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Research Article

Development of an Evaluation Model for Industrial Internship Programs

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ABSTRACT

Evaluation of industrial internship programs is crucial to assess their effectiveness and ensure alignment with the needs of the workforce. This study arises from several pressing issues, including the lack of competency alignment between vocational education and industry, significant gaps in the design and implementation of apprenticeship programs, and the reliance on conventional evaluation methods that lack technological integration. The research aims to address these challenges by developing a robust evaluation model tailored for industrial apprenticeship programs in Indonesia and Malaysia. Drawing upon established frameworks such as the CIPP model, Countenance Model, and Kirkpatrick evaluation model, this study incorporates innovative elements, including an adaptive, technology-driven evaluation system designed to enhance assessment accuracy and relevance. The novelty of this research lies in its focus on creating a link-and-match ecosystem between vocational education and industry, leveraging advanced evaluation tools to provide actionable insights for improving program quality and policy decisions. Using interviews, questionnaires, and field observations, data were collected from a diverse group of vocational university students, lecturers, and industry representatives. The findings not only validate the urgent need for an enhanced evaluation model but also demonstrate its potential to elevate the preparedness of graduates, equipping them with the skills and competencies required to succeed in the job market or as entrepreneurs. The final deliverables include a comprehensive evaluation framework, a technology-based assessment application, and a handbook to support stakeholders in adopting and implementing the model.

Keywords: Evaluation, industrial internship, CIPP, Kirkpatrick, vocational education.

INTRODUCTION

Vocational education graduates must be equipped with knowledge, hard skills and soft skills. To be able to provide adequate provisions to students, one of the efforts is through an industrial internship program. One of the government policies through the Directorate General of Vocational Education is industrial internship [1]. Industrial internships are an effort to provide experience, knowledge and real work skills regarding the production process in the business and industrial world that are needed by prospective graduates [2-3]. The designed industrial internship program must also link and match between vocational education and industry [1]; [4-7].

To improve the quality of vocational education, the government and educational institutions and resources must be able to work together, so one of the efforts is through program evaluation [8-11]. The results of the evaluation are in the form of information that will be used to consider and make policy decisions [12-13]. To produce an effective evaluation, it is necessary to develop an evaluation program by comparing previous existing research.

Vocational education graduates must be equipped with a combination of knowledge, hard skills, and soft skills to meet the demands of the workforce. One of the strategic efforts to achieve this is through industrial internship programs. As mandated by the Directorate General of Vocational Education, industrial internships aim to provide students with real-world experience, practical knowledge, and work skills aligned with the production processes in business and industry sectors. However, despite its critical role, there remain significant challenges in ensuring the effectiveness of such programs, particularly in Indonesia.

The urgency of this research stems from the persistent gaps between vocational education and industry needs. Many industrial internship programs are not yet effectively designed to align with industry standards, leading to a lack of competency in graduates. Furthermore, the existing evaluation instruments are often outdated, lacking precision and relevance, and rely heavily on conventional methods without incorporating modern technological advancements. These issues hinder the ability of education institutions to provide meaningful feedback and actionable improvements to their internship programs.

Addressing these gaps is essential not only for enhancing the quality of vocational education but also for fostering a stronger link-and-match framework between education providers and industry stakeholders. This research offers a solution by developing an evaluation model for industrial apprenticeship programs that integrates advanced technological tools and established evaluation frameworks such as the CIPP model, the Countenance Model, and the Kirkpatrick evaluation model. By doing so, the study aims to improve the overall quality and impact of industrial internships, ultimately preparing graduates to excel in the workforce or entrepreneurial ventures. The urgency to act is further heightened by the global shift towards technology-driven education and industry 4.0 paradigms. Without effective evaluation tools and models, vocational education in Indonesia risks falling behind international standards, thereby compromising the employability and competitiveness of its graduates. This research not only addresses a critical need but also provides a pathway for sustainable improvements in vocational education through evidence-based evaluation models.

Problems that occur require the world of workhave competence, meanwhile the quality of graduates is not good [14-15]. And not link and match [16]. Other problems evaluation of industrial internship programs that have not been effective in conducting assessments, as well as instruments that are not yet appropriate, and program evaluations are conventional in nature and there is no touch of technology. Meanwhile, program evaluation is required to be technology-based [17-18].

From these problems, an evaluation of the internship program was carried out. By holding an evaluation of the internship program, it will produce graduates who are truly ready and able to compete in seeking job opportunities both as entrepreneurs and as employees in a company[19-210].Therefore, in this case, the evaluation program must produce solutions and improvements in its application for the future. So the researchers offered to develop an evaluation model for industrial internship programs.

Novelty of this research by developing the previous evaluation model, namely the researcher combined evaluation research that had previously existed, from the CIPP model [22-23]; and Conuntence Model [24-25], as well as the Kirkpatrick evaluation model [26-28]. In addition, it contains the technological concept of a computer-based adaptive test [29-30].Contains evaluation indicators such as aspects of goals, achievements, policies, cooperation, competencies, outcomes and others.

This research specification is in the form of developing an evaluation model for industrial internship programs in Indonesia and Malaysia,which involves the world of vocational education, the industrial world for internships in a work environment that is link and match, and is based on an expert system. The products to be produced are in the form of an evaluation model for industrial internship programs, and an internship evaluation model handbook to support internship programs and copyrights.

