

The Development Of Vocational Education Program And The World Of Work: Establishing Link And Match

Eva Devi Sofyawati¹, Mohammad Fakry Gaffar², Aan Komariah³, Abdul Azis Wahab⁴

Universitas Pendidikan Indonesia, Indonesia. E-mail: ¹evadevisofyawati@gmail.com, ²mfgaffar@gmail.com, ³aan_komariah@upi.edu, ⁴abdulaziswahab1@gmail.com

Abstract

The purpose of this study is to examine the development of vocational education program and the world of work. The research applies qualitative method and the object is the State Polytechnic in Bandung. The results show that curriculum design and implementation and the role of management and leadership in curriculum development have referred to the needs of the world of work, but the learning governance in industries has not been implemented properly, so the Polytechnic needs to foster better collaboration with industries in curriculum development, especially in the learning process.

Keywords: curriculum development, vocational education, management, leadership, link and match.

INTRODUCTION

Vocational education is designed to equip learners with knowledge, skills, abilities, attitudes and work habits so that learners are ready to work. Vocational education is growing because of the community's need for work. Programs needed by students are those which can provide competencies, experience, insights, and networks that can make them work according to their career choices (Hiniker & Putnam, 2009). Thus, the vocational education program developed must be work-oriented.

In Indonesia, vocational education is held at the secondary school level, namely Vocational High School (VHS) and tertiary education which produces Diploma graduates such as the Polytechnic. According to Statistics Indonesia (2020) the Open Unemployment Rate based on education in February 2020 showed VHS graduates had the highest score of 8.49%, then high school 6.77%, Diploma I / II / III 6.76%, University 5, 73%, and finally junior high and elementary schools with 5.02% and 2.64%. The high unemployment rate for vocational graduates

is due to several factors, including the existence of skills mismatch (Ra et al, 2015; Kashem, Chowdhury and Shears, 2011), the learning process in vocational schools hasn't been integrated with the expertise program (Effendi, 2013; Finch and Crunkilton, 1999), existing expertise programs are too general and lack focus on the job specifications required by the world of work (Longstreet, 1993; Lu Hong, 2009). Therefore the vocational education curriculum must be developed systematically so that it is consistent or there is a link with the needs of the job market (Boateng, 2012) and provides technical expertise for work and other competencies such as personal competencies, learning competencies and others to students (Ellstrom, 1997) so that it matches the expected results.

Vocational education is seen as a key factor to improve or maintain national economic and business competitiveness (Rauner and Maclean, 2008) so research on vocational education curricula has been widely carried out, such as Eze and Okorafor (2012) who examine approaches to restructuring the education curriculum vocational in Africa which previously

adopted a curriculum in Europe. Maina et al (2017) examined the approach to developing a vocational education curriculum to increase labor productivity. Similar research conducted by Oloyo (2019), Lasonen (2010), Haolader and Paul (2013), Mangesa et al (2018), Mouzakitis (2010). However, research that discusses in depth about the process of developing vocational education curriculum that refers to the demands of the world of work, which includes the development of curricula and their implementation as well as the role of management and leadership in ensuring the link and match between the curriculum and the needs of the world of work is still rare. Therefore, it is a novelty in this study.

LITERATURE REVIEW

The Development of Vocational Education Curriculum

The curriculum development process systematically regulates what will be taught, who will be taught, and how it will be taught. Each

component influences and interacts with the other components. The main focus of the curriculum is what must be taught and when, the decision on how this is done rests with the instructor (UNESCO-UNEVOC, 2013).

The vocational education curriculum focuses on providing direct learning experiences for students, equipping them with a variety of skills such as job search and entrepreneurial skills needed to succeed in the world of work, and requires constant updates to be responsive to change, community and labor market needs (Agrawal, 2012; Boateng, 2012; Finch & Crunkilton, 1999).

In Indonesia, in terms of curriculum development, the government has set it up by setting the 2015 National Higher Education Standards. Polytechnics as part of higher education institutions must follow the standards set by the government.

