

The Development of Vocational Education Institution and Industry Partnership – Based Performance Management Model to Improve the Occupational Competence of the Vocational Graduate Candidates

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Abstract: *The aims of this study were to find and develop the partnerships-based performance management model on Industry Department in Vocational Education Institution. This study employed a research and development method. The subjects of research were Vocational Education institutions on these departments: (1) Technology and Engineering, (2) Arts, Hand Crafts, and Tourism, (3) Business and Management, (4) Information and Communication Technology, and (5) Health in Semarang city. Questionnaire and literature review were used to obtain a factual model during preliminary study. Focus Group Discussion (FGD) and expert judgment were conducted to obtain the model design. Furthermore, the model design was tested in a preliminary field testing and a main field testing was conducted to obtain the partnership-based performance management model. The successfulness of the development of the model was measured from the application model of output, such as (1) an increase in vocational education institution and industry partnership-based performance management (2) there is an increase in the occupational competence of Vocational graduates candidate. The result of study was MOMARJABATRA model as the vocational education institution and industry partnership - based partnership-based performance management model. This model was designed based on the management functions of planning, implementing and evaluating to the components of input, process and output of performance management. The implementation of MOMARJABATRA improved the performance management of Vocational, and effectively improved the occupational competence of graduate candidates.*

Keywords: performance management, partnership of Vocational Education–Industrial Field, Work competence, Vocational graduate candidates

1. Introduction

One of the purposes of Vocational Education (SMK) in Indonesia is to prepare students especially to work in a particular field. Various models of integrative learning and teaching have been developed and applied in Vocational Education such as the integrated pedagogy [1], the hybrid learning environments [2], the 'Erfahrraum' model [3]. The purpose of those models is to enable the vocational education graduates to work in industry. However, In fact, high percentages of vocational education graduates are unemployed. Based on the data from the Central Bureau of Statistics, the amount of unemployment of Vocational school graduates, Diploma I / II / III and University graduates has increased. Number of vocational graduate unemployment level (TPT) in February 2014 was 7.21%, and in February 2015, the figure rose to 9.05%.

The high number of Vocational unemployment level can be caused by the low of performance management which results in the low of quality of graduates which is not suitable with the needs of industry. The performance of vocational education institution becomes optimal if it is supported by well-programmed partnership management between Vocational Education institution and Industry. The partnership of both Vocational Education institution and industry and the quality of institution' performance refer to the opinion of Vermeer [4] stating that the consistent and

long period partnership in the between schools and industry can realize the expected school performance. The important partnership of Vocational Education institution and Industry is supported by de Freitas et al. [5] stating that establishing the working relationships can be interpreted as developing and maintaining relationships or the harmonious and mutually beneficial networking, with other parties who will give a certain contribution toward various purposes which are related to cooperation and partnership.

Some literatures regarding partnership program between Vocational Education Institution and Industry have been reviewed [4] [5]. However, the performance management model which involves industry directly in regulating the input, process and output performance of SMK has not been conducted by the previous studies. Therefore, the purpose of this study was to find and develop the Vocational Education institution -Industrial partnership-based performance management model. The development of the vocational education institution-Industry partnership-based performance management model produced a strategy of work competence of graduates which is suitable with the needs of Industries and has an impact in increasing the absorption of vocational education institution graduates in Industry. Vocational Education institution– industry partnership is very appropriate, especially in developing resources [6]. According to Allen [7], James, Bruce [8] the partnership between Vocational Education institution and Industry has

many benefits for both parties, especially as improvement tools

The purpose of this study was to find and develop the vocational education institution - Industry partnership-based performance management model. Industry as a partner is expected to be in synergy to achieve a common goal. Smith [9] argues that partnership approach is the kind of approach which can bridge the worlds of education and industry. Henrietta [10], and Bodilly [11] corroborate that the forms of cooperation between the education worlds with industry can be developed through the framework of community around the school environment to utilize and empower all the potential and the resources of the school. Vocational Education institution and Industry can establish a mutually beneficial partnership in solving every problem. [12]

2. Methods

This design of this study was a research and development. The design application was based on the main purpose which was to find a model of Vocational Education institution - Industry- based performance management, which includes the management aspect of input, process and output to increase the work competence of vocational graduate candidates. The research and development process consisted of 10 steps [13]

The study was conducted in the Semarang city. Subjects of study were (1) Vocational Technology and Engineering, (2) Vocational of Art, Craft, and Tourism field, (3) Vocational of Business and Management field, (4) Vocational of Information and Communication Technology Field, and (5) Vocational of Health field. Each type of Vocational is taken an expertise competency to develop the model of Vocational performance management partnership-based which includes the management aspects of input, process, and output, identifying constraints of performance management of Vocational and strategies to increase the the work competence of Vocational graduate candidates.