Purpose of this Researchto develop an evaluation model for industrial internship programs in Indonesia and Malaysia, adopting previous research from the CIPP model, the Content Model, the Kirkpatrick evaluation model, containing elements of online-based evaluation technology.

METHOD

This research method uses the Borg and Gall development model. The reason is because it can develop an evaluation model. The stages of this borg and gall research are 10 steps. However, researchers limit it to 4 stages that are relevant to research and appropriate to answer research objectives.

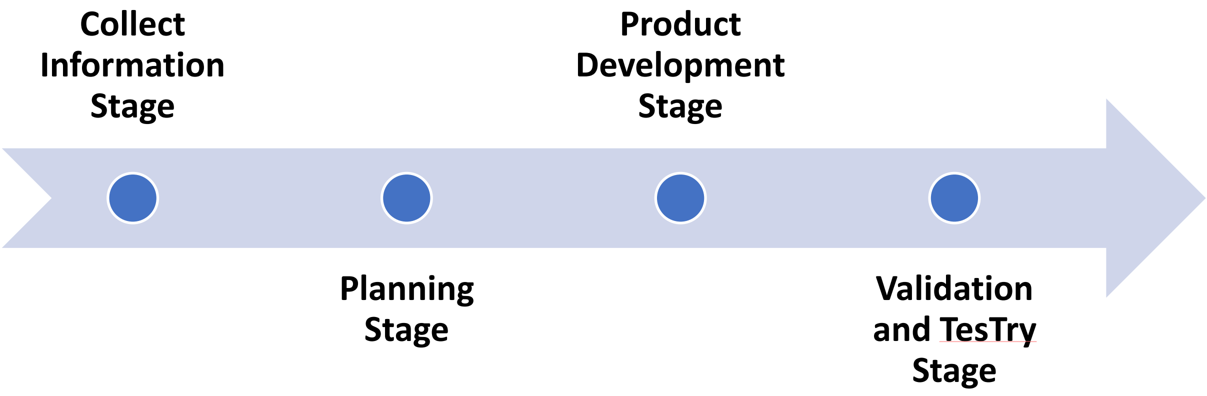

Figure 1: Stages of adopted Borg and gall research [52].

Here's the explanation:

1) Information gathering stages include data collection, conducting literature studies, and analyzing needs.
2) The planning stage starts with model design, rational concept models, product design.
3) The product development stage starts with product development, making products, conducting FGDs, product revisions.
4) The validation and trial phase, starting with product validation, is tested in a limited way to small groups to find out practicality, field testing to large groups is to test the effectiveness of the product.

The sample selection was through cluster random sampling of students at vocational higher education institutions in Indonesia, especially in the western region of Indonesia and at vocational higher education institutions in Malaysia. Data collection tools included interview guides, observation sheets, and questionnaires. Descriptive and statistical data analysis techniques with factor analysis tests through Structural Equation Model.

RESULTS AND DISCUSSION

In the CIPP model for conducting program management evaluation management [21];[42] CIPP model drawing as follows:

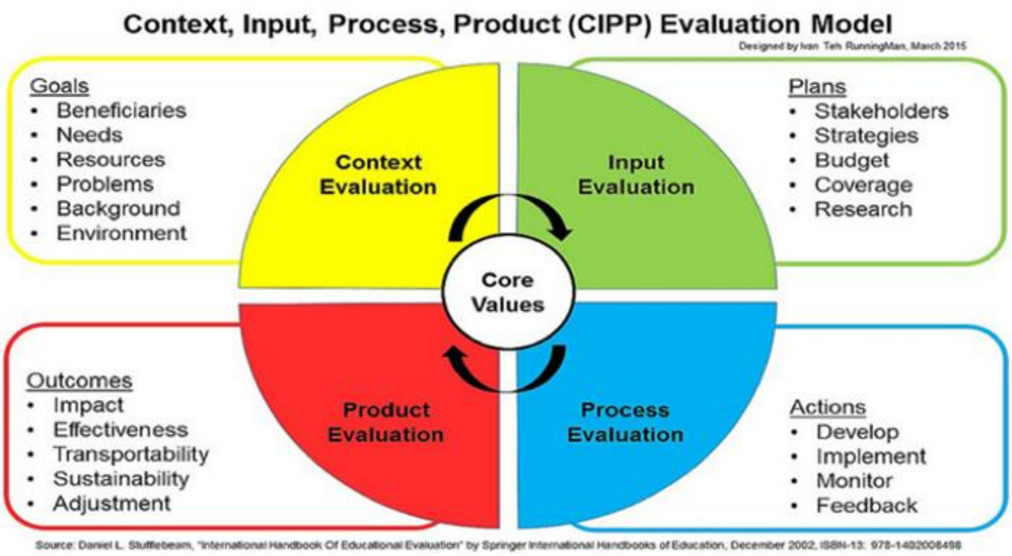

Figure 2: CIPP Evaluation Model

Then the Countenance Model Evaluation emphasizes the description and consideration of the evaluation results [24]; [43] there are three stages in the evaluation, namely; Antecedent (initial context), Transaction (Process), and Result (outcome). Here are the steps:

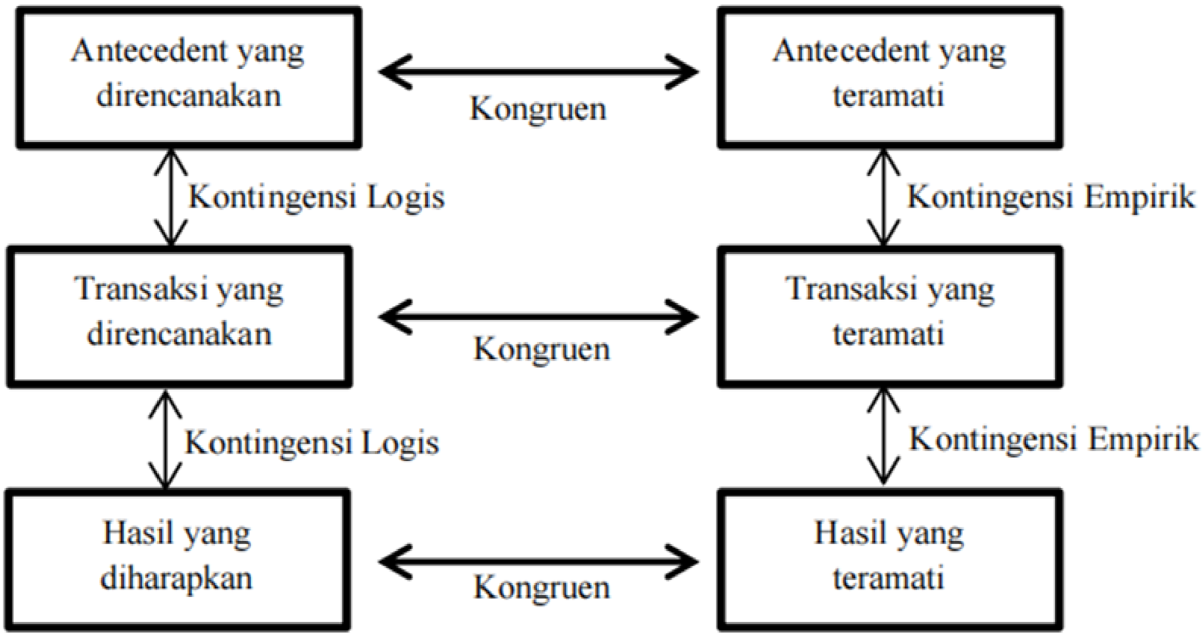

Figure 3: Step Data Processing Model

Kirkpatrick's training program evaluation model includes four evaluation levels, namely: level 1 reaction, level 2 learning, level 3 behavior, and level 4 result [44].

