

Cooperation between vocational high schools (VHS) and industry to increase the number of hired graduates: multi-case study on three VHSs

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ABSTRACT: In this article, the author presents research that examines the cooperation between vocational high schools and industry in order to increase the number of graduates hired using a qualitative approach. Its aims are to develop a pattern of VHS policies to enhance cooperation with industry, and to identify the obstacles that occur during the development process. The study used a qualitative approach with a multi-case study design. The data were obtained through interviews, observation and document study, and data analysis was performed by individual data case analysis and cross-case analysis. The results obtained are presented and discussed in this article.

Keywords: Cooperation, hired graduates, multi-case study

INTRODUCTION

Background

This study examines the cooperation between vocational high schools and industries in order to increase the hired graduates (multi-case study on three VHSs) using a qualitative approach. It aims to: 1) develop a pattern of VHS's policies to enhance cooperation with industry; and 2) find the obstacles that occur during the development process.

The study used a qualitative approach with a multi-case study design. The data has been obtained through interviews, observation and document study. Data analysis was performed by individual data case analysis and cross-case analysis.

A validity test was carried out to meet three criteria; namely:

- 1) credibility, including triangulation of data sources, methods and member checking;
- 2) dependability; and
- 3) confirmability.

Research Objectives

Vocational high school (VHS) graduates are expected to fill labour needs in industry or business, and are expected to have competency in entrepreneurship. In other words, graduates might become entrepreneurs if they are not working in business or industry. Vocational education aims to equip students to have competency in a particular vocational field, so students will be able to work (have competency) for the sake of their future [1]. In vocational education, students are equipped with theory and practical skills, as well as patterns and social behaviour and nationality insight. Vocational education, especially education from VHS, is an investment to improve the quality of human resources, which is the main condition for increasing the rate of economic growth, equity and social change [1]. Vocational education policy includes: 1) economic policy; 2) employment policies; and 3) cultural policy.

Some problems have arisen because the number of unemployed VHS graduates is higher than the number of high school graduates. As noted by the Chief of Semarang District *Dinsosnakertrans*, Iswinarso [2], and Wiranto (Director

PAUDNI), Ministry of National Education [3], SMK (VHS) unemployment is high with 17.26% of the total being unemployed Indonesian in 2009 and 14.59% in 2008, while the unemployment rate of high school students was 14.01% in 2009 and 14.5% in 2008. This situation is in sharp contrast to the National Ministry of Education's programme in which the ratio of the number of vocational and high school students is 70% to 30%.

Secondly, many VHSs only pursue the quantity of students rather than emphasising the learning process, particularly how to determine the partnership patterns and collaboration with industry and the business world for teachers' quality improvement through industrial training, improving students' skills, curriculum development and infrastructure that match the growth of industry.

Therefore, the study and pattern development of VHS-industry cooperation is being promoted to overcome these problems. In this article, the pattern of cooperation development identified between VHSs and industry can be used as a reference for all VHS, especially, in Malang (Malang Raya).

METHOD

This research has used multiple case study design in which the researcher examined two or more subjects, settings or data storage. It is about the process of school change in terms of cooperation with the industry in schools that have different background.

In qualitative research, the researcher acts as a key instrument, which is supported by means of a camera, tape recorder, interview and observation. Bogdan and Biken [4] and Borg and Gall [5] stated that researchers are instruments, as well as data collectors.

The research was conducted in SMKN I Singosari, SMK PGRI 3 Malang, and SMK 1 Blitar, a vocational high school that has implemented the international standard of quality management (SMM. ISO: 2000). Based on the data obtained from observation, the graduates of those three SMKs were mostly hired by business and industry.

Research data source consists of human data sources (people) and non-human data sources. Human data sources served as subject or key informants. The non-human data sources are documents relevant to the research focus, such as images, photographs, meeting notes or writing.

Determination of informants was based on:

- 1) the subject having long experience and a connection with the field of research;
- 2) the subject being heavily involved in activities within the research area;
- 3) subjects having had time to be interviewed by the researcher; and
- 4) the subject providing real information.