Consecutively the first step of research and development was begun from preliminary study, comprises of (a) the study of literature, followed a study of data collection in the field by methods of questionnaire, interview, and documentation in order to obtain identification, description and analysis of finding in the field called factual models. Preliminary study was conducted by descriptive-analysis; so that the results will be formulated is a description and analysis about the factual models of performance management of Vocational partnership-based. Based on this finding, researcher formulates a development model.

The second step was the development and validation of the model as follows:

- a. Arrange the first formulation (design model) about model of performance management of Vocational partnership-based to increase the work competence of graduate candidate according to the needs Industrial Field; next it is called the design of the development model.
- b. Make validation I on the design of developed model by Focus Group Discussion (FGD).
- c. Improve the model accordance with the input from the result of FGD, the next it will be found a hypothesis model.
- d. Make validation II, the hypothesis model is tested in a limited on three Vocationals and expanded on five Vocationals and make improvement accordance the input. The goal that wants to be achieved at this step is to describe the conducted models as well as assesses the implementation results of the performance management model of Vocational partnership-based.
- e. Make a test of the effectiveness of model on the users. The purpose of this activity to assess the effectiveness of final model of the performance management of Vocational partnership-based with indicator to increase the graduate's competence.

The third step was to test the effectiveness of the development model result. Test of effectiveness was conducted by descriptive analysis technique. The steps which are conducted, namely:

- a. The researcher makes the evaluation quisioner of the effectiveness of model, next this quisioner is tested the validation by expert judgment
- b. The model of development result and quisioner test of the effectiveness of model are communicated to the Vocational headmaster, the head of expertise program who is selected, the Head of Education Service in Semarang city, the selected teacher of study program to evaluate the effectiveness of model of the design result if it is applied in Vocational Education.
- c. The Vocational headmaster, the head of expertise program who is selected, the Head of Education Service in Semarang city, the selected teacher of study program complete the questionnaire which has been delivered.
- d. The researcher evaluates the content of questionnaire by descriptive statistic technique to see the effectiveness of model and the effectiveness criteria's of model.

3. Results and Discussion

Based on the data of study, Vocational Education institution and Industry partnership - based model of performance management was designed to improve the work competence of Vocational graduate candidate. The result of design of the performance management model is shown in Figure 1. This model is called 'MOMARJABATRA SMK-DU/ DI' as the abbreviation of The Model of Vocational Education Institution and Industry Partnership-Based Performance Management.

