

The Implementation of the Competence Certification for Professional Welders at Smkn 2 Wonosari and Smkn 2 Pengasih

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ABSTRACT

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This study was aimed to describe and interpret the implementation of the competence certification for professional welders at SMKN 2 Wonosari and SMKN 2 Pengasih which included: (1) the administrators' readiness, (2) the implementation, (3) the supporting and obstacles factors, and (4) the impact of the program of competence certification for professional welders for learner outputs at SMKN 2 Wonosari and SMKN 2 Pengasih. This research used phenomenological qualitative approach. The subjects were the principal, the teachers, the committee of certification program, and the assessors. To collect the data, the researcher conducted interviews, observation, and analyzing the documents on the subject of the research. The results of the study show that the implementation of the competence certification for professional welders in terms of : (1) The administrators' readiness had been appropriate with the stages of the certification process; (2) The implementation of the program went well according to the schedule at the stage of plan, implementation, and evaluation; (3) Supporting factors in the implementation of the program has been well supported with the form of moral and material as well as inhibiting factors is the lack of funds to repair facilities and infrastructure; (4) Impact of welding competence certification program for the learner outputs embedded in increasing learner outputs' achievements, confidence, and easiness to get their jobs at the company and earn higher salary.

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Introduction

Vocational education is secondary education that prepares students to work in certain fields, as described in Law No. RI. 20 of 2003 article 15. The main focus of vocational education is to develop the potential that exists in students to enter the world of work. Hoachlander and Kaufman (1992) education experts from the National Center for Educational Statistics in the USA stated that, vocational education is as follows: "Vocational education is intended to help prepare students for work, both inside and outside the home, many educators and policymakers believe it has a broader mission: to provide a concrete, understandable context for learning and applying academic skills and concepts"

This opinion explains that vocational education is used to prepare students to be ready to work, either in their environment or in the community, so the main mission of educators and policymakers is to form a strong foundation for students in the teaching and learning process, mastery and application of academic skills, and application. the concept required. Wardiman Djojonegoro (1998: 37) states that one of the characteristics of vocational education is to prepare students to enter the world of work so that vocational education should be based on "demand is driven" namely the need for the world of work. Furthermore, it also explains the principles of vocational education known as Charles Prosser's sixteen theories, namely: (1) Vocational education will be efficient if the environment in which students are trained is a replica of the environment in which they will work later; (2) Effective vocational education can only be given where the training tasks are carried out in the same manner, tools and machines as those prescribed in the workplace; (3) Vocational education will be effective if it trains someone in the habit of thinking and working as required in the job itself; (4) Vocational education will be effective if, each individual strengthens his / her interests, knowledge and skills at the highest level; (5) Effective vocational education for every profession, position or job can only be given to someone who needs it, wants it and gets a profit; (6) Vocational education will be effective if training experiences to form work habits and correct thinking habits are spent so that they are needed in later work; (7) Vocational education will be effective if the teacher has had successful experience in applying skills and knowledge to the operations and work processes to be carried out; (8) In every position there is a minimum ability that must be possessed by a person in order to be able to work in that position; (9) vocational education must pay attention to market demand taking into account signs of the labor market; (11) A reliable source for knowing the content of training in a particular occupation is from the experience of experts in that occupation; (12) Each occupation has content characteristics that are different from one another; (13) Vocational education will be an efficient social service if it is in accordance with the needs of someone who needs it and is effective if it is carried out in vocational learning; (14) Vocational education will be efficient if the teaching methods used and personal relationships with students take into account the characteristics of students; (15) Vocational education administration will be efficient if it is flexible and has standards; (16) Vocational education requires certain costs and if it is not met then vocational education cannot be forced to run.

