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Link and match learning on the quality of vocational graduates in Banten province, Indonesia

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ABSTRACT

Many vocational graduates have not been absorbed in the world of work. The low outcome of vocational graduates is not absolute because there are no jobs, but it is caused by low graduate competence among them. This study aims to determine the influence of link and match learning on the quality of vocational graduates in Banten Province. This study employs a qualitative methodology and a case study research design. Document studies, interviews, and observations were used to gather research data. The study's findings demonstrate that the idea of a link and match describes how organizations and the workplace interact. In other words, it can be said to be a relationship between labor providers and their users. Through these relationships, educational institutions as labor providers can establish relationships with the business world or industry. Vocational education, in particular, can collaborate with companies or industries so that students can practice (internship) in the company. With this program, vocational can determine the competencies most needed in work and the industrial world. The final result of the *link and match* program is the acquisition of graduates who are ready to work with qualified skills.

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1. INTRODUCTION

Globalization is well realized to impact all aspects of life in the economic, social, and cultural fields. This condition ultimately brings increasingly fierce competition in various aspects of life, especially the competitiveness of competitive advantages in all industrial and service sectors that prioritize the ability of Human Resources (HR). The human resources owned by Indonesia today are still complex to compete in terms of work ethic, discipline, responsibility, skills, and foreign language skills.

Research indicates that Indonesian schooling is still of a relatively poor caliber. Numerous academic institutes' study papers on the competitiveness of Indonesian human resources attest to this. The Human Development Report (HDR) from 2000 revealed that, out of 108 nations analyzed, Indonesia's human resource quality was ranked 105th. In the meantime, out of 174 countries examined, Indonesia was ranked 108 in 1998, 109 in 1999, and 111 in 2004, according to the UNDP's Human Development Index (HDI). Moreover, an assessment carried out by the Political and Economic Risk Consultancy (PERC) revealed that Indonesian education ranked lowest throughout the ASEAN area.

Until now, the school system has not entirely fulfilled The community's expectations. The low caliber of graduates, their tendency to be patchy and even more project-oriented, or their ability to solve partial educational challenges are characteristics of this phenomenon. As a result, educational outcomes are often far below societal expectations. There have long been concerns about the relationship between education and societal demands in terms of economic, political, social, and cultural demands. The labor market and development, including industry, finance, telecommunications, and other sectors that frequently threaten the very existence of schools, are not adequately served by the quality of education graduates.

Muntohar (2014: 135) stated that quality in education includes the quality of inputs, processes, *outputs*, and *outcomes*. If students can meet the national minimal standards for education, then the educational input is considered quality. The educational process can be deemed high-quality when learning objectives are sufficiently met in an engaging, inventive, creative, and enjoyable environment. If pupils meet the learning objectives in academic and non-academic domains, the educational output is deemed high quality. When graduates from these educational institutions are promptly employed by organizations that require them and are well-liked by stakeholders, the educational outcomes are deemed to be of high quality.

The low ability of graduates to compete in the workforce is often attributed to their lack of alignment with the evolving demands of the job market, which requires mastery of foreign languages, computer skills, and an entrepreneurial mindset. While educational reforms, such as Law Number 14 of 2005 concerning Teachers and Lecturers and Government Regulation Number 19 of 2005 concerning National Education Standards, aim to improve the quality of educators and national educational standards, there is limited research examining the direct impact of these reforms on the competencies required by employers.

A critical research gap exists in understanding how curriculum reforms, teacher training, and resource allocation actually contribute to enhancing graduate employability. For instance, while teacher qualifications and educational infrastructure are acknowledged as important factors (Mulyasa, 2004: 309), the specific role these variables play in shaping graduate skills—especially in relation to foreign language proficiency, computer literacy, and entrepreneurial

ability—remains underexplored. Additionally, while there is a growing emphasis on increasing higher education enrollment (Mulyasa, 2007: 4), the question of how these graduates perform in the labor market over time is still inadequately researched. Longitudinal studies are needed to assess the long-term effects of higher education on career success and the development of key skills.

Moreover, there is a need for a deeper examination of employer perspectives to understand whether the competencies emphasized in educational curricula align with the actual skills demanded in the workforce. This gap in research can help bridge the divide between education and employment, providing insights into the specific skills that need to be fostered to enhance graduate competitiveness. Furthermore, the role of cultural and socioeconomic factors in graduate outcomes also warrants attention, as disadvantaged students may face additional challenges in acquiring the necessary competencies.