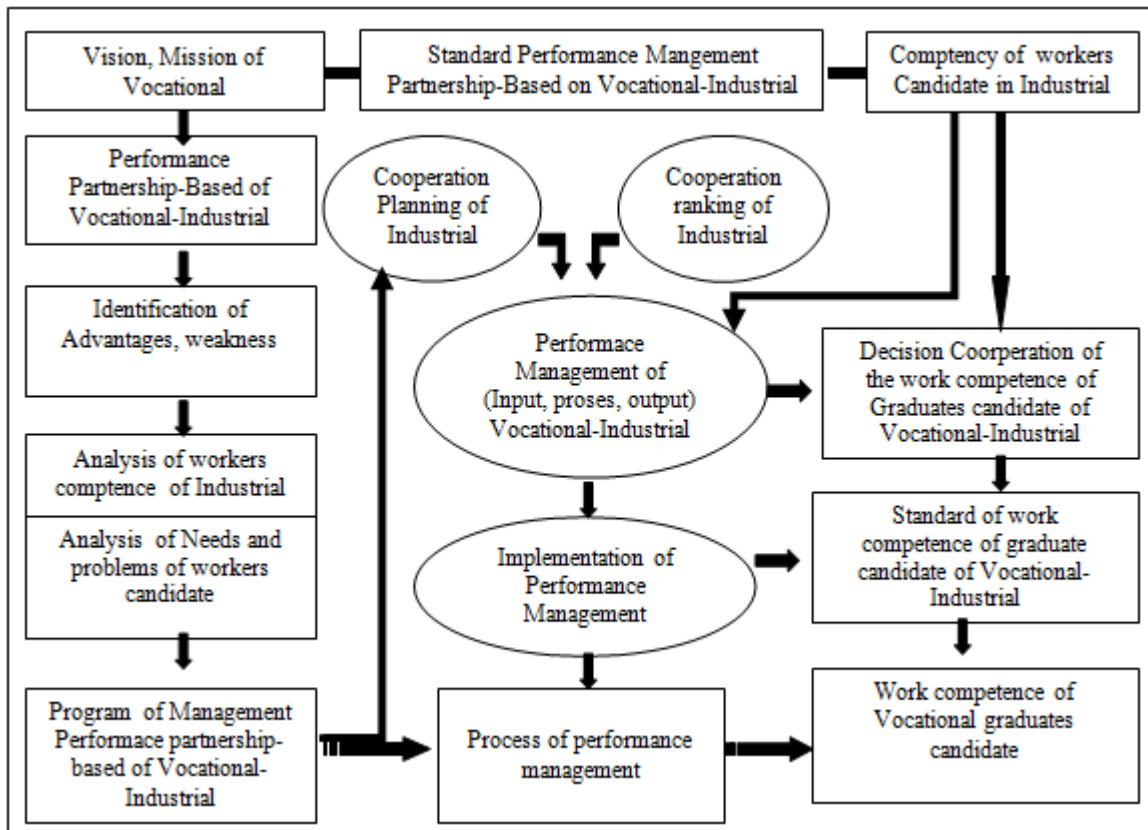


Figure 1: Design of the development model of Vocational Education Institution and Industry Partnership-Based Performance Management

It can be seen from the figure 1, the improvement of the work competence of Vocational graduates which is based on partnership between Vocational Education Institution and Industry becomes the focus of MOMARJABATRA SMK-DU/DI. Achievement of the objective is formulated based on management functions of planning, implementing, and evaluating. Implementation of the three functions of management by linking vocational education institution and Industry. Having a partnership with the Industry has paramount importance because it will hire the Vocational education institution's graduates as workers. Participation of Industry in performance management functions at the school bridges the problems that may arise when the industry recruited workers candidate from Vocational graduates.

Test of Effectiveness of MOMARJABATRA SMK-DU/DI
 The result of test of MOMARJABATRA SMK-DU/DI (figure 1) is presented in Table 1.

4. Discussion

It can be seen from the data in table 2, Vocational Education institution and Industry partnership-based Performance management to improve the occupational competence of Vocational graduate candidates in Vocational education institution in Semarang City is in good level. However, the input component can be categorized as poor, the process

component is categorized as good, and the output component is categorized as good.

The poor input component on the partnership-based performance management in improving the occupational competence of Vocational education institution's graduates candidate which is urgent to be improved are (1) school socialization about the program which educate, develops, and guides students, (2) more opportunities should be given to the students to participate in organizing school programs, (3) improvement of the ratio of the numbers of teachers for study groups, and (4) the involvement of stakeholders in the discussion about the mission of the vocational education institution. This improvement is expected to increase the Vocational Education institution and Industry partnership-based Performance management and the occupational competence of Vocational graduates candidate. Hadromi [14] substantiates that the ratio of teachers to students can increase achievement the learning of students. The next improvement on input components are: (1) the level of learning readiness of students has been adequate, both mentally and physically, and (2) Level of teacher education qualification from an accredited university. Therefore, both teacher and non-educational staff can be directed to other accredited institutions to increase human resources. A good relationship between students and teachers will also affect the output quality of graduate candidate [15], [16]