At least SMA / SMK graduates are unemployed (Yoga Sukmana, 15 May 2019). It can be said that the quality of human resources in Indonesia is still low. According to data from the Central Bureau of Statistics (BPS) as of February 2020, the workforce has reached 129.5 million people. The number is 31.16 million elementary school graduates, 22.62 million junior high school graduates, 20.25 million senior secondary school graduates, and 13.54 million vocational high

school graduates. Meanwhile, for the level of education at the Diploma level, there were 3.68 million and 11.59 million people for undergraduates. Based on these data, it can be seen that the quality of education in Indonesia is still very low and this problem will weaken Indonesia's competitiveness in facing the AEC. Based on the Growth Competitiveness Index, Indonesia is in the order of 50 out of 134 countries.

In the discourse of the ASEAN economic community, workers are required to have competencies by their fields of expertise. This aims to ensure the quality of the workforce. The discourse of the ASEAN economic community opens up competition among workers to prove that the quality of work is guaranteed according to their abilities and expertise. There is a discourse that the ASEAN economic community requires students who have just completed education, especially students who have graduated from Vocational High Schools (SMK), to have certificates of expertise. To enter society, after completing education, students must be prepared to face job competition. The readiness of students to face the world of work must be supported by qualified competencies in the field of expertise. Therefore, students need certification to be accepted in the field of work by their expertise (Saroni, 2017: 10).

Responding to the challenges of the industrial world which always prioritizes the quality, expertise, attitudes, and knowledge of the workforce, the Directorate of Vocational High School Development (PSMK) has long pioneered efforts to fulfill a competent workforce for graduates of vocational high schools (SMK) through skills policies ahead of 2020 to global era. The implication of the curriculum used refers to a competency-based curriculum with learning and testing materials related to productive skills based on expertise standards that actively involve the industrial world. Students who have completed their studies are required to take a competency test conducted in schools with an independent Professional Certification Institute (LSP), under direct guidance from the National Professional Certification Agency (BNSP). As for the consequent efforts to face the demands of the vocational education system spurred by the industrial world, the government issued government regulation no. 23 of 2004, concerning the National Agency for Professional Certification which states that SMK must be able to prepare graduates who have competencies by industry standards both nationally and internationally.

Law Number 20 of 2003 concerning the National Education System states that one of the main objectives of vocational high schools is to prepare students to enter the employment field. To be accepted to work in the world of work, a person must be competent as evidenced by a competency certificate through a competency test. As in Article 61 paragraph 3 of the National Education System Law, a competency certificate is given as recognition of someone who is declared competent to do a certain job through a competency test process carried out by an accredited education unit, certification body, and/or professional association. In the explanation

of article 35 paragraph 1 of the Law on the National Education System, it is stated that graduate competence is a qualification of the ability of graduates which includes attitudes, knowledge, and skills by agreed national standards. Participants can be said to be accepted to work in the world of work if the competence of students possessed attitudes, knowledge, and skills is by national standards.

Vocational education is education that prepares students to be able to work in certain fields and prepares them so that they can earn a decent living through work in the field of ability without leaving the existing noble values. In addition, vocational education aims to prepare graduates who can develop themselves and compete following their fields. Competency certification is one of the programs launched by the Education Office to prepare competitive SMK students. According to Surono (BNSP, 2012) that competency-based education and training are useful for developing competencies to educate and train to be competent, which is proven by the existence of competency certification to ensure and maintain competence. In addition, Colardyn in Maclean (2009; 2780) explains that: "recognition of competencies often translates into the certification of small units or modules. Too rarely have these competencies been fully recognized by employers and enterprises about concrete decisions about hiring, salary, and promotion "Certification is a recognition of competence. This competency has been fully recognized by the company and is related to decisions regarding recruitment, salary, and promotion. According to Tissot (2004) in Colardyn (2009; 2783) certification is defined as: "Certification is defined as the process of formally validating knowledge, know-how, and/or skills and competencies acquired by an individual, following a standard assessment procedure certificates or diplomas are issued by accredited awarding bodies (Tissot, 2004).