In general, the design of higher education curriculum according to the Directorate General of Higher Education (2016) is illustrated in the following diagram:

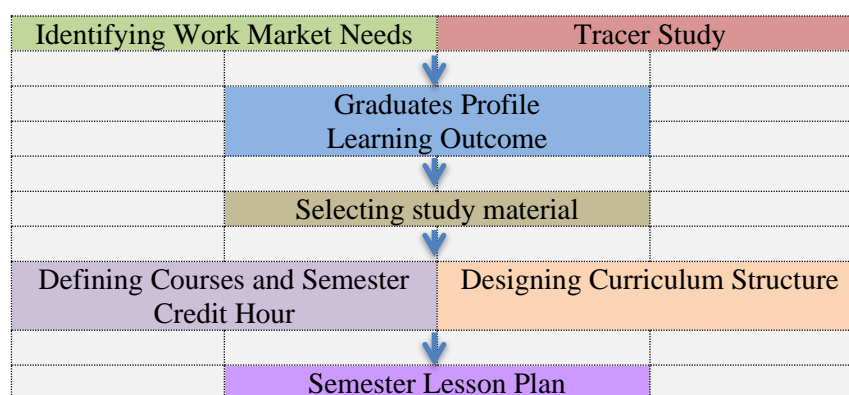


Diagram 1 Compilation of Higher Education Curriculum (Source Directorate General of Higher Education, 2016)

Management and Leadership in Curriculum Development

Management has various meanings according to experts. According to Terry (1958) management is the achievement of goals that have been set through or together the efforts of others. According to Koontz (1961), management is the art of getting things done and with people in groups that are formally organized, the art of creating an organized environment in groups

where people can appear as individuals but work together towards achieving group goals, the art of removing barriers regarding performance, the art of optimizing efficiency in achieving goals effectively.

Leaderships is also defined differently by experts. Terry (1958) said that leadership is the activity of influencing people to be directed towards achieving organizational goals, according to Davis (1997) leadership is the ability

to invite others to achieve goals that have been determined with enthusiasm.

In the context of the development of vocational education curriculum and the world of work, management and leadership function in ensuring that link and match is implemented, both in the curriculum design process and its implementation in the learning process in classrooms, workshops / laboratories, and in industry through fieldwork practices and internships.

METHOD

This qualitative research describes the development of vocational education curriculum and the world of work, carried out in a state Polytechnic in Bandung. It examined 36 Study Programs and participants were the institution leaders, Heads of the Study Program, lecturers, and instructors of practice subjects.

The data needed were curriculum document, Academic Regulations document, description of the process of design and implementation of curriculum conducted by the Polytechnic, as well as the role of management and leadership. Research data were collected using document review guidelines, interview guidelines, and observation guidelines.

Document review guidelines were used to collect data from curriculum documents and Academic Regulations, such as curriculum structure, course composition, Semester Credit Hour. While the interview guidelines were used to get data from the Assistant Director I and Heads of the Study Program to find out the stages in the process of designing and implementing the curriculum and the role of management and leadership in both processes. Researcher also conducted interviews with lecturers and instructors related to the learning process, such as the methods and teaching materials used. The last was an observation guide where researcher observed the implementation of the curriculum in the learning process that occurred in the classroom and in the workshop with a focus on the performance of lecturers and instructors.

Data were analyzed in several stages. First, the data were verified to re-check the completeness of the data to ensure that they answered all research questions, such as completeness of Academic Regulations

documents, curriculum, observation sheets, and making interview transcripts. The second, data were categorized based on research questions; data about curriculum compilation collected from all instruments separated in one file, as well as for data on curriculum implementation and the role of management and leaderships. Furthermore, all data were described in sentence form in accordance with the research question and according to the facts without including the opinion of the researcher. Finally, researcher discussed the findings by providing interpretations and comments on these findings. In this discussion process, researcher included expert opinions, theories and results of previous research as support.

FINDINGS / RESULTS

Based on the Polytechnic Academic Regulations document, the design of the curriculum in the Polytechnic is compiled and developed by Study Programs. Referring to the results of interviews with Assistant Director 1 and Heads of the Study Program, in the curriculum preparation process, leadership categories identified the basic factors of curriculum development. First, the labor market that revealed the estimation of labor forces needed in the current time and for the next few years. Secondly, interaction with industries, in this interaction the Polytechnic asked for input from the industries related to the required labor specifications. The difficulty at this stage was that the development of the world of work is very fast and not all demands of the world of work can be fulfilled. Third, examining the results of tracer studies, namely identifying the type of work or the role of alumni in the world of work. Fourth, interaction with alumni, that considered to provide more comprehensive input because they had experience in learning at the Polytechnic, so they made a lot of evaluations, give lots of input to Study Programs. Then, the Heads of the Study Program together with the curriculum development team determined the graduate profiles, learning outcomes, study material, curriculum structure, courses and Semester Credit Hours weight that referred to National Higher Education Standards, Indonesian National Qualification Framework and Polytechnic Academic Regulations.