Table 1: Data of Test of Effectiveness of MOMARJABATRA SMK-DU/DI

No	Test components of the effectiveness of model	Average score of questionnaire	Effectiveness Category
1.	MOMARJABATRA SMK-DU/DI supports the lesson planning involving industry	3,6	very effective
2.	MOMARJABATRA SMK-DU/DI supports lesson implementation involving industry	3,7	very effective
3.	MOMARJABATRA SMK-DU/DI supports implementation of learning evaluation involving industry	3,4	effective
4.	MOMARJABATRA SMK-DU/DI supports the partnership sequence of Vocational Education institution – Industry to increase the Occupational Performance of vocational education institution.	3,7	very effective
5.	MOMARJABATRA SMK-DU/DI supports the achievement of competence quality of the graduate candidate in accordance with the standard of the industry	3,3	effective
6.	MOMARJABATRA SMK-DU/DI improves the performance of Vocational education institution.	3,6	very effective
7.	MOMARJABATRA SMK-DU/DI supports the evaluation of partnership - based performance management of vocational education institution.	3,7	very effective
8.	The result of evaluation of MOMARJABATRA SMK-DU/DI implementation is practical to be followed up.	3,3	effective

Table 2. The input, process and output components of vocational education institution and industry partnership-based performance management

Performance Management	Input Component	Process Component	Output Component	Average Score
Excellent	16.88 %	35 %	29 %	26.96%
Good	38.75 %	39.33 %	39 %	39.03%
Poor	39.38 %	17.67 %	27.5 %	28.18%
Very Poor	5 (%)	6.33 %	4.5 %	5.28%
Average Score	2,68	3.03	2.92	1.98

Furthermore, the process component which requires improvement due to the poor score consists of two, (1) the involvement of Industry in preparing the curriculum, syllabus, and lesson plan and (2) The use of electronic media for learning.

Associated with teaching administration, then Guile and Evans, [17], argues about the importance of the curriculum implementation to achieve learning goals. Furthermore, Muller and Young, [18] shows the strategic role of industry in increasing learning experience of graduates candidate. Next, Hadromi [19] reveals about the involvement of Industry in curriculum development which has an impact on the suitability of output quality of graduate candidates to the needs of workers in the industry. This suitability will accelerate the absorption of graduate candidate in the industry. Furthermore, the use of electronic media assisting the learning process is corroborated by Zhang, Fang, and Ma [20]. The limited media and tools in lab work for vocational education institution can be overcome by the implementation electronic-based learning media [21], [22]. The availability of electronic-based learning media reduces the gaps and limitations of tools and materials for lab work to suit the demand of the industry. Electronic-based learning media can be in a form of a multimedia learning.

Furthermore, Inayat et al. [23] shows that e-learning has been widely adopted as the main alternative for teaching and professional training to overcome the limitations of time and costs. Nicholas [24] substantiates that e-learning which uses the internet and web technologies has a function to replace the traditional teaching model. Students and instructors can communicate with each other through the human-computer with the technology of internet/web media [25] such as Learning Content Management Systems (LMCS) (Bergstedt,

2003) [26], Course Management Systems (CMS) and, Virtual Learning Systems (VLE) [27], [28].

The advantages of process components of vocational education institution and Industry partnership-based Performance management in increasing the work competence of Vocational graduate candidate are: (1) the availability of syllabus, (2) the availability of Lesson Plan, (3) the suitability of teaching method with the learning material, (4) Lesson Plan becomes a reference in learning, (5) the completeness of learning media in school, and (6) the suitability of teachers expertise in learning. This advantage has an important role in improving the occupational competence of Vocational graduate candidates in Semarang city.

The output components of the Vocational Education institution and Industry partnership-based Performance management in improving the occupational competence of Vocational graduate candidate which required improvement are: (1) the achievement in the art competition in the previous year's which achieved the highest ranking up to the level, and (2) achievement of teacher winning the championship in the previous year (ranking 1-5) up to the level. Furthermore, the advantages of the output components were: (1) the scores of all subjects which were not in the National Examination achieved the average of learning mastery standard score, the scores of all subjects which were in the National Examination achieved the average of learning mastery standard score and (3) the number of graduated students in this school year. With the advantages and weakness of output quality of the graduate, then the Vocational Education institution and Industry partnership becomes an alternative solution about the weakness of output quality of Vocational Education graduate [29]

The input, process and output component of the vocational education institution and industry partnership-based performance management can be improved if its implementation follows flow chart of MOMARJABATRA SMK-DU/DI and the design result as seen in Figure 1.

