

Implementation of the 8+i link and match vocational school program

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ABSTRACT

This research aims to create the 8+i link and match model as an embodiment of a healthy learning ecosystem between schools and the worlds of business and industry. The research technique is a mix of quantitative and qualitative research methodologies. The qualitative technique develops a basic list of success characteristics using meta-ethnography, whereas the quantitative approach defines the link between the variables under examination by establishing or building many latent variables that explain the relationship between variables using Aiken's formula and SPSS version 26. The study's findings demonstrate the success of the 8+i link and match model between Muhammadiyah 1 Ciputat vocational high school/*Sekolah Menengah Kejuruan (SMK) Muhammadiyah 1 Ciputat* and industry in generating efficiency and mutual benefits for both parties, not just ordinary collaboration, but intense collaboration from the curriculum development, learning, and industrial work practices designed collaboratively. The Implication of the 8+i link and match model if correctly implemented is that the industry will profit because the training expenses is reduced, and vocational high schools will benefit because their graduates is absorbed by the industry. Recommendations for the vocational high school curriculum must include schools, and industry, also Teaching personnel must include practitioners from industry as well as instructors from schools.

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1. INTRODUCTION

As part of efforts to raise the caliber and competitiveness of Indonesia's human resources, the center for excellence school program was launched in compliance with presidential instruction No. 9 of 2016 [1]. One of the top priorities for the directorate general of vocational education (directorate general of vocational education) of the ministry of education and culture in 2021 is the vocational high school center of excellence (vocational school center of excellence). This program aims to build vocational high school with particular expertise to experience quality and performance improvements and establish themselves as a model for other schools [2]. The freedom to learn philosophy, which emphasizes developing human capital and bridging the gap between the academic and professional worlds, is carried by the center for excellence vocational school program. This program is expected to improve the quality of student learning outcomes according to the needs of the industrial world [3]. This accomplishment was made stronger by partnerships with the commercial, industrial, and employment sectors through the connect and match program, which was

established in 1989 and aimed to better align the workforce with labor market demands [4]. However, statistics on the unemployment rate, the high number of open positions, the poor quality of workers, and the outcomes of Sakernas data analysis indicate that there is still a significant mismatch between education and the needs of the industrial world. The link and match program evaluates the skills that the future labor market will require. It is envisaged that the educational orientation paradigm will shift from supply-focused to demand-focused (market needs) [5].

In the context of link and match or mass marriages between vocational schools and industry and the world of work, this is exploring the competencies needed by the job market in the future [6]. Link and match education is a vocational training approach which aims to bridge the gap between the theoretical knowledge acquired in school and practical application in the professional sphere. Its primary objective is to equip students with the necessary skills and enhance their learning experience by providing opportunities to apply their knowledge in real-world work settings. The ultimate goal is to prepare these students for a smooth transition into the labor market upon their graduation from school [7]. In essence, the link and match concept is related to curriculum synchronization which aims to formulate a curriculum that is in accordance with national targets and in accordance with the needs of the business and industrial, so that the skills possessed by students are in accordance with the needs of industry, the business and industrial [8], [9]. Vocational high schools need to collaborate synergistically with the world of professional work so that the relevance of vocational high schools can be increased from time to time, of course, with the working principle that vocational high schools must also be able to provide benefits to the business world (win-win management model), if they are to carry out a link and match program [10]. Implementation of the link and match program began in the past preparatory phase, followed by its implementation through educational and learning procedures inside educational institutions, as well as through partnerships with industry stakeholders. Additionally, the program undergoes an assessment phase [11]. The relationship between the school and business and industrial serves as a supporting component for the link and match approach. Furthermore, there were favorable reactions from students, parents, the department of education and innovation, and governmental entities [12]. While inhibiting factor for the occurrence of link and match there are 2 internal factors, namely teachers and infrastructure, curriculum, school funding and external factors, namely competition between private vocational schools in Banten Province [13]. Muhammadiyah 1 Ciputat vocational high school is one of the private vocational schools under the auspices of the Muhammadiyah Central Executive on the initiative of the Muhammadiyah Leaders in the Education and Culture Sector of the Ciputat Region which is located in South Tangerang, Banten Province. In 2020, Muhammadiyah 1 Ciputat vocational high school, South Tangerang, Banten Province received CoE assistance in the field of institutional financial accounting. Muhammadiyah 1 Ciputat vocational high school has four competency skills: institutional financial accounting, online business and marketing, sharia banking, and office management automation.