Finally, the cultivation of an entrepreneurial spirit in graduates is crucial for fostering innovation, yet how this is measured and developed in educational settings is another area that requires further investigation. Addressing these research gaps could lead to a more effective educational system that better prepares graduates for the demands of the modern job market.

The learning process that students go through while in school will determine their quality when they graduate. One of the characteristics of learning applied at vocational schools is link and match learning. Djojonegoro (2016) suggests that the relationship between the world of education and the industrial world, which is often referred to as link and match, still troubles the problem. Various efforts to maintain relevance between the two are not appropriate if only interpreted as simply transferring technology and special skills used by the industrial world to educational institutions. Husein (2019: 39) stated that link and match must be interpreted as an effort by educational institutions to prepare workers who can think, communicate, interact socially, and work in groups.

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employability of graduates, particularly in the context of Banten, where such alignment may be more or less effective in meeting local industry needs.

2. METHOD

This study employs a qualitative case study approach model. A case study is a type of model that uses in-depth data mining to examine a "bounded system" of a particular case in detail. Various sources of information rich in context are carried out for data mining (Creswell, 2014). Study participants were selected using purposive sampling techniques. Through purposive techniques, researchers choose research participants and locations to study or understand the main problem to be studied. This strategy is used to pick research participants and places tailored to the study's goals (Widoyoko, 2012). The data collection method uses interviews, observations, and documents.

This study employs a qualitative case study approach to investigate the influence of the *link and match* learning model on the quality of vocational school graduates in Banten province. The case study method is particularly suitable for this research because it allows for an in-depth exploration of a specific context or phenomenon within its real-life setting. This approach focuses on understanding complex issues through detailed, contextualized data derived from multiple sources, providing rich insights into the problem under study (Creswell, 2014). The study will focus on understanding how the *link and match* model is implemented, its impact on vocational education, and its effect on the competencies of graduates as they enter the labor market.

2.1 Research design

The study follows a descriptive qualitative design, meaning that it will describe, analyze, and interpret the factors affecting vocational graduates' ability to meet labor market demands, specifically within the context of Banten province. A case study approach is particularly appropriate for exploring these issues in detail, as it enables the examination of educational practices within specific schools and their alignment with industry needs.

2.2 Sampling and participants

The study will use purposive sampling, a non-random selection method, which is commonly used in qualitative research to focus on specific characteristics of participants that are most relevant to the research objectives (Widoyoko, 2012).

Participants will be selected based on their direct involvement with vocational education and the *link and match* process. These may include:

- Vocational school students (current and recent graduates) to assess their perceptions and experiences of the *link and match* learning model.
- Teachers and instructors who implement the *link and match* approach, offering insights into teaching practices, curriculum alignment, and challenges faced.
- Industry representatives (e.g., employers, HR managers) who can provide feedback on the competencies and skills of vocational graduates in relation to the needs of the labor market.
- Educational administrators (e.g., school principals, local education officials) to understand policy-level perspectives and the strategic implementation of the *link and match* concept.

The selection of research locations will include several vocational schools in Banten Province that are known for implementing the *link and match* learning model. These schools will provide varying perspectives on the effectiveness of this model in different contexts (e.g., urban vs. rural schools, schools with different industrial partners).

2.3 Data collection

To gather comprehensive data from multiple perspectives, the study will employ the following data collection methods:

- Interviews: Semi-structured interviews will be conducted with key participants, including students, teachers, industry representatives, and administrators. The semi-structured format allows flexibility in exploring topics based on the participant's responses while maintaining consistency in the main topics addressed. Interview questions will be designed to explore the participants' experiences with the *link and match* model, challenges encountered, and perceived outcomes for graduates. For example:
    - For students: "How do you perceive the alignment between what you learn in school and the skills required in the workforce?"
    - For teachers: "What challenges do you face in implementing the *link and match* model, and how do you address them?"
    - For employers: "Do you find that vocational graduates are adequately prepared for the demands of the workplace?"
- Observations: Direct observations of teaching and learning processes in vocational schools will be conducted to see how the *link and match* approach is implemented in practice. Observations will focus on classroom activities, industry collaboration (e.g., internships, company visits), and student engagement with practical skills development.
- Document Analysis: Relevant documents, such as curriculum guidelines, training materials, school reports, and industry partnership agreements, will be reviewed to understand how the educational system structures the *link and match* learning model. These documents will help provide additional context to the interviews and observations, revealing the alignment between educational content and industry needs.