Three approaches can be used to obtain the data:

- 1) in-depth interviews and unstructured interviews by preparing the main points of the research question;
- 2) participant observation; and
- 3) study of documents, that collect data from non-human sources, including school profiles, strategic plans, school performance programmes, flagship activity videos, school rules and activity planning sheets.

Furthermore, the data were analysed by comparing, differentiating, and matching the findings of the study with a review of the literature [6][7]. The data can, then, be separated into categories and then, the research can progress to finding meanings and to looking for patterns that can identify behavioural practices of each case studied. This research used multi-case study design; therefore, data analysis was done in two stages: namely, data analysis of individual cases and cross-case analysis [8]. Checking the validity of the data in this study was based on three criteria; namely: 1) the credibility/degree of confidence through: a) continuous observation; b) triangulation of data sources, methods, and other researchers; c) member check and peer discussion; and d) checking the adequacy of reference; 2) dependability conducted by asking several dependent auditors; and 3) confirming ability.

RESEARCH FINDINGS

The first research findings related to SMK (VHS) policy analysis in order to enhance cooperation with industry are: a) the number of hired vocational graduates in the industry was high (close to 100%) in the waiting period which averaged three months; b) promotion was conducted continuously to improve the image of the school and cooperation between schools and industry; and c) alumni were used as the subject of promotion of industry.

The second result was about curriculum development. Industries are involved in curriculum development, including planning, implementation and evaluation along with the teachers to match the graduates' competency with industry requirements.

The third finding is about the training of teachers. It was found that industry and school cooperation is applied through training of particular teachers to improve their competency, ranging from several days to several weeks and training of students starting from a few weeks to several months at school or industry.

The fourth finding is about infrastructure development and financing. It was found that the industry provided assistance in the form of training facilities, including automotive engines, instructional media and other supporting equipment. The assistance enhanced the synergy of teachers and students competency with the needs of industry.

The fifth set of findings was: 1) industry uses several approaches for recruiting graduates such as affective, spiritual and social as the main requirement; 2) the improvement of school services was done wholeheartedly, with empathy and sincerity, both in service industries, as well as for students/graduates; and 3) school emphasises social and spiritual aspects, while developing industrial skills of students/graduates.

The sixth set of findings was about the constraints that occur in development cooperation. It was found that: 1) communication with the alumni (who work in the industry) is a major obstacle in controlling graduates; 2) the unpreparedness of graduates to accept recruitment with industries located far outside the island of Java; and 3) hired graduates' inconsistency forces the school to reschedule and convince the industry.

DISCUSSION

The research findings on cooperation policy between VHS and industry can produce cooperation in several fields. The spirit of cooperation in vocational education is sufficiently high and is in accordance with the opinion of Michael Maginn [9]. He suggested passion for cooperation is needed and the cooperation steps are to:

- 1) define the common goals clearly;
- 2) clarify the expertise and responsibilities of members;
- 3) provide time to determine how to work together;
- 4) avoid predictable problems;
- 5) use team rules that have been agreed upon;
- 6) ensure that new members of the team are taught about how the team operates and how to interact in the team;
- 7) cooperate always;
- 8) embody ideas into reality;
- 9) actively adjust differences;
- 10) fight conflict;
- 11) aim for mutual trust;
- 12) reward each other;
- 13) evaluate the team on a regular basis; and
- 14) not give up [9].

The number of vocational high school alumni (SMK PGRI 3, SMK Singosari, and SMK 1 Blitar) hired by industry is high (nearly 100%) within the average waiting period of three months. In addition, promotion is conducted continuously to improve the image and promote cooperation between schools and industry, and alumni who are already working in the industry, communicate with the school and are used as school subjects in the school promotion of the industry.

These results are consistent with the research of Rediyono in which it is stated that the cooperation between school and industry is needed because industry has rapid development in technology and without cooperation, vocational high schools will soon be lagging far behind because they cannot provide all of the equipment needed in industry as an integral part of learning process in schools [10]. Moreover, collaboration with industry will help SMK (VHS) in delivering adequately prepared graduates, because industry already knows the extent of the competency of the graduates of the school who have been cooperating with the particular industry.