From the above statement that certification is a formal process to validate the knowledge, skills, and competencies acquired by an individual by following a predetermined standard assessment procedure. The results of the certification process are stated in certificates or diplomas issued by accreditation granting bodies (Tissot, 2004). According to Astuti (2008, 65), the definition of a certificate is the awarding of a certificate through a test based on job standards and/or job requirements that apply nationally or competency standards.

The competency standardization and certification system is a flow and work mechanism of various related components that are planned, integrated, harmonious, to ensure that the competencies produced are standardized and recognized by the world of work, both nationally and internationally. The mechanism includes standard formulation, standard-setting, testing and certification, accreditation, guidance and supervision of competency standards, as well as cooperation and information.

Assessment is a process of collecting evidence from a person, as material to assess whether

the person concerned is competent or not yet competent by established standards. The evidence collected includes aspects of knowledge, skills, and attitudes under the demands of the job, task, and position following the requirements of the established standards. To collect this evidence, it can be done through various methods, according to the characteristics of the expertise and the testing context (Depdiknas, 2004: 3). To gather evidence to make an assessment, several testing methods have been used, which have been widely used as evaluation methods to measure the success of the education and training process. These methods include (Depdiknas, 2004: 3): (1) written tests, (2) interviews, (3) observations, (4) portfolios, (5) assignments/project assignments, and (6) using third parties.

Competency certification is the process of providing competency certification which is carried out systematically and objectively through a competency test that refers to the Indonesian national and/or international work competency standards carried out by professional certification bodies. A competency certificate can also be interpreted as a certificate that guarantees the competence of the holder concerned as stated in the certificate. To be able to guarantee the correctness of the competence that is owned or controlled, the certification process must be carried out which applies to the certification system both nationally and internationally.

To fulfill the most core requirements in competency certification, namely objective and accountability, competency certification must be carried out systematically and comprehensively. Based on these prerequisites, within the framework of the National Professional Certification Agency (BNSP), there is a professional certification body (LSP) as the implementing institution of the national agency. LSP is formed based on the sector or profession and is an independent legal entity for non-profit purposes. LSP can consist of elements from industry associations, professions, experts, and elements of training institutions relevant to the sector or profession to be handled. LSP will obtain a license from BNSP after going through the accreditation process, considering that the BNSP system is still in the process of developing and preparing infrastructure, so the title of a certification body becomes a generic term that can be used by other parties developing competency certification institutions.

Based on the observations made related to the implementation of the competency test not as expected in the guidelines for implementing learning at school, it is not by the requirements of Certification qualifications, in the implementation of SMK certification in the welding field it cannot be used to see the ability of SMKs that have Welding Engineering Expertise Competencies. Participants who take the exam get a certification that does not explain the predicate of passing and there is no follow-up. It has not received continuous guidance yet and has only become a decentralization of learning for prospective certification participants at the school and others as usual. Lack of good coordination between organizers and examiners during the competency test

so that it seems that they are running independently.

However, the fact is that the formation of BNSP and the development of systems and infrastructure takes a long time and the implementation of certification at SMK cannot wait until the entire system is established and operational, so a competency certification system development policy is adopted by current conditions. Several models have been developed and pursued to date, among others (Depdiknas, 2004: 5):

- a. The implementation of certification carried out by schools together with the industrial world which is a partner institution, whether carried out within the framework of school exams or held after students have completed education,
- b. Implementation of competency certification held by certain industries and professional associations that have national and international recognition,
- c. Implementation of competency and professional certification which is carried out based on the standard system established internationally by the International Maritime Organization (IMO),
- d. The implementation of certification is carried out by the LSP which is formed based on the policy of the Ministry of Manpower and Transmigration, by the Decree of the Minister of Manpower and Transmigration of the Republic of Indonesia No. KEP. 96A / MEN / VI / 2004,
- e. The plan for the development of the Training Institutions Skills Certification Bodies at SMK, to carry out work skills testing for the work skills certification process in the construction services sector based on Law no. 18 of 1999, regarding construction services