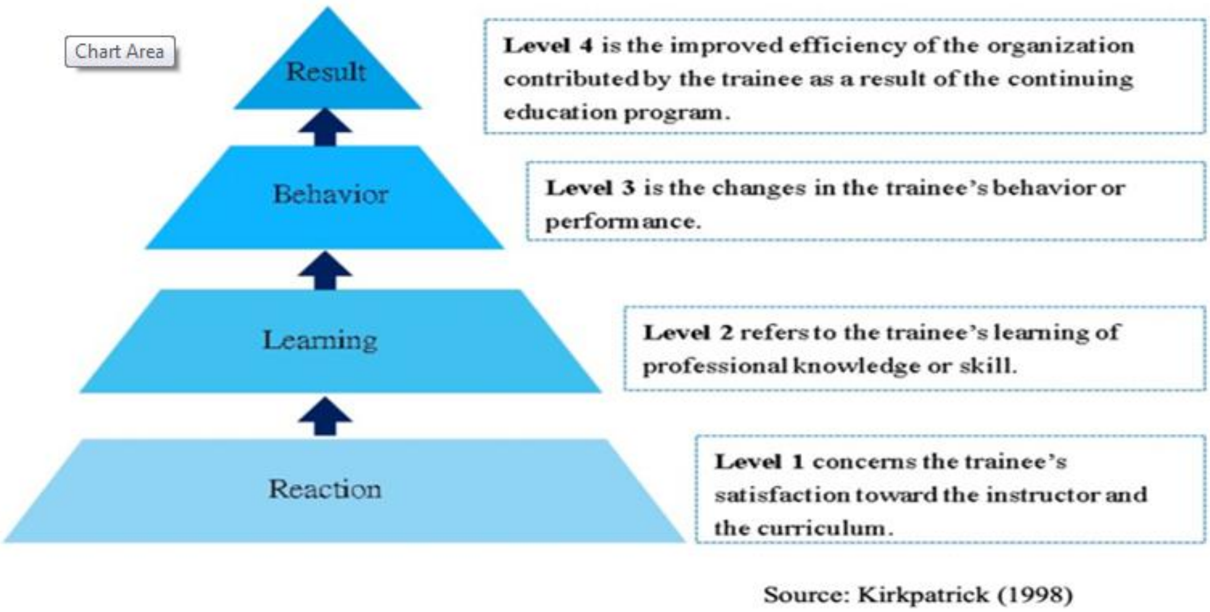

Figure 4: Kirkpatrick's Training Program

The conceptual framework of the developed apprentice program evaluation model

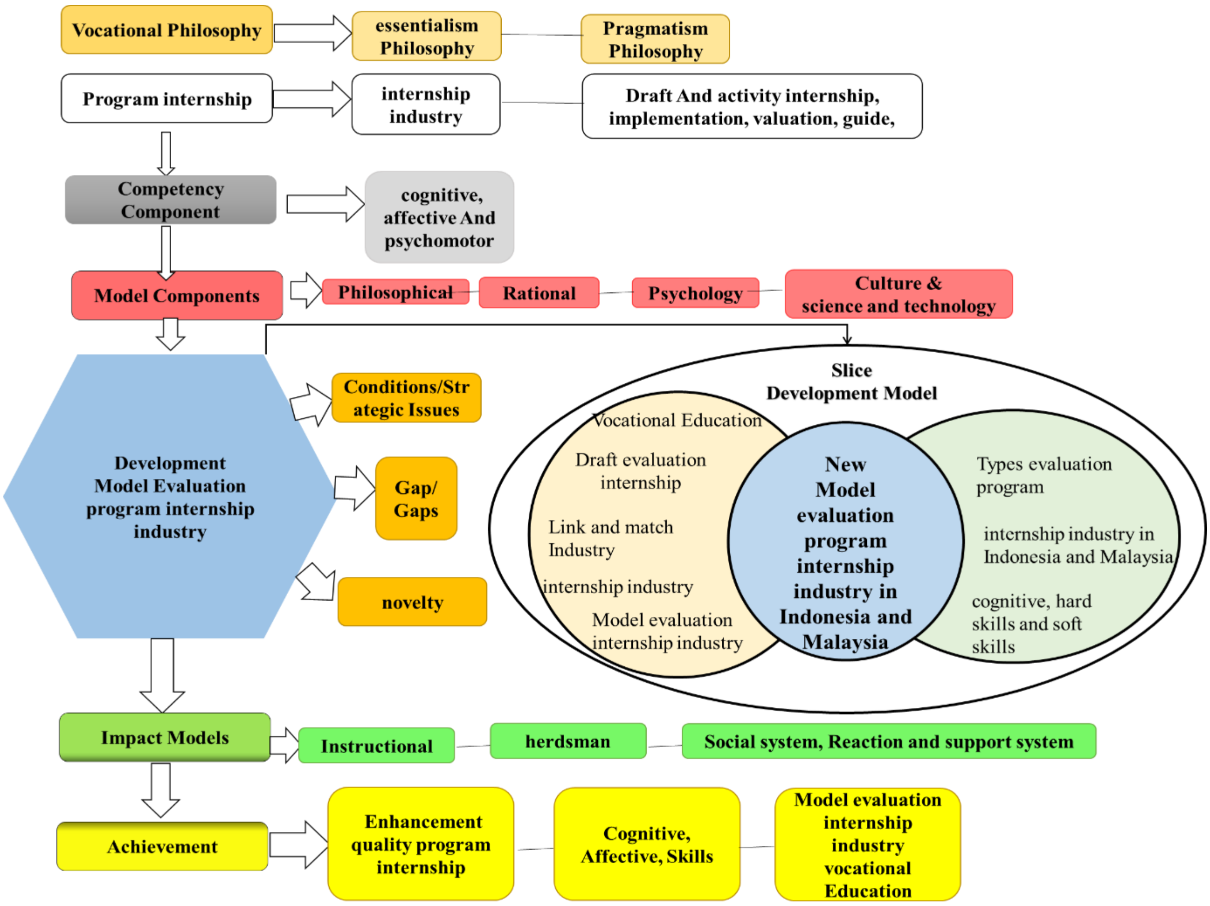

Figure 5: Developed Conceptual Framework Model

NEEDS ANALYSIS

Data collection for needs analysis in developmentdevelop an evaluation model for industrial apprenticeship programsThis is done by distributing questionnaires to lecturers, students and industries that are the objects of research. The respondents involved in collecting data for this needs analysis were 30 students, 7 lecturers, and 5 industry people through distributing questionnaires. All questionnaires distributed have been responded well by respondents.

The results of a survey of 17 aspects of model needs for students, there are survey results relating to students' needs for developed models showing the results that can be seen in Figure, where 82% of students stated they needed model development while 18% said they did not need them.develop an evaluation model for industrial apprenticeship programs.