The next process was the implementation of the curriculum as outlined in the learning process in the Polytechnic and in industries in the form of Professional Field Experiences and internships. Based on the data obtained from observations, it appeared that the learning process in the classroom, workshop / lab, and studio implemented student centered learning models, such as collaborative learning, cooperative learning, case studies, project based learning, problem based learning and inquiry, contextual instruction, simulation. Learning materials were developed by lecturers based on facts or realities that occurred in the world of work. For example in the D-III Accounting Program, the lecturer gave the task to students to conduct audits in business units in the Polytechnic, such as canteens, bookstores or provide training in filling tax forms. In the D-IV Sharia Islamic Finance Program, lecturers provided bookkeeping cases from Municipal Government and trained students to become consultants. In the D-IV Engineering Design and Construction Program and the D-III in Mechanical Engineering Program, the lecturer gave a sheet of assignments in the form of tools that must be made by students of a certain size and shape. The task sheet was developed by the lecturer in accordance with the directions of the industries. Problems were emerged when conducting learning for practice courses, i.e., the limited equipment because some tools suffered damage or the amount was lacking.

The learning process in industries in the form of Professional Field Experiences and internships was very important activity because it provided opportunities for students to know the world of work. During the Professional Field Experiences and internships, students could apply their skills. The results of interviews with the Heads of the Study Program and the lecturers explained the procedures for implementing Professional Field Experiences and internships.

1). Professional Field Experiences

Every Study Program in the Polytechnic required students to do Professional Field Experiences so that it became one of the compulsory subjects in the curriculum. For each Study Program, Professional Field Experiences was held in different semester and lasted for 1-2 months. This condition occurred because of difficulties in making agreements determining

the schedule between the Polytechnic and industries.

For the placement of Professional Field Experiences, several Study Programs had determined the institutions / industries. Other Study Programs had not been able to facilitate students in the selection of site for Professional Field Experiences and or internships, so students must search for themselves. After students determined the site, they proposed it to the Head of Study Program, who decided whether the student's proposal was accepted or not, this was to avoid the accumulation of students in a particular Professional Field Experiences site and whether the chosen place was relevant or not, then students would be given a cover letter conducting Professional Field Experiences in the institution / industry that had been selected. Professional Field Experiences was a medium for implementing the knowledge and skills, in reality many of students did not carry out tasks relevant to their education.

The final result of the Professional Field Experiences was a paper report evaluated by supervisors from the Polytechnic and instructors from partner agencies / institutions / industries. This report was a source material for students writing Final Projects (TA).

2) Internships

Most Study Programs at the Polytechnic didn't put internships as a compulsory activity, but students were allowed to do internships when they were off school and if they had carried out the learning process for at least 3 semesters.

Some Study Programs had made internship a compulsory subject and was implemented in semester VII and / or VIII for Diploma IV programs. Semester Credit Hours weight for internships were also different for each Study Program. This industrial internship activity was also a source material for writing the Final Project.

DISCUSSIONS

The curriculum development undertaken by the Polytechnic has referred to the National Higher Education Standards and the Indonesian National Qualification Framework. It fulfilled the characteristics of the curriculum for vocational tertiary education, firstly, the preparation of the curriculum involving the Associations,

Industries, and related stakeholders. Involving stakeholders in curriculum development can fulfill two different functions, increasing the relevance of the curriculum to the labor market and society as a whole, and constituting the legitimacy and acceptance of the curriculum. The involvement of these stakeholders is also needed in relation to the determination of the internship program (Winterton, 2000).