There are 3 (three) models of competency testing and certification carried out by SMK, especially in the welding expertise field of study, namely (1) the Competency Test and Certification model organized by the Professional Certification Institute (LSP), (2) the Competency Test model and Certification carried out by SMK together with the Industrial World, and (3) Competency and Certification models carried out by certain professional associations that have international recognition. Based on the Technical Guidelines for Vocational Skills Competency Test for the 2019/2020 Academic Year (Ministry of National Education, 2015), the implementation of competency tests and final project model certification can be concluded that the implementation of competency tests and expertise competency test certification is carried out in several stages, namely: (1) preparation of skills competency test kits, (2) stages of delivery and procurement of skills competency test kits and preparation of SMKs as administrators, and (3) stages of implementing skills competency tests at SMK.

Method

This research uses a qualitative approach with a type of phenomenology. The phenomenological approach in this study examines the appearance or phenomenon of the welding profession

competency certification. The consideration of using this approach is because the purpose of this study is to obtain accurate information on the phenomenon of the welding profession competency certification, which in this case describes and interprets the implementation of welding competency certification at SMKN 2 Wonosari & SMKN 2 Pengasih. This research was conducted at SMKN 2 Wonosari and SMKN 2 Pengasih. The school is the place chosen by researchers because it is the best SMK in the Special Region of Yogyakarta. From the available information, the two institutions, in the management of quality education and learning, can be seen from the academic achievements and outputs of SMKs which are very much in demand by the industrial world.

Apart from the above, the graduates of the two SMKs have a high level of graduate absorption, thus differentiating them from other SMK graduates. The percentage of the absorption of graduates in the appropriate industrial world is also high. Many factors cause this condition to occur. This research will look at and reveal in terms of the implementation of competency certification that is in the two institutions. These two SMKs have a standard place for competency testing that can be used for certification testing, especially in the field of welding. This competency test site is a requirement for the implementation of competency certification at SMK. The main element analyzed in this study is the implementation of welding competency certification at SMKN 2 Wonosari and SMKN 2 Pengasih. The analysis is focused on the process of implementing welding competency certification in students who can shape the attitudes and behavior of students in competency certification readiness, which in turn produces competent individuals.

The research data were taken from SMKN 2 Wonosari and SMKN 2 Pengasih, which included the principal, the certification committee, teachers, and assessors. The data to be retrieved is focused on the implementation of welding competency certification at the agency. In this regard, the following are the parties who are used as the main informants in this study, namely:

1. The principal, as the party who knows and understands the existing management process in the school. The principal is the party who assists the principal in dealing with problems related to education management.
2. The certification committee as a team for the implementation of welding competency certification knows directly the process of implementing the certification in schools.
3. Some teachers as educators, mentors, and teachers, deal directly with students.
4. The assessor as a team from outside the school has an independent position in carrying out the welding competency certification test process.

Result and Discussion

The readiness of the manager as an effort in the success of the implementation of certification has a very important role in the implementation activities between meetings to determine the type of

certification activities to be developed and procedures for implementing certification activities, preparing the certification committee, the readiness of the welding assistant teacher. The data obtained during the study shows that both SMKN 2 Wonosari and SMKN 2 Pengasih have prepared well.

The very striking difference between the two SMKs in the preparation stage of SMKN 2 Wonosari has just collaborated with the Indonesian Metal and Machinery Professional Certification Institute (LSPLMI) and the National Professional Certification Agency (BNSP) to apply for a temporary Competency Test Place (TUK) for the sake of implementing certification activities. The competence of the welding profession, in contrast to SMKN 2 Pengasih, has already collaborated, especially LSPLMI in the field of machining for the welding field, it only remains to follow up on submissions to LSPLMI and BNSP for independent TUK submissions by giving the name TUK SMKN 2 Pengasih. In this preparatory stage, two SMKN 2 Pengasih have already gone through it turns out that SMKN 2 Pengasih is better than SMKN 2 Wonosari in terms of submissions, especially cooperation with BNSP for the manufacture of TUK and LSPLMI for technical testing in welding competency. So that students of SMKN Pengasih can carry out the competency test of the welding profession certification at TUK SMKN 2 Pengasih independently.