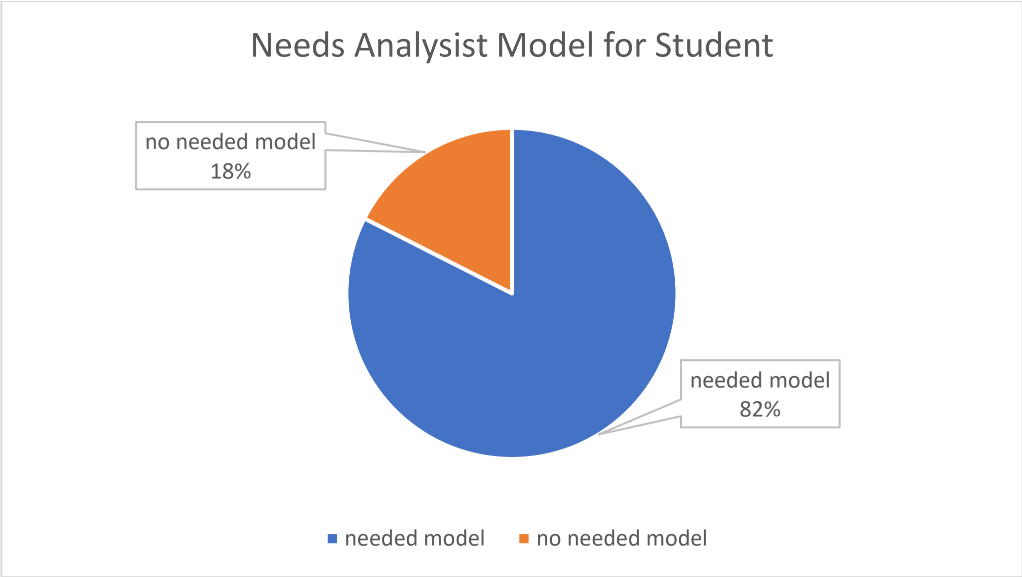

Figure 6: Needs Analysist Model for Student

Furthermore, the survey results regarding 10 aspects of model development needs for lecturers, there are survey results relating to lecturers' needs for developed models showing the results that can be seen in Figure, where 86% of lecturers stated that they needed model development, while 14% stated that they did not need model development.

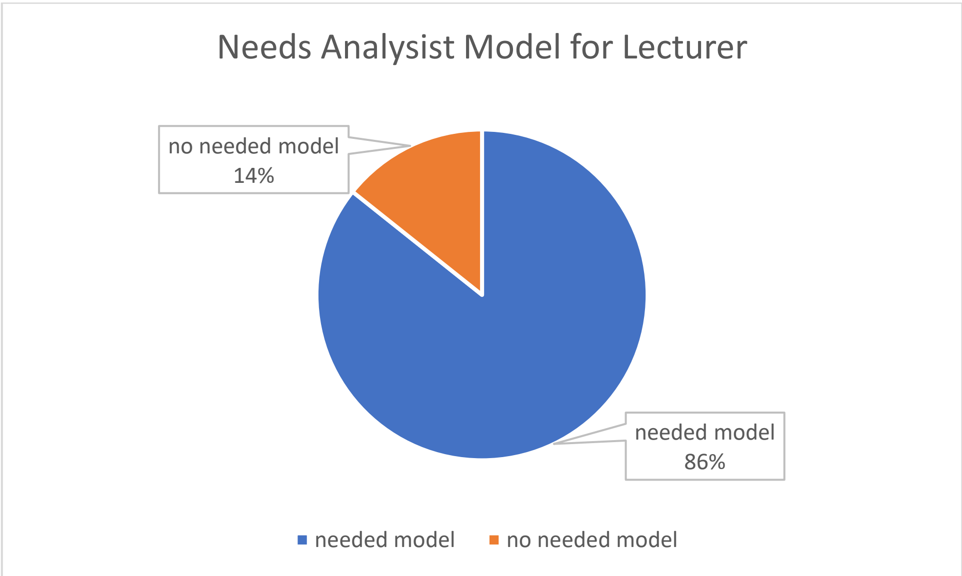

Figure 7: Needs Analysist Model for Lecturer

Furthermore, the survey results regarding 10 aspects of model development needs for industry, there are survey results relating to industry needs for developed models showing the results that can be seen in Figure, where 78% of industries stated that they needed model development, while 22% stated that they did not need model development.

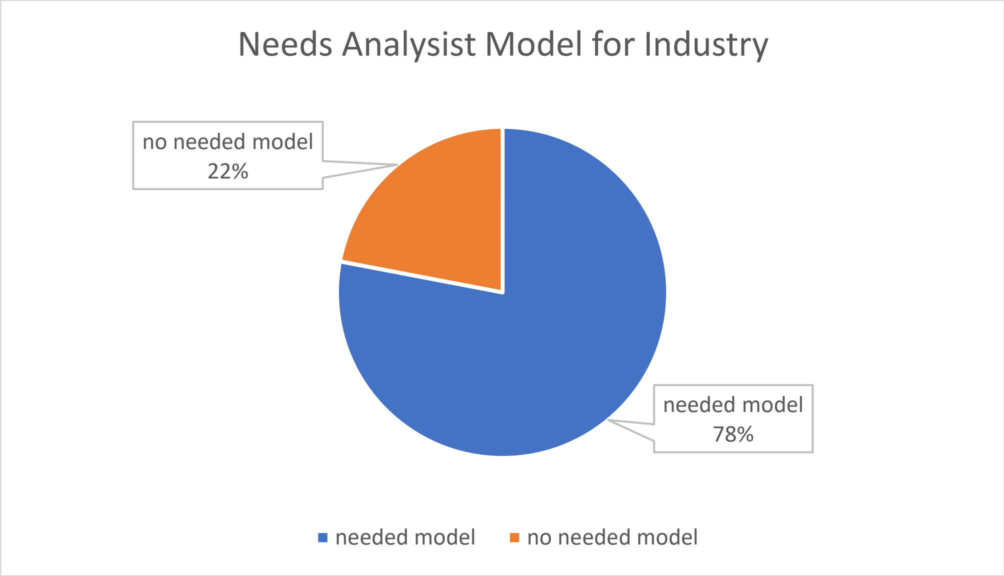

Figure 8: Needs Analysist Model for Industry

So based on needs analysisdevelop an evaluation model for industrial apprenticeship programsIt can be concluded that both student lecturers and industry need itdevelop an evaluation model for industrial apprenticeship programs. After the needs analysis stage is carried out, it is continued with the implementation stage of model development.