2.4 Data analysis

The data analysis will be conducted in an iterative and interactive manner, following the steps outlined in the model by Miles & Huberman (1992). This approach emphasizes a cyclical process where data collection and analysis occur simultaneously and continuously refine each other. The following techniques will be used:

2.5 Data reduction

Data reduction involves selecting, focusing, simplifying, and transforming raw data from the interviews, observations, and documents into a more manageable form. This is an essential step to make sense of large volumes of qualitative data and identify the most relevant themes and patterns. During data reduction, the researcher will code and categorize the data based on emerging themes such as the alignment of curriculum with industry needs, the

perceived effectiveness of the *link and match* model, and the competencies required by employers.

2.6 Data presentation

Once the data has been reduced, it will be organized and presented in a way that facilitates understanding and interpretation. In qualitative research, data presentation is often done through narrative text, which will describe the findings in the form of case descriptions, excerpts from interviews, and observational notes. The presentation of data will be structured to highlight the key findings, such as the impact of *link and match* on vocational graduates' competencies and the challenges faced in its implementation.

2.7 Conclusion drawing and verification

The final stage of data analysis will involve drawing conclusions based on the presented data. These conclusions will be verified and refined through comparison across different data sources (e.g., interviews, observations, and documents) to ensure consistency and reliability. The researcher will also seek feedback from participants to verify the accuracy of the findings and conclusions. This process will help validate the research outcomes and ensure that the conclusions are well-supported by the data.

2.8 Ethical considerations

Ethical considerations will be carefully adhered to throughout the study. Informed consent will be obtained from all participants, ensuring that they are fully aware of the purpose of the research, their rights to confidentiality, and their ability to withdraw from the study at any time. Participants' anonymity will be maintained by assigning pseudonyms to the data and ensuring that no identifiable information is shared in the final report.

2.9 Limitations of the study

While the case study approach allows for deep insights into the *link and match* model in specific contexts, the findings may not be fully generalizable to all regions or educational systems. The study will focus specifically on Banten province, and the results may reflect local conditions, practices, and challenges. However, the rich, context-specific data can provide valuable insights for policymakers and educators seeking to improve vocational education and its alignment with the labor market.

The last data analysis activity is to draw conclusions and verify. Briefly, the description of the proposed interactive model (Miles & Huberman, 1992) is as follows.

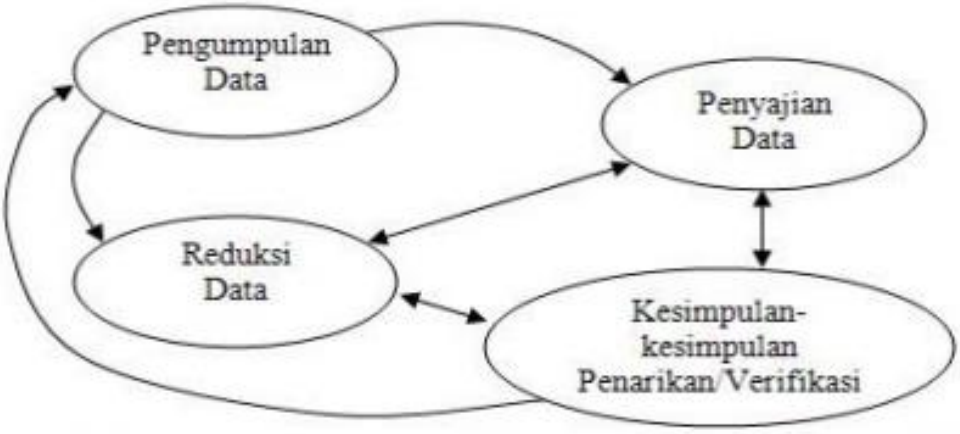

Figure 1 Interactive models according to Miles & Huberman

3. RESULT AND DISCUSSION

3.1 The number of vocational graduates in Banten province has not been absorbed in the world of work

Vocational graduates in Banten province still have a fairly high unemployment contribution, amounting to 13.52%. This is motivated by higher competitiveness but not balanced with the competence of graduates according to market needs. Based on interviews with teachers in Serang City, Banten province, it was explained that many graduates have not found a job, but some have found jobs. According to the teacher, the thing that makes these graduates not get a job is competitiveness with graduates of other schools or from outside the province, which challenges alumni in getting a job.