The above is in line with the opinion of Marno and Priyo Supriyanto (2008: 34) that "the principal as a leader in the school organizes schools and personnel who work in an efficient, democratic, and cooperative situation". The collaboration carried out by SMKN 2 Pengasih is better and taking chances faster than SMKN 2 Wonosari. This was also explained by the principal of SMKN 2 Pengasih stating that: "In the school preparation stage, we are preparing a meeting to discuss the readiness for the implementation of certification by discussing the implementation procedures that the school will undertake to carry out certification activities. One form of readiness carried out by SMKN 2 Pengasih is by following up on TUK submissions to BNSP to be ready to carry out technical certification testing activities at the Welding Workshop. (Interview 4: RB dated 11 June 2019).

The above statement was also supported by the Head of the SMKN 2 Wonosari Study Program who stated that: "The implementation stage of the certification from SMKN 2 Wonosari after conducting a coordination meeting on the certification test, the certification committee directly submitted for collaboration with LSPLMI regarding the technical competency test for welding and BNSP related to TUK when it was carried out during the implementation of the welding professional competency test at the welding workshop. The current TUK can function only when the test is carried out when the test is not carried out, this TUK cannot be used. (Interview 2: DR on 9 June 2019).

The two SMKs have already carried out the preparation stage, especially in preparing for good cooperation between the two SMKs. The two SMKs have also carried out a good flow in the preparation process, especially the certification committee which made efforts to carry out what was prepared during the implementation of certification. The certification committee is already good although some still need to be improved for the better.

Implementation of certification of welding professional competence

The findings in this study are the implementation of certification activities both at SMKN 2 Wonosari and SMKN 2 Pengasih starting with the preparation of the principal and accompanying teachers for certification activities in determining matters related to the implementation of certification activities. The preparations made by the principal about the implementation of certification activities are preparations related to policies for implementing certification activities, accompanying teachers for certification activities, facilities and infrastructure, and financing. These elements must be prepared in advance by the principal so that in implementation it can run smoothly and by the objectives that have been set. This is supported by the explanation of the Head of the SMKN 2 Wonosari Study Program which states that: "The implementation of this certification test is carried out well and smoothly starting from the preparation of the Principal regarding the policy on implementing certification and holding meetings for the formation of a committee to prepare infrastructure, certification assistant teachers, and financing activities. The implementation carried out by the committee has been good and needs to be improved for even better. The implementation of professional competency certification is by the stated objectives (Interview 2: DR dated 9 June 2019).

The implementation stage of the welding professional competency certification, especially the final results obtained through the implementation process stage of SMKN 2 Wonosari, is better for the results of the welding practice test compared to SMKN 2 Pengasih. The implementation stage is the same because all administrative processes that dominate the assessors and the committee only prepare for what is lacking during the implementation of certification. Wina Sanjaya (2002) states that "evaluation has two main functions, namely to assess the success of students in achieving competencies and as feedback for the improvement of the process of implementing activities". Sapre (2002) states that management is a series of activities directed directly to the effective and efficient use of organizational resources to achieve organizational goals.

Supporting factors and inhibitors of competency certification activities

Schools give positive appreciation for the implementation of certification activities. The support provided by the school for the implementation of certification activities such as the school provides the facilities and infrastructure needed by each certification activity and provides

accompanying teachers for certification activities. In addition to teachers and other school members who are also very supportive of the implementation of certification activities, for example, teachers always motivate students in participating in certification activities, teachers also supervise students when participating in certification activities, and teachers participate actively when students participate in competitions outside of school. With good cooperation from the school, it will facilitate the implementation of certification activities which are expected to provide maximum results.