Validity

The validators in this research were 5 (five) experts who are experts in their respective fields. Validators are asked to provide assessments and suggestions for improving the model that has been designed.

Model Validity

Validation evaluation model for industrial apprenticeship programs assessed from the rational aspects of the model, the theory supporting the model, the characteristics of the model, the syntax of the model, the social system, the reaction principle, the supporting system. Overall, the results of model validation using 32 sub-indicators can be seen in the table and figure.

Table 1: Results of Model Validation

Aspect	Average	Category
Rational Model	0.91	Valid
Theory Supporting The Model	0.89	Valid
Model Characteristics	0.84	Valid
Model Syntax	0.91	Valid
Social System	0.89	Valid
Reaction Principle	0.84	Valid
Support System	0.87	Valid
Average	0.88	Valid

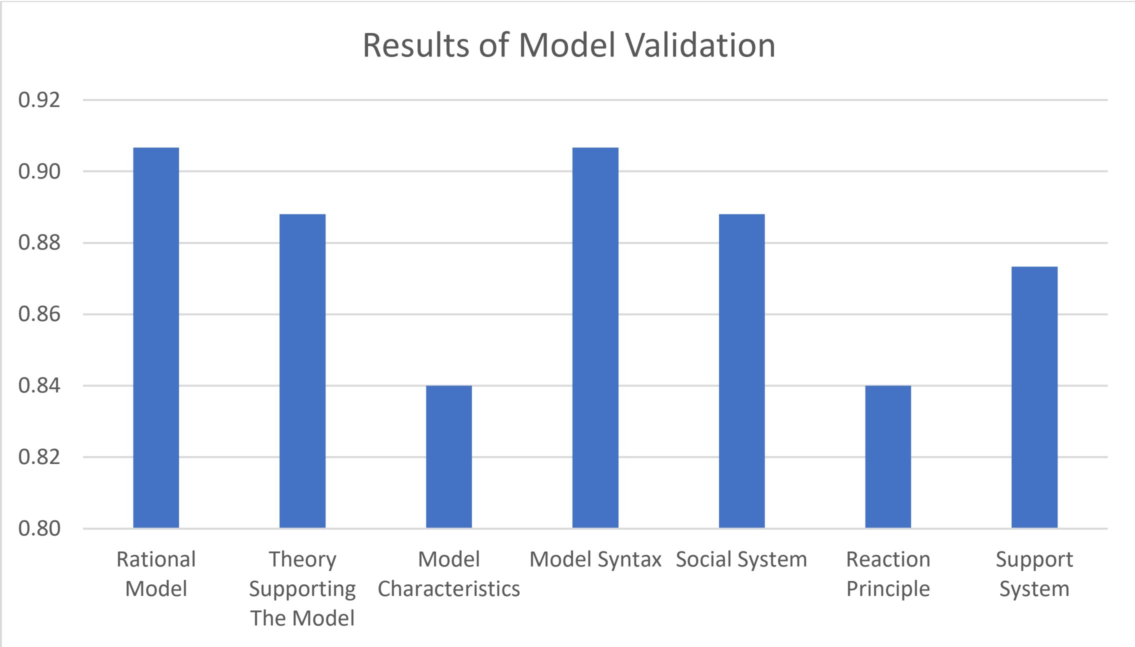

Figure 9: Results of Model Validation

From the validation resultsmodel,which has been tested using the A'iken V formula, it is found that in indicator 1)Rational Modelaverage score 0.91 with valid category, 2)Theory Supporting the modelhas an average score of 0.89 in the valid category, 3) model characteristics with a score of 0.84 in the valid category, 4) model syntax has an average score of 0.91 in the valid category. 5)Social Systems average score 0.89 with valid category, 6)Reaction Principles The average score is 0.84 in the valid category. 7)Support System The average score is 0.88 with the valid category. In general, the overall model validation indicators the average is 0.88 which concludes that model. This is classified as valid, so it can be used.

Schema Validation

Scheme validation is assessed from antecedents and context, computer based input, learning, results and feedback. Overall, the results of model validation using 21 sub-indicators can be seen in the table and figure.

Table 2: Result of Schema Validation

Aspect	Average	Category
Antecedents And Context	0.88	Valid
Computer Based Input	0.92	Valid
Learning	0.88	Valid
Results And Feedback	0.88	Valid
Average	0.90	Valid