According to the Directorate General of Higher Education (2016), there are four characteristics of curriculum in vocational higher education, the first feature is the preparation of the curriculum involving relevant Associations, Industries and Stakeholders, in this case the D-IV Government Management Accounting Program that invites practitioners from the Local Government and Municipal Government to obtain information about what skilled workers are needed by the Municipal Government. For market needs, information is usually obtained from the results of lecturer and student visits to industries, for example visits made to PT. Pindad, PT. Krakatau Steel and other industries, to identify skilled workers needed by these industries in the present and the future. The development of vocational education requires a policy of cooperation, support and full participation from government organizations, the business and industry sectors, and consensus among stakeholders (Heinz, 2009). The second feature is the content of the curriculum consisting of courses which emphasizes applied competency. The courses in the curriculum are mostly managed by Study Programs, so the knowledge and skills taught to students are more focused on expertise according to their fields to create a "marketable" workforce (Finlay, 1998). Third, curriculum development carried out in accordance with the needs of the job market and industrial development. However, not all the needs of the industrial world can be fulfilled, it will affect other elements, such as funding, HR, learning support facilities. To overcome this, the leadership categories identifies the needs that can be met based on the availability of resources, for example, skills are needed in operating an automatic lathe machine, whereas so far students use the manual lathe, then the leader makes a purchase of one automatic lathe machine whose costs are quite high. The use of this machine is

done in groups and in turns, so that the skills in operation are controlled by students. In fact, vocational education must be adaptive to changes in the world of work and technology (Pavlova, 2009). Then the fourth feature is the application of the curriculum in vocational learning carried out in a package system, this is clearly stated in the Polytechnic Academic Regulations.

Determination of graduate profiles and learning outcomes at the Polytechnic is based on the needs of the workforce by taking into account technological progress and development. Vocational education emphasizes how the competencies needed by the workforce are dominated by graduates (Wagner, 2008, Tessaring, 2009, Heinz, 2009, Billet, 2009). This matches the provisions of the National Higher Education Standards, the Indonesian National Qualification Framework and Polytechnic Academic Regulations, as well as in the preparation of courses and the amount of Semester Credit Hour.

Vocational education has a characteristic that prioritizes practice in teaching knowledge and skills to students to fit the needs in the world of work, so that the key to success in organizing the educational process is how the composition of practical courses and theoretical courses given to students. In the Polytechnic, the composition of credit hour between theory and practice courses varies for each Study Program. Based on credit hour, theory course is greater than practice course, but if calculated based on the number of hours, the number of hours of practice is more than the theory's. By giving a larger portion of the practice course, learners get many opportunities to apply the knowledge gained from theory into practice thereby increasing their skills and experience. Boud, Cohen, and Walker (1993) say that direct experience is the essence of true learning. Hornyak, Green, and Heppard (2007) state that learners learn better by direct practice with guidance. Dewey (1988) says that real knowledge does not originate from abstract thought, but by integrating theory and practice.

Student learning should be facilitated in a variety of ways and rich learning material from various sources (Patel, 2000). The new paradigm in the learning process makes students as the center of learning and lecturers as facilitators (Cheng, 2005). In implementing the curriculum,

lecturer makes students the center of learning by using various methods including Cooperative Learning, where the lecturer gives an explanation of the particular theory and skills to students clearly and directly he provides examples that are practiced by students. When explaining about a lathe machine to students of D-III Mechanical Engineering Program, the lecturer first explained the meaning and function of the lathe machine, practiced the operation method followed by students. The explanation given by the lecturer was very clear and could be understood. The most appropriate learning environment is through others and ongoing interaction (Bandura, 1977). In the D-IV Mechanical Design and Construction Engineering Program, the lecturer applied Practical Based Learning. Students learned skills and expertise needed in industries by making a simple product. Students were given an assignment sheet made by the lecturer based on advice from industries. The assignment worksheet used is the basic one that is usually fixed and because of its focus on teaching skills, the product doesn't have to be used. However, due to efficiency considerations, in Mechanical Engineering Program that apply practical based learning, such as mechanical engineering subject and machine design and construction techniques subject, all objects made are parts that can eventually be assembled into finished products that can be utilized for own environment. The practice task sheet used tends not to change, so it can be understood if the practice sheet used in the machining workshop has been used for more than 9 years ago. It's a simulation of work done in industries and the technology or machinery used can be conventional or modern, so it doesn't have to be industrial scale at this time. Practical based learning is very suitable when applied to learning in the Polytechnic considering the limited learning support facilities that are not entirely industrial scale and the Professional Field Experiences and internships that have not been well managed, such as in site selection, work performed, supervision, and duration not the same.