Many factors influence graduates who have not found a job, such as inadequate graduate soft skills, as research conducted by Fidiah et al. (2022) states that teamwork and good communication skills are the keys to ease dealing with all existing competitiveness. This ability can be obtained if the quality of graduates or school graduates is excellent and ready to face the world of work well. Several aspects can be considered in improving the quality of graduates so that the world of work easily absorbs them; essential elements are: 1) Education and curriculum; 2) Collaboration; 3) Visiting educators from abroad, 4) Industrial work practices or internships, 5) Certification of Competency, 6) Refreshing the knowledge of teachers and other education personnel, 7) The education sector or factory, 8) Dedication to assimilation, 9) Official connections or scholarships, 10) Infrastructure, and 11) Governance (Roesminingsih et al., 2022). Things that can be improved that become the basis are learning in vocational schools to be ready to face the world of work.

3.2 Many graduates work outside of their competencies

After interviews with teachers and alumni from several vocational schools in Banten Province, many students who work but do not match the competencies, such as culinary graduates, become admins in one of the companies. In this problem, it has been explained that improving the quality of graduates can be done by enhancing aspects of curriculum and learning so that graduates can work according to and linearly with what they have (Roesminingsih et al., 2022). The competencies possessed by vocational school graduates need to be considered again with the competitiveness in today's world of work. Learning that can connect the world of education with the world of work is needed to help graduates know the situation and conditions directly. One of the learnings that must be emphasized is link and match learning.

Link and match learning is learning that can connect the world of education with the world of work (Djojonegoro, 2016). Link and match must be interpreted as an effort by educational institutions to prepare a workforce that can think, communicate, interact socially, and work in groups (Husein, 2019). With the existence of learners who are oriented to the world of work, it is hoped that graduates can apply what has been obtained in vocational schools can be applied in the field and by their competence.

3.3 Fieldwork practices have been carried out for the development of teaching factories

Based on interviews with vocational students, the school has conducted street vendors to find the world of work directly. This was confirmed by the teacher in charge, but PKL is considered insufficient because it is still found that during the application in the field, students

still learn a lot. After all, the provisions provided by the school have not been maximized due to limited infrastructure. One of the vehicles to improve good human resources is appropriate and flexible education and learning. Implementing fieldwork practices is one solution to improve the quality of graduates. The design includes (1) planning fieldwork practices, (2) implementing fieldwork practices, (3) evaluating fieldwork practices, and (4) the impact of fieldwork practice implementation on the quality of vocational graduates (Pradana et al., 2021).

Improving the quality of graduates has been done a lot in Banten Province, but it is not enough to stop there. Many things need to be considered to get quality and competitive graduates. Several aspects can be considered in improving the quality of graduates so that the world of work quickly absorbs them. These aspects are 1) Curriculum and learning, (2) partnerships, 3) Bringing in guest teachers, 4) Internships or industrial work practices, 5) Competency certification, 6) Updating the competence of educators and education staff, 7) Teaching factory/teaching industry, 8) Commitment to absorption, 9) Scholarships or official ties, 10) Infrastructure, and 11) Governance (Roesminingsih et al., 2022). All of these aspects must be done in order to get quality and competitive graduates.

3.4 Link and match learning needs in Banten Province

The weak application of link and match learning in vocational is something that can connect the world of education with the world of work. In Banten Province, there are still many obstacles to implementing these learnings in its application, especially from infrastructure that has been unable to keep up with market needs. This affects the quality of vocational graduates in Banten province. Based on interviews with vocational teachers in one of the public schools in Banten Province, there is a fact that there is a need for link and match learning, but not only that, there is a need for supporting infrastructure in achieving the goals of quality and competitive graduates. The Banten provincial government always continues to link and match steps between vocational and industry, including evaluating several majors that are of little interest to the industrial sector (Bantenprov, 2023). However, the application of link and match is still not evenly distributed in all vocational schools in Banten province. There must be strengthening and modification in implementing link and match for all of Banten (Dindikbud, 2022).

4. CONCLUSION

Based on the findings in this study, it was concluded that link and match learning need to be applied in vocational high schools in Banten Province, especially to produce quality graduates who can compete in the world of work. Link and match learning are considered to be learning that connects the world of education and the industrial world, so learning using link and match that is modified to be more assertive will affect vocational graduates for the better. Based on these conclusions, the author's suggestions level the link and match learning applications in Banten province. The government supports vocational schools to produce quality and competitive graduates with the help of link and match.

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