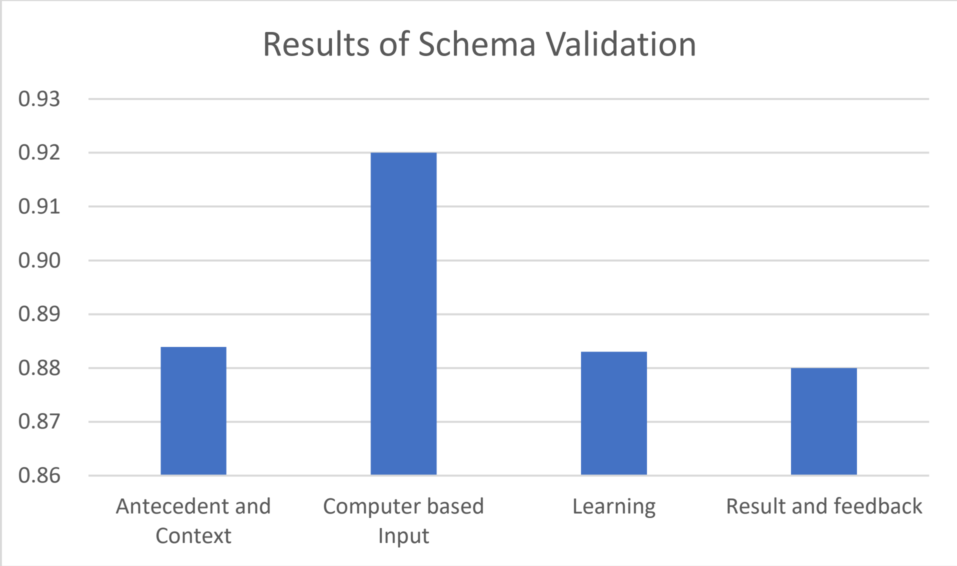

Figure 10: Results of Schema validation

From the validation resultsschemewhich has been tested using the A'iken V formula, it is found that in indicator 1)Antecedents and contextaverage score 0.88 with valid category, 2)computer based input has an average score of 0.92 in the valid category, 3) Learning with a score of 0.88 in the valid category, 4) results and feedback has an average score of 0.88 in the valid category. In general, all syntax validation indicators the average is 0.90 which concludes that model. This is classified as valid, so it can be used.

Instrument Validation

Instrument validation is assessed from the suitability of the practicality instrument content, the suitability of the practicality instrument, the suitability of the graphic aspects. Overall, the results of validating the practicality of the instrument using 15 sub-indicators can be seen in the table and figure.

Table 3: Results of Instrument Validation

Aspect	Average	Category
Appropriateness Of The Instrument Content	0.86	Valid
Feasibility Of Instrument	0.82	Valid
Feasibility Of Graphic Aspects	0.85	Valid
Average	0.84	Valid

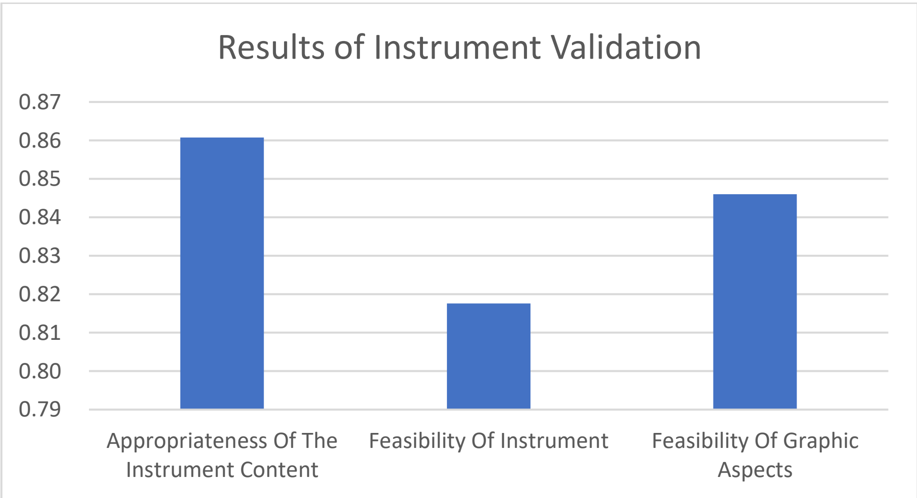

Figure 11: Results of Instrument Validation

From the validation results instrument, which has been tested using the A'iken V formula, it is found that in indicator 1)suitability of the instrument content average score 0.86 with valid category, 2)instrument feasibility has an average score of 0.82 with the valid category, 3)feasibility of graphic aspects with a score of 0.85 in the valid category, In general, the overall validation indicator is the practicality of the instrument the average is 0.84 which concludes that model. This is classified as valid, so it can be used.

PRACTICALITY

The practicality test instrument was given to 5 people and a practical score of 87.77 was obtained in the practical category. Referring to (Purwanto, 2009) the value range of 80-89 is interpreted as practical. A summary of the test results on the practicality of the model can be seen in the table and figure.

Table 4: Result of Practicality

Aspect	Average	Category
Practicality Of The Model	87.28	Practical
Practicality Of The Scheme	88.26	Practical
Average	87.77	Practical