Another method used is Project Based Learning (PjBL) which is applied to students of D-IV Mechanical Design and Construction Engineering Program. PjBL provides opportunities for students to build quality work

skills and understand how to apply them in the real world of work (Larner, 2015). First, the lecturer explained the learning achievements, namely students were able to make simple work tools that could be used in everyday life. Accomplishing the task, there were some skills and knowledge needed by students that had been learned in the previous semester, like market survey knowledge of the needs of certain tools. The skills required were in the design of drawing tools and the skills to make parts of these tools that had been mastered by students through practical based learning. Lecturer and students discussed what tools would be made. This stage's in accordance with what's called contextual teaching and learning. Contextual teaching and learning are teaching and learning concepts that help lecturers connect the content of lecture material with real world situations and motivate students to make connections between knowledge and its application in their lives (Bers & Erickson, 2001). Project based learning focuses on tasks related to daily life that are meaningful to students (Balve & Albert, 2015). Inviting students to discuss in determining the tools to be made, this means the lecturer directs students to discuss problems that exist in their environment (the real world) and it teaches students to have concern for problems in their environment and have motivation to solve these problems.

As the agreement defined, the lecturer divided students into groups. The determination of group members was carried out by the lecturer. Thus the lecturer teaches that students must be able to adapt to whoever they are working with, because in the real world of work, a worker cannot choose with whom he works. Then each group was asked to discuss the specific tools to be made.

The next stage was the lecturer determined the daily schedule where students must report activities every day regarding the project they were working on. This shows that the assignments given by the lecturer make students actively learn knowledge and skills through the process of finding and collaborating with other students. When the product had been made, students presented it to the lecturer team, students are taught to have presentation skills, express

their ideas, and demonstrate communication skills.

In controlling the learning process, both in class and in the workshop, the lecturer always monitored every activity carried out by students, when there were students who didn't understand or had questions related to the learning activities carried out, students could ask questions and the lecturer answered by giving explanations for the second time. During the learning process, the lecturer evaluated the students' comprehension. He strives to understand the characteristics of his students and this shows that he pays attention to his students. According to Khandelwal (2009), effective learning has special behavioral characteristics, namely rapport with students, preparation and delivery courses, spending time with students outside of class, encouragement, and fairness.

The learning process carried out in industries through Professional Field Experiences and internships has not been well managed. An apprenticeship program that is not well planned will have a negative impact on students (Almoayad & Ledger, 2018). Furthermore, the results of research conducted by Wu & Wu (2006) showed that there were students who lacked confidence about the future of their careers after completing an internship program. Poor management of the Professional Field Experiences and internship can be seen from the selection of site that are not all determined by the Polytechnic, in fact most students look for themselves. The effort made by the Study Program is to provide a condition that the site is still relevant to the student study program. This happens because of difficulties in arranging schedules with the time provided by the industries so that it often disrupts class schedules. Despite the efforts of the Study Program to use part of the students' vacation time, these problems indicate that there has not been good cooperation between the Polytechnic and the industries. Out of the 36 Diploma Study Programs, there are only two Study Programs that carry out internships within 6 months, namely the D-IV Mechanical Design and Construction Engineering Program and the D-IV Manufacturing Process Program, the other Study Programs carry out field work practice programs and internship for 1-2 months only. Conducting Professional Field Experiences