The two SMK things that are very visible in terms of support in the welding professional competency certification activities are the differences in terms of the mission of SMKN 2 Pengasih being better than SMKN 2 Wonosari this is because SMKN 2 Pengasih has a mission of providing competency testing services for the community by the field. competence. This solid foundation for direct school support makes the mission for competency certification testing. Schools have taken good opportunities, especially the issue of competency certification. According to Akdon (2007), a mission is a statement about things that the organization must achieve for interested parties in the future. The mission that has been implemented by SMKN 2 Pengasih provides direction in the implementation of certification as an activity that has been planned and becomes a common goal.

The inhibiting factor of the two SMKs that can be seen is that the same students carry out the process from the beginning to prepare materials, practice conditioning, time, materials, tools, and machines, have been well prepared. The committee has made every effort to select a companion teacher who is already good and even has experience and certificates, especially in the field of welding. Seeing the welding results of the certification test of SMKN 2 Wonosari is better than that of SMKN 2 Pengasih. The committee and accompanying teachers at the two SMKs have done their best to make the best preparations for certification activities. Some of the preparations made as stated above should be in mentoring and providing students to support their activities, as stated by Riduone (2009) that the provision of facilities is crucial to the success of educational programs to be effective and efficient.

Based on the description above, it can be said that the support from the two SMKs is very good starting from the facilities and infrastructure in certification activities, especially SMKN 2 Pengasih has more advantages than SMKN 2 Wonosari which has a Competency Test Place for SMKN 2 Pengasih which can be directly used as a welding professional certification test. However, there are several obstacles experienced by students, especially when the certification test in the implementation of the competency certification test at SMKN 2 Wonosari is better than SMKN 2 Pengasih. This factor becomes an obstacle for students when the competency test is less confident about their abilities and an element of fear because there is external supervision from the assessor.

Impact of implementation of competency certification activities

The findings in this study are that the implementation of certification activities can add knowledge and insight for students in the field of welding. In the implementation of the welding professional competency certification, especially students who become participants in the competency test at both SMK in terms of impact after the implementation of the certification. The benefit of a certification that is owned by students can be used for easy access to work, especially in welding companies.

This was immediately explained by the students of SMKN 2 Wonosari who stated that: "When passing and obtaining a welding competency certificate from the company, the company asks to provide a supporting certificate as proof that BNSP has recognized this competency. This certificate also has the benefit of getting a higher salary than those without certificates. (Interview 8: MW on 15 June 2019). The impact on students of SMKN 2 Wonosari and SMKN 2 Pengasih provides convenience with a certificate of welding expertise inaccessibility to get a job with a high reward whether it is used nationally. Students also have good confidence in the certification test as proven by getting a certificate of welding expertise nationally.

Conclusion

Based on the problems, the research objectives, the results of the analysis and discussion that have been presented, it can be concluded that: (1) The implementation of the welding professional competency certification at SMKN 2 Wonosari and SMKN 2 Pengasih is ready by the stages of the certification process both leaders, teachers, committees, and facilities and infrastructure have been properly prepared through leadership meetings, student assistance, committees and preparation of tools and materials. SMKN 2 Pengasih already has an Independent Competency Test Center. (2) The welding profession competency certification activities at SMKN 2 Wonosari and SMKN 2 Pengasih have been carried out according to a planned schedule both at the planning, implementation, evaluation stages. The results of the certification test at SMKN 2 Wonosari are better because of the 3 G Uphill Welding Bending Test compared to SMKN 2 Pengasih only up to the Visual Test. (3) The welding profession competency certification activities at SMKN 2 Wonosari and SMKN 2 Pengasih receive support from LSPLMI and BNSP in completing facilities and infrastructure starting from student certificates and competency test sites. The inhibiting factor comes from limited funds from each school. (4) The impact of certification activities has a positive effect on students because by participating in certification activities the knowledge possessed by students will increase their competence according to the welding field they are participating in. In addition to the high self-confidence of students themselves who have certificates that are inherent in students, it is also easy to access a job and a high salary compared to those who do not have certification.