Industry involvement in curriculum development, ranging from planning, implementation and curriculum evaluation with teachers in the field of expertise, helps in meeting the goal of matching graduate competencies with industry requirements. Curriculum development needs to involve the general public because education contains value and give value judgments. Sukmadinata explains that education is directed at the development of children's personalities to match the values that exist in the community because education has value so education must load value [11]. More than that, education should be directed to community life. If this value is applied in vocational education (SMK), curriculum development should be tailored to the needs of industrial society, so that graduates' competency is matched with industry requirements.

Klose said that the development of technology is influential on the progress of the world, covering the development of transportation technology, communications, informatics and electronics [12]. Technological development is a major influence in the advancement of industry, which requires new equipment and adequate human resources. It is the task of vocational education to be able to keep up with technology in industry so, cooperation in the design of the school

curriculum is needed. Industry will be involved in curriculum emphasis, especially in regard to the competencies required in order to keep up with the rapid technological developments.

The study of cooperation between VHS and industry in the field of training conducted by industry obtained several results, indicating that industry collaborates with vocational high school and held training for teachers that ranged from several days to several weeks in particular areas of expertise, in order to enhance the competency of teachers to teach students, and that industry trained students at school or industry itself.

Training of teachers and students is very important for vocational education and industry. Agrawal said that the education and training of teachers in vocational education focused on improving practical skills relevant to their expertise, and training is not only important to increase the quality of teachers and staff, but also helps improve industrial productivity [13]. Moreover, vocational education and training is needed to improve mobility, adaptability and productivity of labour, in order to contribute to the increase of competition and to improve labour market imbalances.

The research findings about cooperation in the development of industrial infrastructure between vocational high school and industry showed that industry provide assistance in the form of training facilities, including automotive engines, instructional media and other support equipment, which help to increase the skills of teachers and students in accordance with the needs of industry. This research finding is about the role of society (industry) in education funding. In the Law of the Republic of Indonesia, No. 20, 2003, on National Education System, it is stated that funding for education is a shared responsibility between central government, local government and society, and that the government, the local government and community should mobilise available resources in accordance with the formal legislation [14].

Other findings obtained in this study are:

- 1) the spiritual and socially responsible approach is the main requirement in the recruitment of graduates by industry;
- 2) improvement of school services should be done wholeheartedly, with empathy and sincerity, both with industry, as well as with students/graduates; and
- 3) school emphasised social and spiritual approaches to equip students/graduates when delivering students/graduates to work in the industry.

Constraints in cooperation development in industry and vocational high school cooperation are:

- 1) communication with the alumni is a major obstacle in monitoring graduates/alumni;
- 2) the unpreparedness of graduates to accept recruitment for the industries outside Java (because it was far from the island); and
- 3) graduates' inconsistency in industry (does not meet the initial commitment), that makes the school reschedule and convince the industry.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions of this study are:

- 1) the number of vocational graduates hired by industry was high (close to 100%) in an average waiting period of 3 months;
- 2) promotion should be conducted continuously to improve the image of the school and cooperation between schools and industry;
- 3) alumni were used as the subject of promotion of industry;
- 4) industry is involved in curriculum development, including planning, implementation and evaluation, along with the teachers in their area of expertise;
- 5) industry provided teacher training;
- 6) industry provided industrial training for students;
- 7) industry provided assistance in the form of industrial training facilities, including automotive engines, instructional media and other ancillary equipment;
- 8) the spiritual and social approach is the main requirement in the recruitment of graduates by industry;
- 9) improvement of school services should be done wholeheartedly, with empathy and sincerity, both with industry, as well as with students/graduates;
- 10) schools should emphasise social and spiritual approaches to equip students/graduates when delivering students/graduates to work in the industry;
- 11) the unpreparedness of graduates in job recruitment for industry outside Java; and
- 12) the inconsistency of graduates who had been accepted by the industry (they did not meet the original commitment).

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BIOGRAPHY



Dr Tri Atmadji Sutikno was born in Sleman, Indonesia. He obtained his Bachelor degree from IKIP Yogya. Dr Sutikno received his Master's and doctoral degrees from Universitas Negeri Malang (UM); both are in management education. Since 1995, he has been a lecturer in the undergraduate programme at the Department of Electrical Engineering UM, as well as the postgraduate programme at the same university. His research interest is management education, especially related to vocational education and training.