The emphasis on vocational high school becoming a center of excellence this year also leads to the 8+i link and match package towards skills that vocational high school students must possess, not only hard skills, but soft skills are also very important in the industrial world such as: attitude, work ethic, integrity, honesty and other values that must be included in the link and match program curriculum [14]. Then the second is apprenticeship or industrial practice, this has to be prepared from the start together with the industry. Do not let vocational high school students not only have the provision and competence to carry out industrial practices. The third is that teachers must have at least 50 hours teaching their students at vocational high school. Industrial practitioners also have 50 hours per semester teaching at vocational high schools. Then the fourth is the commitment and absorption of graduates. With this, because the curriculum is appropriate, with internships and has been designed with teachers, it is necessary to be ready to absorb vocational high school graduates as well as various other possible collaborations that can be carried out with the world of work, [15] including scholarships and or service ties, donations in the form of laboratory equipment or in other form, and so on. The problem of graduate competency mismatch is not absolutely the fault of the world of education. The business and industry parties themselves are unable to anticipate the competencies that will emerge and are expected in the future. The existence of this mismatch is one of the things that causes unemployment, because the competencies desired by the industrial world are not in accordance with the competencies possessed by vocational high school graduates [16].

2. METHOD

The research methodology uses a qualitative research approach. The qualitative method used in this study is meta-ethnography aimed at developing a general list of success factors [17]. The quantitative approach aims to clarify the relationship between the variables under consideration by creating or forming several latent variables that explain the relationship between variables [18]. Several experts have validated a list of success criteria through the use of a questionnaire. The research aimed to ascertain the significance of the independent variable, which may consist of one or more variables, without engaging in comparisons or

establishing connections with other variables [19]. Descriptive study refers to a type of research methodology that aims to provide a comprehensive description of a particular symptom, event, or ongoing occurrence [20]. The qualitative research method is a research approach grounded in the postpositivist philosophy. It is employed to investigate natural phenomena, as opposed to experimental settings, wherein the researcher assumes a central role as the primary instrument. Data collection techniques are executed through a triangulation approach, combining multiple methods. The analysis of data is characterized by an inductive and qualitative nature. The outcomes of qualitative research prioritize the interpretation and significance of generalizations [21], [22]. The research was conducted at the Muhammadiyah 1 Ciputat vocational high school center of excellence, South Tangerang, Banten Province. Muhammadiyah 1 Ciputat vocational high school, South Tangerang, Banten Province is an initiative of the Ciputat Muhammadiyah branch leaders in the education and culture section. Muhammadiyah 1 Ciputat vocational high school has 4 competency competencies, namely institutional financial accounting, online business and marketing, sharia banking, and office management automation. The research subjects were productive subject teachers and class XI-XII vocational school students.

This research started by collecting information data for students and lecturers. At this stage data collection is done through interviews, questionnaire and documentation as information from the field. The data and information obtained are used as a basis for describing, analyzing and evaluating the implementation link and match program at Muhammadiyah 1 Ciputat vocational high school in Banten Province. Researchers used two sources, namely researchers to find relevant secondary data using the literature review method, and data from primary sources using the forum group discussion (FGD) method [23]. In this study, researchers will conduct FGDs first mapping the types of related actors who understand the link and match program, namely practitioners, regulators and academics [24]. Researchers also collect various data, facts and other information needed through documentation study procedures in photographs, archives and others [22]. Data collected or obtained through interviews are recorded in interview field notes (CLW). The interview is intended to reveal data or information regarding the phenomenon of applying artificial intelligence-based learning models [25]. The interview results were then confirmed to the informants for verification. Conducting interviews in this research aims to complement and deepen the results of data collection obtained through observation techniques [26]. The Collected data were analysed using The Aiken formula describes the critical factor success (resulting of the integration process and validated to determine the importance (significance) of each critical factor success using SPSS Version 26 [27].

3. RESULTS AND DISCUSSION

The overarching goal of the center of excellence vocational school program at Muhammadiyah 1 Ciputat vocational high school, located in South Tangerang, Banten Province, is to cultivate graduates who are readily employed or capable of establishing their own enterprises. This objective is achieved through a meticulous and comprehensive integration of vocational education with the practical demands of the professional realm. Additionally, the program aspires to serve as a benchmark and catalyst for enhancing the caliber and efficacy of other vocational schools. It is anticipated that graduates of vocational high schools would possess the necessary skills and qualifications to enter the workforce. The concept of continuing studies refers to the ongoing pursuit of education beyond traditional academic programs. Entrepreneurship is the process of identifying and pursuing opportunities to create and manage business ventures.