MOMARJABATRA SMK-DU/DI is divided into three components, (1) planning, (2) implementing, and (3) evaluating. Achieving goals of vocational education institution cannot be separated from good planning. Munastiwi (2014) [30] argues that good management will support the learning outcomes of vocational education institution. The planning must be focused in achieving the vision, mission and goal of vocational education institution. The achievement of the vision, mission and goal of vocational begins with planning which needs to be conducted in partnership with the industry. Abdullah [31] argues that the partnership between vocational education institution and Industry is strategic and useful in providing occupational training for the graduates. Furthermore, Sappa at al. [32] shows that one of the prerequisites for the effective development of professional competence in vocational education is the active participation and involvement of students in the educational setting and job training. Therefore, the involvement of the industry in the management functions of planning, implementing and evaluating strategy in increasing the quality of graduate candidate is necessary.

MOMARJABATRA SMK-DU/DI can effectively increase in the performance vocational education institution, and it has impacts in improving the competence of Vocational graduate candidates. Planning started from the identification of advantages, weaknesses of vocational education institution and industry partnership-based performance management, and then the analysis of industrial workers' competence was conducted, and the analysis of the workers candidates' needs and problems. The result of the planning was the vocational education institution and industry partnership-based performance management program. Furthermore, the program was translated into the input, process and output component of the performance management activities to increase the occupational competence of vocational education graduates candidates. The next step was the implementation of performance management as an effort to improve the occupational competence of vocational education graduates candidates. In this step, the planning and sequence of partnership between vocational education institution and industry was set by observing the condition of the environment and should be integrated concretely on the learning process [33]. Furthermore, the vocational education institution and industry partnership - based performance management (input, process, output) of was implemented. The occupational competence of graduate candidates could meet with standard of the industry. As a consequence, the partnership to improve the occupational competence of graduate candidate is required. The standard of the occupational competence of Vocational graduate candidate can meet the standards competency according to the needs of the industry.

Tishuk [34] shows that challenge to improve the quality of graduate occurs continuously and it results in the dynamics of the partnership. These dynamics are influenced by a combination of internal force and external pressures of Vocational education institution[33]. Both forces have predominantly contributed to the dynamics of the partnership between vocational education institution and Industry ([35], [36], [37], [38]). Consequently, this evaluation needs to be continuously conducted in to measure the achievement and to improve the possibility of unsuitability as an effort to achieve the vision, mission and goal of vocational education institution. The continuous improvement was carried out on the in the planning, implementing or in the evaluating function.

5. Conclusion

Based on the results of data analysis and discussion, this study can be concluded as follows:

- a. This study recommends MOMARJABATRA SMK-DU/DI to be the model of vocational education institution and industry partnership-based performance management developed in this study. The design of model implemented the management functions of planning, implementing, and evaluating on the performance management components consisting of (1) input including: teachers, students, and facilities, (2) process including: aspects of the curriculum and teaching materials, learning process, assessment, management and leadership, and (3) output including: achievement of students, teachers and principals, and school achievement as an institution which is used to measure of the school quality in increasing the occupational competence of Vocational graduate candidate.
- b. The implementation of MOMARJABATRA SMK-DU/DI could effectively improve the performance management, and Vocational graduate candidate and absorption in Industrial Field.
- c. The advantage of MOMARJABATRA SMK-DU/DI was designed and integrated between the management functions and performance components consisting of input, process and output. The Management of planning started from the identification of the advantages, weakness, and analysis of the competency and the needs and problems of workers candidates in the school and Industry. The management implementation started from (1) partnership planning with the industry and the sequence of vocational education institution and industry partnership, and the decision of occupational competence of graduates candidate of vocational education institution - industry. Therefore, the standard of occupation competence of the graduates' candidates can meet the competence standards of needs of the industry. The last one, the management function evaluation was continuously conducted to measure the achievement and to improve the possibility of unsuitability to achieve the vision, mission and objectives of vocational education institution.

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