and internships, students are given the opportunity to practice the knowledge and skills they have gained on campus and they also gain new knowledge and skills, experience, work attitudes, insights and networks to get a job after students graduate (Billet, 2009; Hiniker, 2009; Putnam, 2009; Tessaring, 2009). During Professional Field Experiences and internships, the Polytechnic didn't conduct intensive supervision even though there were appointed supervisors. They couldn't ascertain and supervise whether the tasks performed by students in the industries were in accordance with the student's study program or not. The supervisor didn't conduct monitoring to the site because there are no special funds for that. These indicate that the management of the implementation of industrial work practices and internships conducted by the Polytechnic has not been done well. The Polytechnic should establish good cooperation with various industries or institutions in managing the Professional Field Experiences and internships, so this program will run well, starting from the placement of students, types of activities carried out by students, what competencies to be achieved, the role of supervisors from campus and industries, and evaluations are carried out, so that the goal to provide work experience to students can be achieved. Internships are generally defined as the process in which students are allowed to experience and understand the world of work more interestingly (Beggs & Hurd, 2010). Sumual and Saputan (2018), and Silva et al (2016) emphasize that internships must be a platform that allows students to connect between theories learned in the lecture room with real practice in the workplace. Internships serve as a catalyst for students' self-development and give them the opportunity to learn to do something (Simons et al., 2012; Beggs & Hurd, 2010). The purpose of vocational education is to prepare students to enter the workforce (Billet, 2009, Hansen, 2009, Hiniker, 2009, Putnam, 2009), vocational education must always be close to the world of work (Hiniker, 2009, Putnam, 2009).

In the process of curriculum development in the Polytechnic, institution leaders, Heads of Study Program and lecturers play an important role to ensure all processes run well to establish link and match. The leadership

of the Polytechnic has facilitated cooperation with the world of work to be involved in the curriculum planning process and its implementation, but learning process in industries must still be improved. The Head of Study Program has a good role in conducting direct communication with industries, practitioners and alumni to identify needs of the world of work and then with the curriculum development team formulate curriculum development from starting to determine the profile of graduates, learning outcomes, selecting and arranging study material, arranging courses, curriculum structure and determining Semester Credit Hour, and preparing lesson plans. The lecturer has ensured the learning process is carried out well, this can be seen from the learning methods implemented by providing direct experience to students to gain knowledge and skills that are oriented to the world of work. According to Parker and Day (1997), instructional leaders have the function of managing curriculum and teaching, managing and coordinating curriculum in such a way that teaching can be carried out optimally, overseeing teaching, ensuring that educators receive guidance and support to enable them to teach as effectively as possible, monitor learning programs, and monitor and evaluate student progress.

CONCLUSION

The conclusion of the research is at the curriculum development stage, the Polytechnic had referred to the needs of the world of work by identifying the needs of the job market, conducting tracer studies, and involving practitioners from industries and alumni.

The implementation of the curriculum in the learning process in the classroom and workshop had been done well. Lecturers developed learning materials and applied learning methods oriented to the world of work so as to provide direct experience and teach the skills needed by the world of work to students. But in the learning process in industries, not all Study Programs facilitated students in determining the site for Professional Field Experiences and internships, which often made most students look for themselves, then there was no supervision for ensuring students get

assignments according to their fields, and the duration of its implementation was not in line with the course schedule and industries time availability. Management of collaboration between the Polytechnic and industry Professional Field Experiences and internships had not been done well.

The role of leadership and management in ensuring that curriculum development and its implementation in the learning process to establish link and match with the demands of the world of work was clearly visible. There had been efforts made by the leaders of the Polytechnic, Heads of Study Programs, and lecturers in overcoming difficulties encountered in terms of meeting the diverse demands of the world of work, the limitations of learning support tools and the implementation of Professional Field Experiences and apprenticeship programs.

IMPLICATION FOR THE PRACTICE

1. Preparation of the Polytechnic curriculum with reference to the demands of the world of work has implications for results that are in accordance with the needs of the world of work, namely graduates who have skills in accordance with what the job market needs.
2. The implementation of the curriculum in the learning process in the industries through Professional Field Experiences and internships has not been done well so that most students have difficulty in choosing the site, do not perform tasks according to their fields due to lack of supervision, and their course schedules are disrupted due to unclear Professional Field Experiences duration and internship.
3. The appropriate role of leadership and management in the development of vocational education curriculum and the world of work has implications for the establishment of link and match between the curriculum and the results achieved.

ACKNOWLEDGMENT

Thank you to Prof. Dr. H. Mohammad Fakry Gaffar, M.Ed., Prof. Dr. Hj. Aan Komariah, M.Pd., and Prof. Dr. H. Abdul Azis Wahab, M.A for assisting the researcher in the process of writing this article and also for reviewers for

providing improvements and lessons in writing good articles.

