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Analysis of the Practicality of HOTS-based Inquiry Training Model in Vocational Training

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Abstract

The HOTS-based inquiry training model is a learning approach designed to develop higher-order thinking skills, such as analysis, evaluation, and creation, through the process of exploration and problem-solving. The purpose of this study is to find out the practical picture of the HOTS-based inquiry training model. This type of research is a quantitative research with a survey approach. The implementation of the trial was carried out in three stages, namely small, limited, and field trials. The data collection technique is carried out by: (1) observing lecturers carrying out training using a HOTS-based inquiry training model on electrical expertise competencies; (2) ask for a response or response from lecturers after using the HOTS-based inquiry training model. The results of this study were obtained: (1) The implementation of the training model during the implementation of small group, limited group, and field trials show that observers consistently give assessments in the very practical category; (2) Products have good validity, reliability, objectivity, and practicality, with the best test results seen on the field scale.

Keywords: Training Model, Inquiry Training, HOTS, and Practicality

INTRODUCTION

The need for a workforce that has High *Order Thinking Skills* (HOTS) is increasingly urgent in the era of the Industrial Revolution 4.0, especially in the field of vocational training that prepares individuals to jump directly into the world of work. Today's world of work no longer only needs workers who have technical skills, but also those who are able to think critically, solve

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complex problems, innovate, and make decisions independently in often uncertain situations (Akyazi et al., 2020; Brkovic et al., 2023). These competencies fall under the HOTS category, which includes analytical, evaluator, and creative skills, all of which are important in a dynamic and highly adaptable work environment (Bobitan, 2024; Kalejaiye, 2023).

Vocational training in Indonesia has an important role in preparing a ready-to-use workforce in various industrial sectors. However, until now, there are still major challenges in improving the ability to think at a higher level in vocational trainees. Based on surveys and various studies, vocational training participants are generally focused on mastering technical skills (*hard skills*) without a comprehensive approach to developing critical thinking and problem-solving skills (Haq et al., 2019). In fact, HOTS is an important aspect that allows vocational graduates to not only become skilled workers, but also have high competitiveness in a competitive global job market (Subiyantoro, 2023).

The inquiry approach in vocational training has been proven to be effective in developing high-level thinking skills (HOTS) among students. This model encourages participants to be actively involved in the training process through exploration, observation, investigation, and evaluation, which makes them not only recipients of information, but also seekers of solutions to various problems faced in real contexts. This is in line with research that shows that a contextual approach can increase students' motivation and learning activity, as well as help them associate theory with practice in the field (Nuryana et al., 2021; Purwasih & Putri, 2020).

The application of inquiry-based learning models is very relevant. This model creates a learning environment that is contextual and in accordance with the reality that participants will face in the world of work. Research shows that vocational literacy, which includes practical knowledge and skills, can be used as a foundation to improve students' critical thinking skills (Rahmadani, 2023). Furthermore, this approach also supports the development of character and professional attitudes required in the work environment. Research shows that a supportive learning environment, including the use of contextual learning methods, can improve student learning outcomes and skills (Watini, 2019). Therefore, the integration of the inquiry approach in vocational training is a very strategic strategy and is needed to create graduates who are ready to face challenges in the world of work.

The application of inquiry methods in vocational training in Indonesia does face a number of significant obstacles. One of the main challenges is the limited resources, which include teachers who are not trained in the effective use of inquiry methods. Research shows that many

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vocational coaches in Indonesia do not have adequate training in active teaching methods, which can hinder the development of HOTS among learners (Aldahmash et al., 2019). In addition, limited time for training and development of basic technical skills is also an inhibiting factor, where trainers are often forced to focus on teaching basic skills without paying enough attention to the development of HOTS (Wibowo et al., 2022).

Based on the background described above, the purpose of this study is to find out the response of lecturers to the HOTS-based inquiry training model to improve student skills in training. This study is expected to provide an overview of the application of the HOTS-based inquiry training model in the implementation of vocational training.

