 0.86       |
| 02 | Input          | 0.96       |
| 03 | Process        | 0.65       |

As shown in table 3, the learning model in ISO 9001: 2008-based SMK laboratories is reliable because table 3 shows 0.86, which means high and very high. This model when used with different times is expected to show the same results.

Based on a qualitative analysis of researchers who made observations, observations and interviews with technicians in their industry said that graduates can work in industry [4,5,11]. But they still need guidance, they note that the behavior desired by the industry is honesty, discipline, communication, respect for colleagues, maintain cleanliness, and work together. The problem of learning material must be given as a foundation of knowledge while its depth can be developed in industry. Basic equipment must also be had in schools such as measuring devices, voltage, power, signal, frequency and time [10].

The evaluation results with the CIPP model show that this model is valid and reliable table 2 and 3. That means that what has been developed since 2016 by ISO certified SMKs can provide guarantees to graduates. After they take lessons in school, they have the competencies needed in the industry. This was revealed from the results of interviews with school principals, teachers, managers, and industrial technicians and in line with Gilbert H and Hunt EA opinion [9], that schools that have ISO standards and conduct ISO-based learning can work in industry [1] and [9]. Even with notes they need short training at work.

In vocational schools, this practice is important in laboratories [2,17]. Colhoun further suggested that the vocational education system should focus on practice and cooperation with industry. Industrial
procedures and work methods need to be socialized at school so that children are accustomed to working [5,18].

4. Conclusion
Based on the results of quantitative research on a number of SMKs in Cimahi, Sumedang, Garut that this model has validity, reliability values for context, input, process and product dimensions, so this model can be an alternative model in teaching.

Most teachers state that this learning model has been used in schools because it has ISO standards. Likewise, the industry's opinion that this model can be applied in schools. There is an industry record regarding basic material that needs to be taught at school and the need to hone soft skills for success at work.

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