REFERENCES

1. Albashiry dkk (2015) Improving Curriculum Development Practices in a Technical Vocational Community College. *The Curriculum Journal*. 26 (3), 425-451.
2. Balve & Albert. (2015). Project-based Learning in Production Engineering at the Heilbronn Learning Factory. Conference on Learning Factories. doi: 10.1016/j.procir.2015.02.215
3. Beggs, B., & Hurd, A. R. (2010). Internships bring the classroom to life. *Parks and Recreation*, 45, 2. 31-33.
4. Berns, R. & Erickson, P. 2001. Contextual teaching and learning: Preparing students for the new economy. Washington: National Academy Press.
5. Billet S.(2009), Changing Work, Work Practice: The Consequences for Vocational Education; in Rupert Maclean, David Wilson, Chris Chinien; International Handbook of Education for the Changing World of Work, Bridging Academic and Vocational Learning. Germany: Springer Science+Business Media
6. Boateng, C (2012). Restructuring Vocational and Technical Education in Ghana: The Role of Leadership Development. *International Journal of Humanities and Social Science*. 2 (4)
7. BPS (2020). Statistik Indonesia. Jakarta: Badan Pusat Statistik
8. Creswell. (2010). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Thousand Oaks. CA: Sage..
9. Davis. (1997). *Toward a Stewardship Theory of Management*. The Academy of Management Review. 22 (1). 20-47
10. Dirjenbelmawa. (2016). *Buku Panduan Penyusunan Kurikulum Pendidikan Vokasi*. Jakarta: Direktorat Jenderal Pembelajaran dan Kemahasiswaan Kementerian Riset Teknologi dan Pendidikan Tinggi.
11. Effendi, Moh Mahfud. (2013). Pengembangan Kurikulum Matematika sebagai Mata Pelajaran Adaptif pada Program Keahlian Tata Busana SMKN 3 Probolinggo. *Jurnal Penelitian Pendidikan* 1412-565X Edisi khusus Februari 2013 hal 43-60
12. Effendi (2017) A Character-based Local Curriculum Development Model in Vocational High School. 4th International Conference the Community Development in ASEAN. <http://mpsi.umm.ac.id/id/pages/proceedings-4-th-in...>
13. Ellström, P. (1997). The many meanings of occupational competence and qualification. *Journal of European Industrial Training* MCB University Press [ISSN 0309-0590] 21(6):266273.
14. Eze dan Okorafor (2012) New Approaches to the Development of TVET Curriculum for Improved Labour Productivity. *International Journal of Educational Research* 12 (1), 101-108, 2012 ISSN: 978-2568-51-1 (official Journal of Faculty of Education, University of Nigeria Nsukka)
15. Finch, CR and Crunkilton, JR. (1979). *Curriculum Development in Vocational and Technical Education: Planning, Content, and Implementation*. Boston: Allyn and Bacon
16. Firmansyah dkk (2019) Restrukturisasi Kurikulum Program Studi D3 Teknik Listrik Fakultas Teknik Unesa Surabaya. *Journal of Vocational and Technical Education*. 1 (2). 1–10
17. Handayani & Brodjonegoro (2015). Strengthening Vocational Character for Polytechnic Education which Has Non-Production-Based Curriculum. *Research and Evaluation in Education Journal* 1(1), 84-99.
18. Haolader dan Paul (2013) The Present Status of Polytechnic Curriculum and Student Assessment Approach in Bangladesh. *Asian Journal of Management Sciences and Education*. 2 (1). 125-137.
19. Heinz .W.R (2009). Redefining the Status of Occupations; in Rupert Maclean, David Wilson, Chris Chinien; International Handbook of Education for the Changing World of Work, Bridging Academic and Vocational Learning. Germany: Springer Science+Business Media
20. Kashem, A, Chowdhury, K. A & Shears, A.E (2011). TVET reforms in Bangladesh:

- Now 186 and in the future. Proceedings of the international workshop on competency based vechnical and Vocational education and training (tvet) for the OIC member countries. Islamic University of Technology (IUT), Dhaka, Bangladesh. 27-30 November 2011. Retrieved from http://www.tvec.gov.lk/HRDAsiaConf/document/Abul_Kashim.pdf
21. Khandelwal (2009) Import Competition and Quality Upgrading. The Review of Economics and Statistics. MIT Press. 95(2). 476-490
 22. Koontz, H. (1961). The Management Theory Jungle. The Journal of the Academy of Management. 4 (3). 174-188
 23. Lasonen (2010) Sustainable Curriculum in TVET. Journal of Technical Education and Training. 2
 24. Lu Hong. (2009). Thought and Practice on Curriculum Reform in Higher Vocational Colleges: Journal of Anhui Vocational & Technical College;2009-01, [CateGory Index]: F830-4;F712.3 Longstreet,W.S. (1993). Curriculum for a New Millenium. Boston; Allyn & Bacon.
 25. Maina dkk (2017) Curriculum Content Relevancy in Intergration of ICTs in Kenya TVET Institutions in Readiness to Industry Needs. International Journal of Secondary Education; 4(6): 58-64 <http://www.sciencepublishinggroup.com/j/ijsedu> doi: 10.11648/j.ijsedu.20160406.11 ISSN:2376-7464 (Print); ISSN: 2376-7472 (Online)
 26. Mangesa dkk (2018) The Opportunity of Vocational Technology Education Study Program: Curriculum Development and Learning Program. Proceedings of the International Conference on Indonesian Technical Vocational Education and Association. <https://doi.org/10.2991/aptekindo-18.2018.8>
 27. Mouzakitis (2010) The Role of Vocational Education and Training Curricula in Economic Development. Procedia Social and Behavioral Sciences 2 (2010) 3914–3920. doi:10.1016/j.sbspro.2010.03.616
 28. National Centre for Vocational Education Research (2001). The Changing Role of Staff Development for Teachers and Trainers in VET. NCVER.
 29. Oliva, P. F. (1988). Developing The Curriculum. Boston: Scott, Foresman and Company.
 30. Oloyo (2019) Cultivation of Polytechnic-Industry Linkage for Development and Delivery of Curriculum for Technical Education. Journal of Educational and Developmental Psychology. 9 (1) ISSN 1927-0526 E-ISSN 1927-0534 Published by Canadian Center of Science and Education
 31. Parker & Day. (1997). Promoting Inclusions Through instructional Leadership: The roles of the Secondary School Principal. National Association of Secondary School Principals Bulletin. 81. 83-89.
 32. Ra dkk (2015). Challenges and Opportunities for Skills Development in Asia. Manila: Asian Development Bank)
 33. Rauner & Maclean. 2008. Handbook of Technical and Vocational Education and Training Research. New York: Springer.
 34. Rogers, A. and P. Taylor (1998), Participatory Curriculum Development in Agricultural Education. A Training Guide. Rome: FAO
 35. Silva, P., Lopes, B, Costa, M, Seabra, D., Melo, A. I., Brito, E. & Dias, G. P. (2016). Stairway to employment? Internship in higher education. Higher Education, 72. 703-721.
 36. Simons, L., Fehr, L., Blank, N., Connell, H., Georganas, D., Fernandes, D., & Peterson, V. (2012). Lessons learned from experiential learning: What do students learn from a practicum/internship? International Journal of Teaching and Learning in Higher Education, 24, 3. 325-334
 37. Sumual, H., & Soputan, G. J. (2018). Entrepreneurship education through industrial internship for technical and vocational students. IOP Conference Series: Materials Science and Engineering, 306, 1. 1-5. doi:10.1088/1757- 899X/306/1/012053
 38. Terry (1958). Principles of Management. California: Richard D. Irwin
 39. Tessaring M.,(2009). Anticipation of Skill Requierements: European Activities and Approaches; In Rupert Maclean, David Wilson, Chris Chinien; International

- Handbook of Education for the Changing World of Work, Bridging Academic and Vocational Learning; Germany: Springer
40. UNESCO-UNEVOC (2013). Strengthening TVET Teacher Education. Report of UNESCO-UNEVOC Online Conference. International Centre for Technical and Vocational Education and Training, Germany, 2012.
 41. UNEVOC, (2012). <http://www.unevoc.unesco.org/2.0.html>.
 42. Wagner T. (2008). The Global Achievement Gap. New York: Basic Books.
 43. Winterton, A. (2000), "Why outsourcing could be good for you", Balance Sheet, 8 (6), pp. 17-19. <https://doi.org/10.1108/EUM0000000005388Winterton,2000>.
 44. Wiles & Bondi. (2007) Curriculum Development: A Guide to Practice. New Jersey: Pearson