METHOD

This type of research is quantitative research with a survey approach method. This research involved lecturers from vocational colleges of the Ujung Pandang State Polytechnic and the Bosowa Polytechnic. The data collection instrument used an observation sheet on the implementation of the HOTS-based inquiry training model. The data collection technique is carried out by: (1) observing lecturers carrying out training using a HOTS-based inquiry training model on electrical expertise competencies; (2) ask for a response or response from lecturers after using the HOTS-based inquiry training model. The implementation of observation was carried out in three stages, namely small group trials, limited trials, and field trials. Furthermore, the data that has been collected from observers in the form of quantitative data is collected and analyzed using the Likert scale.

RESULT

The results of the Analysis of the Implementation of the Training Model in the Small Group Trial can be seen in Table 1.

Table 1. Observation Results in Small Group Trials

Component	Average Observer	Category
Syntax	3.00	Practical
Social System	3.10	Practical
Reaction principle	2.85	Practical

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Support System	3.25	Practical
Overall Average	3.05	Practical

Source: Data Analysis Results (2024)

Based on the results of data analysis of the observation of the implementation of the training model in small group trials in Table 4.26, it shows that the average value of 3.00 is obtained in the syntax component. The social system component obtained an average score of 3.10. The reaction principal component obtained an average value of 2.85. Meanwhile, the supporting system component obtained an average score of 3.25. So that the average overall observation of the implementation of the training model in the small group trial was obtained with an average score of 3.05 with the category of practically implemented.

Table 2. Observation Results in a Limited Group Trial

Component	Average Observer	Category
Syntax	3.29	Very Practical
Social System	3.40	Very Practical
Reaction principle	2.70	Practical
Support System	3.50	Very Practical
Overall Average	3.22	Practical

Source: Data Analysis Results (2024)

Based on the results of data analysis of the observation of the implementation of the training model in the limited group trial in Table 2, it shows that the average value of 3.29 was obtained in the syntax component. The social system component obtained an average score of 3.40. The reaction principal component obtained an average value of 2.70. Meanwhile, the supporting system components obtained an average score of 3.50. So that the average overall observation of the implementation of the training model in the limited group trial was obtained with an average score of 3.22 with the implemented category and the practical category.

The results of the Analysis of the Implementation of the Training Model in the Field Trial can be seen in Table 3.

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Table 3. Observation Results in Field Trials

Component	Average Observer	Category
Syntax	3.36	Very Practical
Social System	3.30	Very Practical
Reaction principle	3.60	Very Practical
Support System	3.75	Very Practical
Overall Average	3.50	Very Practical

Source: Data Analysis Results (2024)

Based on the results of the analysis of observation data on the implementation of the training model in the field trial in Table 3, the syntax component obtained an average score of 3.36. The social system component obtained an average score of 3.30. The reaction principal component obtained an average value of 3.60. Meanwhile, the supporting system components obtained an average score of 3.75. So that the average overall observation of the implementation of the training model in the limited group trial was obtained with an average score of 3.50 with the category of implemented with the category of very practical.

The results of the analysis of observation data on the implementation of the training model during the implementation of small group, limited group, and field trials show that observers consistently give assessments in the very practical category. This indicates that the HOTS-based Inquiry Training Model that are developed can be carried out well. After analyzing the implementation of the training, the next step is to analyze the lecturer's response to the training model.