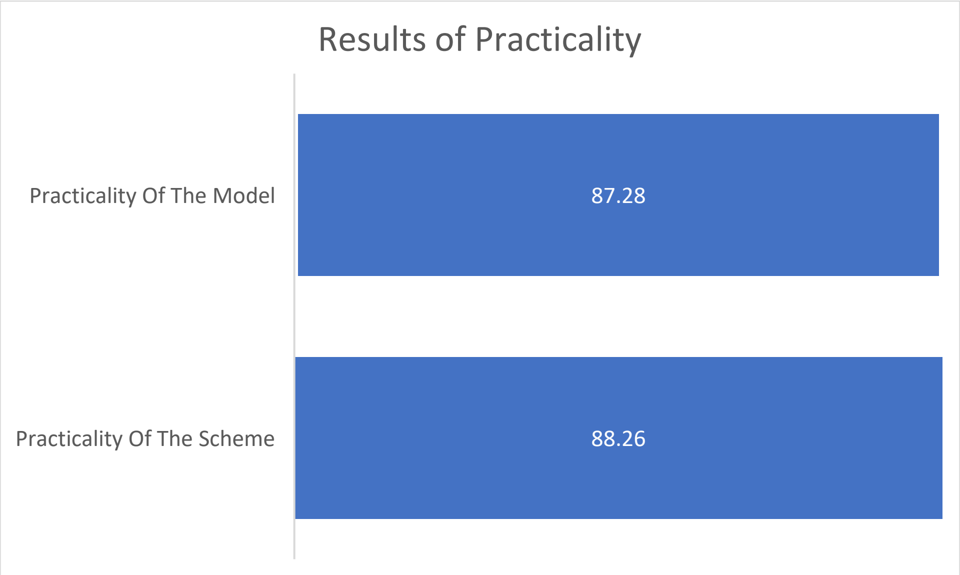

Figure 12: Results of Practicality

DATA ANALYSIST

After testing the validity and practicality which was declared valid and practical, data analysis was carried out to see whether the hypothesis was accepted or rejected, by looking at the significance between variables, statistical values and p-value. Testing in this research was carried out using the SEM-PLS (Patial Least Square) 4.0 application. The test result values can be seen in the following bootstrapping:

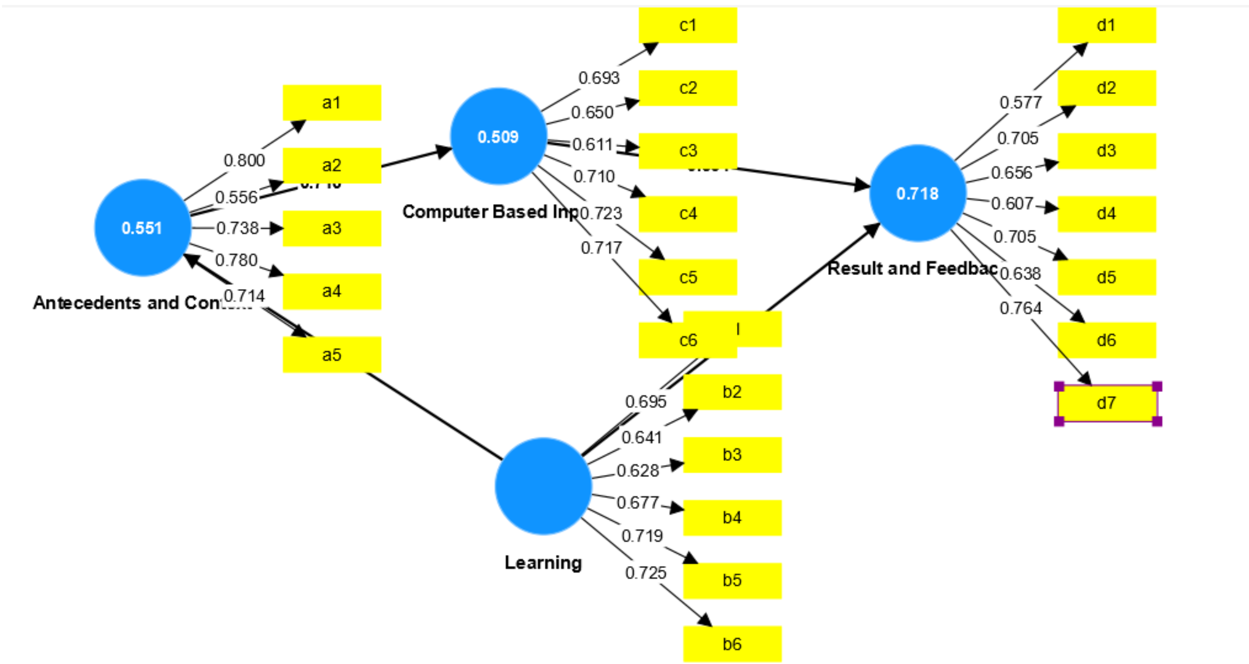

Figure 13: Results of Data Analysist

To analyze the causal relationship between one variable and another, here it can be seen that there are 4 variables whose hypotheses are tested, namely Antecedent and Context, Computer Based Input, Learning, Result and Feedback, so it can be seen above that each variable is related to the variable and data value above 0.5, which means it is significant. This is proven by all variable results having a value of >0.5 and a P value of 0.000 <0.05. These results show that apart from being significant, the influence of the variables also shows a positive direction, which means that the Ha hypothesis is accepted.

CONCLUSION

The findings show that the results of the needs analysis from lecturers, students and industry prove that developing an evaluation model for industrial apprenticeship programs is really needed. Then the results of the validity of the instrument were proven to be valid. The practical results of the instrument have also been proven to be practical. To analyze the causal relationship between one variable and another, here it can be seen that there are 4 variables whose hypotheses are tested, namely Antecedent and Context, Computer Based Input, Learning, Result and Feedback, so it can be seen above that each variable is related to the variable and data. value above 0.5, which means it is significant. This is proven by all variable results having a value of >0.5 and a P value of 0.000 <0.05. These results show that apart from being significant.

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