The results of the researcher's interview with the school principal and productive teachers show that the center of excellence program at Muhammadiyah 1 Ciputat vocational high school, South Tangerang is ready to become a production-based learning model (teaching factory) in four areas of expertise, namely: institutional financial accounting, Islamic banking, administration automation manage office and online business and marketing. With the Center of Excellence program, schools are required to adapt their curriculum to meet the needs of the industrial world, the business and industry. So the curriculum must be prepared jointly with the world of business and industry according to their respective fields. So that what is learned at school is aligned with what is needed by the world of business and industry. In order to achieve this goal, vocational high schools are encouraged to hook industry into partners. From this process it is hoped that experience from the industrial world will be internalized into learning in vocational high schools. Instructors from the industrial world and vocational school teachers must revive the industrial work culture. It was further explained that, the current challenge is that vocational high schools still find it difficult to answer the needs of world of finished work industry this condition needs to be improved, due to that: i) opportunities to increase the competence of teachers, principals and supervisors of vocational high schools according to the needs of business and industry are still few; ii) stakeholder synergy, including the world of work, in the CoE program is still lacking; iii) not all vocational high schools have developed a joint curriculum for industry, business and the business and industry; iv) not all vocational high schools have standard facilities; v) school

management still tends to be burdened with administrative matters. Therefore, it is imperative to devise a comprehensive solution that effectively tackles the issues faced in order to enhance the state of vocational schools in alignment with the demands of the business and industrial sector.

Implementation of 8+i link and match program at center of excellence at Muhammadiyah 1 Ciputat vocational high school, South Tangerang, Banten Province is based on 9 link and match points, namely: curriculum, real-based learning (PBL) from business and industry, number of teachers, apprentices/business and industry. Internship industrial training, competency certification, job absorption commitment from business and industry, scholarships, entrepreneurship training, based on the results of Aiken's formula obtained from distributing questionnaires to 10 productive teachers with a Likert scale from 1-5 where score 1 (very bad), score 2 (not good), score 3 (doubtful), score 4 (good), and score 5 (very good). All 10 productive teachers filled out a questionnaire that had been distributed by the researcher. The initial step involves determining the content validity coefficient for each item related to the success factors by the use of Aiken's V formula. According to the standard of content validity (V), if the study employs a sample of 10 experienced instructors as raters and 5 categories measured on a Likert scale, the minimal threshold for a substantial content validity coefficient (V) is 0.50 ($V > 0.50$) [28]. The first stage is to calculate or calculate the content validity coefficient of each success factor item using the Aiken's V formula which is given as follows:

Tabel 1 explain on the results of the successful factor of implementation link and match model in Muhammadiyah 1 Ciputat vocational high school, South Tangerang, Banten Province as follows: i) in the curriculum aspect, the research findings are that the independent learning curriculum refers to competency standards set by industry/professional associations, and contains content that supports the achievement of student competencies that have not been achieved at Muhammadiyah 1 Ciputat vocational high school, South Tangerang, target achievement 0.17; ii) the school curriculum that was developed with business and industry including strengthening soft skills aspects and work character to complement the hard skill aspect meet the needs of the world of work has not reached the target of 0.19; and iii) teachers routinely receive technology updates and training from the world of work have not been well achieved, with an achievement target of 0.063.

Table 1. The critical factor success in implementation of the link and match program

| Respondents (teacher) | Description | Critical factor success |
|-----------------------|--|-------------------------|
| Respondent-1 | The independent learning curriculum refers to competency standards set by industry/professional associations, and contains content that supports student competency achievement. | 0.170 |
| Respondent-2 | Implementation of the independent learning curriculum increases the employability skills of students. | 0.881 |
| Respondent-3 | The implementation of the vocational school creative camp program activities supports students to become creative entrepreneurs. | 0.778 |
| Respondent-4 | The competency certification process is given to vocational high school teachers/students by the business and industry | 0.701 |
| Respondent-5 | The school curriculum is prepared with business and industry including strengthening aspects of soft skills and work character to complement existing hard skills aspects line with the needs of the world of work. | 0.197 |
| Respondent-6 | The world of business and industry (provides job training to achieve student competence skills). | 0.881 |
| Respondent-7 | Learning planning, implementation of learning and assessment of learning outcomes (competence test). | 0.591 |
| Respondent-8 | Project-based learning is built on learning activities and real assignments, it is hoped that it will equip students with soft skills and hard skills which will make graduates more relevant for needs business and industry world. | 0.624 |
| Respondent-9 | Educators frequently get technological upgrades and training from industry professionals. | 0.063 |
| Respondent-10 | Additional digital marketing materials and assistance for students in entrepreneurship. | 0.881 |
| Respondent-11 | The form of partnership cooperation carried out by the school and business and industry. | 0.624 |
| Respondent-12 | Information about the material that will be provided by industry in the guest teacher program. | 0.881 |
| Respondent-13 | Principals and teachers know and understand the school link and match with industry business and industry program. | 0.588 |