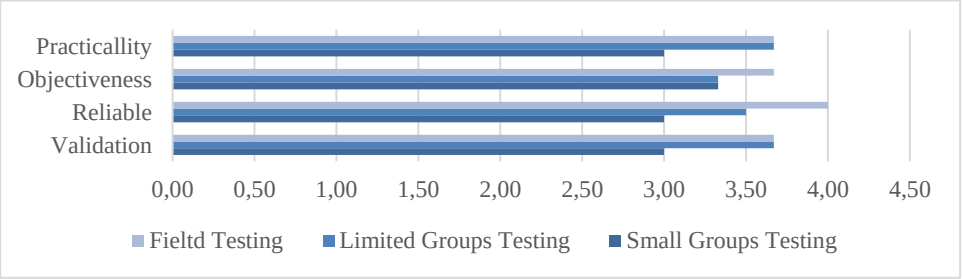


Figure 1. Lecturer's Response to *HOTS-based* Inquiry *Training Model*

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Figure 1 above shows the test results of four aspects of *Practicality*, *Objectiveness*, *Reliability*, and *Validation*—in three different types of testing, namely *Field Testing*, *Limited Groups Testing*, and *Small Groups Testing*. **Validation** showed high results in all three types of testing, with the highest score in *Field Testing*. This shows that the validity of the tested product is rated high in all three test conditions, especially on a field scale. **Reliability** also showed relatively high scores in all three types of testing, with *Field Testing* providing higher scores compared to *Small Groups Testing* and *Limited Groups Testing*. This indicates that the product used has good consistency of results. **Objectiveness** has a lower score compared to *Reliability* and *Validation*, but still shows consistency across all three tests. *Limited Groups Testing* is slightly lower than *Field Testing* and *Small Groups Testing*, which can indicate differences in perception or standards of objectivity within smaller groups. **Practicality** has almost the same score in all types of testing, but it is seen slightly higher in *Field Testing*. This indicates that the tested product is considered practical enough to be used in a variety of testing situations. Overall, this graph illustrates that the tested products have good validity, reliability, objectivity, and practicality, with the best test results seen on the field scale (*Field Testing*).

DISCUSSION

In vocational training, technical skills alone are not enough. With an inquiry approach, trainees are encouraged to understand the problem in depth, find solutions, and conduct analysis. This fosters critical thinking and problem-solving skills, which are indispensable in the ever-changing world of work. Through the inquiry approach, trainees not only memorize procedures or theories, but they also learn to understand basic concepts and their application. The participant-centered learning process helps them dig deeper, ask questions, and find answers, resulting in more durable and relevant learning outcomes.

The inquiry approach encourages participants to take the initiative in seeking information and understanding the material independently. This is especially important in vocational training, as independence and initiative skills are qualities that are valued in the world of work. Participants are trained not to rely solely on the instructor, but also to take an active role in their learning process. With an inquiry approach, vocational training participants will be more competitive in the labor market. They not only have technical skills but also critical thinking, problem-solving, and high adaptability. This gives them an edge over other candidates who may only have technical skills.

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Inquiry training and Higher Order Thinking Skills (HOTS) are closely related because they both focus on developing critical, analytical, and creative thinking skills. The inquiry approach specifically supports HOTS by encouraging learners or trainees to engage in the process of exploration, reasoning, and problem-solving, all of which are core components of HOTS. In inquiry training, trainees are encouraged to explore problems by asking questions and observing certain data or phenomena. This process is in line with analytical thinking skills in HOTS, where participants are trained to understand and analyze various information before reaching conclusions. This process helps them to think critically and devise the right solutions.

One of the main aspects of inquiry training is finding solutions through new or innovative ways, which often involves experimenting or testing untested ideas. This is directly related to creativity in HOTS, where trainees are trained to think outside the box and explore different possibilities. With inquiry, they learn not to be fixated on one way or answer, but to think flexibly and adaptively. Inquiry training is very effective in honing problem-solving skills, which is one of the main goals of HOTS. In the inquiry process, trainees are faced with problems or challenges that they must solve on their own or through teamwork. This encourages them to think critically, analyze different aspects of the problem, evaluate options, and create effective solutions. These problem-solving skills are at the core of HOTS (Quang & Duc, 2023).

CONCLUSION

Based on the results of the research that has been carried out, it is known that the response of lecturers to the use of HOTS-based inquiry training models in training has obtained very practical results at each level of trials, be it small group trials, limited groups, and field trials. Furthermore, the analysis of the feasibility of the training model shows that the tested product is considered practical enough to be used in various testing situations. The practicality of the HOTS-based inquiry training model has a number of very useful implications, both for trainees, instructors, and the educational environment as a whole. With an emphasis on practicality, this model focuses not only on achieving learning objectives, but also on ease of application and effectiveness in real contexts. The practicality of this model makes it easy to apply in a variety of training contexts, both formal and informal. By utilizing HOTS as the main framework, the model can be tailored to the specific needs of different disciplines and fields of work.

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