Based on the results of the implementation of the welding professional competency certification at SMKN 2 Pengasih and SMKN 2 Wonosari, the following suggestions or recommendations are proposed: (1) The principal must be more active in collaborating with LSPLMI and BNSP in carrying out the welding professional competency certification test. (2) Schools must provide Competency Test Sites by welding certification test standards. (3) Schools must always take part in the certification to equip students for the welding industry. (4) The Head of Study Program and teachers must always have a good influence towards certification for students that are recognized nationally. (5) The accompanying teacher must prepare both theoretical and practical material for students by improving mastery of the material properly and the use of machines in preparing students to take welding competency certification.

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References

- Akdon.(2007). *Strategic Management for Educational Management (Manajemen Strategik untuk Manajemen Pendidikan)*. Bandung: Alfabeta.
- Astuti, B (2008). *Sertifikasi uji kompetensi sebagai upaya perlindungan hukum bagi tenaga kerja Indonesia/tenaga kerja wanita penata laksana rumah tangga (TKI/TKW PLRT)*. Tesis magister, Tidak diterbitkan, Universitas Diponegoro, Semarang. Diakses
- Colardyn, D. (2009). *The Certification of Competencies*. In R. Maclean, D. Wilson (eds), *International handbook of education for the changing world of work. Bridging academic and vocational learning* (pp.2777-2792). Bonn: Springer.
- Depdiknas. (2004). *Kerangka Dasar Kurikulum 2004*, Jakarta.
- Hoachlander E.G., et all. (1992). *Vocational education in the united states 1969-1990*. Alexandria: National Center for Educational Statistics (NCES). Diunduh pada tanggal 10 September 2017, <http://nces.ed.gov/pubs92/92669.pdf>
- Kemdikbud. 2015. *Pedoman Pelaksanaan Uji Kompetensi Guru*. Jakarta: Direktorat Jenderal Guru dan Tenaga Kependidikan.
- Mohammad Saroni. (2017). *Sertifikasi Keahlian Siswa*. Yogyakarta: Ar-Ruzz Media.
- Riduone. (2009). *Manajemen Sarana dan Prasarana*. Dari <http://www.riduone.co.nr/manajemen-sarana-prasarana>. Diakses pada tanggal 10 November 2018 jam 13.50 WIB
- Marno & Supriyanto Priyo.(2008) *Manajemen dan Kepemimpinan Pendidikan Islam*. Bandung: PT Refika Aditama
- Peraturan Pemerintah Republik Indonesia Nomor 23 Tahun 2004 Tentang Badan Nasional Sertifikasi Profesi
- Surono. 2012. *Skema Sertifikasi Profesi menurut BNSP (Badan Nasional Sertifikasi Profesi)* <http://sertifikasi-profesi.blogspot.co.id/2014/12/skema-sertifikasi-profesi-menurut-bnsp.html> diakses Hari selasa 10 April 2020, Pukul 15.00 WIB
- Tissot, P. (2004). *Terminology of vocational training policy: a multilingual glossary for an enlarged Europe*. Luxembourg: Office for Official Publications of the European Union.
- Undang-Undang Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional. Jakarta:Departemen Pendidikan Nasional.
- Undang-undang Republik Indonesia Nomor 18 Tahun 1999 tentang Jasa Konstruksi
- Wardiman Djojonegoro. (1998). *Pengembangan sumber daya manusia melalui sekolah menengah kejuruan (SMK)*. PT Balai Pustaka: Jakarta
- Yoga sukmana. 2019. *Lulusan SMK Banyak yang menganggur*. <https://ekonomi.kompas.com/read/2019/01/15/060600226/lulusan-banyak-yang-menganggur-apa-salah-smk-kita?page=all>. Diakses Hari Selasa 25 Mei 2020, Pukul 14.30 WIB