Increasing the need for industrial workers with demands for professional skills is one of the important goals of the center for excellence vocational school program. Therefore, Muhammadiyah 1 Ciputat vocational high school, South Tangerang must be carried out properly and involve interrelated parties such as

teachers and students. Muhammadiyah 1 Ciputat vocational high school in South Tangerang is required to carry out a link and match program, namely: i) the curriculum is prepared jointly, including strengthening soft skills aspects and work character to complement hard skills aspects according to the needs of the world of work. Curriculum program arranged together (link and match) schools with the business and industry training materials, and industry certification into the curriculum in schools. Both parties actively collaborate in making plans, starting from synchronizing curricula with industry, industrial partners must also actively encourage and provide support to schools to provide learning. Even active industrial partners end up being testers and recruiting vocational high school graduates to work in their industries; ii) project-based learning, to ensure hard skills are accompanied by soft skills and strong character. This must be prepared jointly with the industry so that later what students will learn must be according to industrial needs; iii) enhancement number and role of teachers/instructors from industries to a minimum of 50 hours/semester/skills program; iv) apprenticeship or work practice in the industry/world of work for at least 1 semester. The apprenticeship/apprenticeship program is carried out in a structured and well-managed manner between industry and schools so that students do not have the provision and competence to practice in industry; v) competency certification according to standards and world of work needs for graduating students and vocational school teachers; vi) teachers routinely receive technological updates and training from the world of work; vii) applied research supports teaching factory originating from real cases or needs in industry/society; and viii) commitment to be absorbed by the world of work. With this, because the curriculum is appropriate, with apprenticeships and it has been designed with the teachers, it is necessary to be ready to absorb graduates of Muhammadiyah 1 Ciputat vocational high school, South Tangerang with a record of passing the psychological test and so on, with a note that both must have the desire; and various other possible collaborations with the world of work, including scholarships and or service bonds, donations in the form of laboratory equipment or other forms.

Interviews result conducted by researchers with the principal and productive teachers as well as class XI-XII vocational high school students in implementation of the link and match program are as: i) in the aspect of cooperation, the implementation of link and match program is built through the business and industry collaboration. Collaboration is the starting point in building link and match between vocational high school/*Perguruan Tinggi Vokasi (PTV)* and industry. Cooperation is built on the basis of mutual need and benefit. In establishing cooperation, it usually begins with a cooperation program that is prepared according to needs, then there is a process of communication and coordination between the two parties, after good communication occurs, a joint agreement will be built which is contained in legal standing, which can be in the form of an memorandum of understanding (MoU) or cooperation agreement. Vocational schools that carry out MoU with industry are just said to be "link" cannot be said to have "match". To be able to link and match, then an analysis of the needs for follow-up cooperation is implemented into the learning process according to the 8+i link and match program; ii) on the aspect of project-based learning development from implementation of link and match in the teaching and learning process that is effective and in accordance with vocational high school/PTV, one of which is the application of a project-based learning. Project-based learning is expected to have direct involvement from industry from the planning, preparation, implementation, evaluation, to marketing stages. It is expected that the project applied to learning is real according to industry's needs and standards, so that the application of learning has also applied the attitude and character of work so that in the end it becomes a work culture; iii) In terms of infrastructure, Muhammadiyah 1 Ciputat vocational high school, South Tangerang already has a practice learning place; workshops/workshops/land/studios are arranged and equipped with facilities and other supporting facilities according to the standards of the industry. The school environment has nuances like those in the industry, or real workplace/business; iv) the management of practical learning refers to the systems and working hours of the business and industry in the new normal period; v) the results of student practical learning are in the form of real/intact goods or services in accordance with the standards industry and the needs of society in general; and vi) practical learning using devices/instruments/formats to carry out activities/activities for the production of goods and or services.

4. CONCLUSION

Based on the findings of the study conducted on implementation of link and match 8+i at Muhammadiyah 1 Ciputat vocational high school in South Tangerang, Banten Province, it can be inferred that the 8+i link and match program was successfully executed in Muhammadiyah 1 Ciputat vocational high school, South Tangerang, through active engagement with the business and industry sector. The 8+i link and match program encompassed many stages, including planning, coordination between Muhammadiyah 1 Ciputat vocational high school, South Tangerang Banten Province and industry, establishment of a cooperation agreement, development of a Cooperation program, program implementation, and program

evaluation. Link and match as the output of a policy, is the concept of interrelationship educational institutions and the world of work is a liaison between labor providers and users. With this connection, education as a supplier of labor can establish relationships with the world of business and industry. With this link and match, an institution, especially Vocational Education, can collaborate with industry so that students can do internships at the company and can find out the student competencies that are most needed by the industry.

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