



Practical Learning Model Assisted by Mobile Workshop for Enhancing Practical Skills and Entrepreneurial Spirit for Prospective Vocational High School Graduates

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Article Info

Article History:
Received August 2018
Accepted October 2018
Published December 2018

Keywords:
Practical Learning Model; Mobile Workshop; Practical Skills; Entrepreneurial spirit.

Abstract

The problem revealed in this practical learning model developing assisted by mobile workshops research is to find out the validity, practicality and effectiveness of the learning model assisted by mobile workshop for students' practical skills and entrepreneurial spirit. Research conducted using research and development (R & D) methods with a 4D development model (define, design, develop, disseminate) limited scale trials with the technique before-after without control group design. The practical learning model applies 6 (six) aspects of practical skills and 4 (four) aspects of students' entrepreneurial spirit. The results showed that the learning model assisted by mobile workshop was declared valid based on the average score of Expert 1 cycle II of 3.57 and Expert 2 of cycle II with a mean score of 3.74 with a very valid category and very feasible to use. Based on the practicality questionnaire given to 42 students and 3 teachers the results were "very practical". Based on the assessment of effectiveness using the t test for a 95% significance level obtained the probability value / p value of the test t paired is $0,000 < 0,05$. The gain test result with a mean score 0.5359 means that there is increasing level of practical skills and an entrepreneurial spirit of the students after implementing the practical learning model assisted mobile workshop in medium scale, so that the practical learning model assisted mobile workshop is proven to enhance the practical skills and entrepreneurial spirit of the students.

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INTRODUCTION

Learning is the process of interaction between students, educators and learning sources in a learning environment (Slamet, 2011: 110). Synergy between education not only be held in schools, but also takes place in families and communities, resulting in the process of developing the potential and character development of each qualified student so that applicative skills-based learning is needed using a scientific approach to practical learning in schools, accordance with Leighbody in the Ministry of National Education (2008: 4-5). Skilled students can be formed into the learning process that involves school facilities and infrastructure as a fulfillment of their learning, according to Sudiyono (2016: 91) where practice / workshop must meet the criteria in accordance with the competencies taught to students, both in terms of fulfilling practical tools and materials should be fulfilled.

A survey conducted in November 2017 and a brief interview of Demak Regency Automotive MGMP (Teacher Subject Discussion) teachers showed that in 7 Vocational Schools in Demak District had media learning practices in the Motorcycle Business Engineering Department (TBSM) in the form of a maximum of 4 bicycles motorbikes per laboratory, so they are less varied for student learning.

The automotive workshop according to Hanaf (2013) means of providing technical competency training for students majoring in automotive to be able to practice the theories they get inside and outside the classroom. According to Wijaya (2013: 131) in its development, practical learning in automotive workshops is not only in static workshops available at school locations with several vehicles for practicum, there is Field Work Practice subjects / internship which is a challenge to teachers / instructors to prepare students to face the situation in the field (Arif & Suyanto, 2014: 236), so that learning media innovations are needed that can be used in real terms in the community, namely mobile workshops.

The mobile workshop assisted learning model is a practical learning model that uses elements of assessment of practical skills and entrepreneurial spirit related to fulfilling the work needs of vocational graduates. The mobile workshop assisted learning model is carried out outside school hours of the aim at mobile workshop participants (TBSM expertise program students) being more focused, the number of mobile workshop participants can be controlled so that it is more effective against following the practical workshop process assisted by mobile workshops. this is consistent with (Meyer: 1985; Joyce: 1972; Gamble: 2013; Mursyid: 2013).

Improved technical skills are also examined by Hadromi (2018: 93) who applied the partnership management model for vocational and corporate / industrial schools. The target for the model is to improve students' technical skills in several aspects, namely: application of equipment based on their functions, explain the operation of equipment, use of equipment, equipment maintenance, equipment storage, calibration, and repair. Models for partnership management are developed using management planning, implementation and evaluation functions. In this study, the model for partnership management was developed using management planning, implementation and evaluation functions, while in this research also carried out planning, implementation and evaluation processes.

Learning practice assisted by mobile workshops is a new alternative and innovation that can be done by a teacher in the learning process, especially in practical learning, the use of a mobile workshop assisted practice learning model is also very appropriate to overcome the problem of lack of media / supporting materials for learning / practice activities, so that media fulfillment practice can be fulfilled (Nolker & Schoenfeld: 1983: 111).

Data onto BPS in August 2017 regarding the high unemployment of SMK graduates by 11.41% indicates that there is a low enthusiasm for entrepreneurship in vocational graduates so that they tend to be interested in becoming job seekers, while existing job offers are not absorbed by the

two groups of education levels. Therefore it is necessary to carry out learning innovations to enhance the entrepreneurial spirit of students. this is in accordance with Bukirom, Permana, & Martono (2014).

Research conducted by Kurnia (2015: 5) shows that the use of learning media has a positive effect on student learning outcomes as evidenced by the findings of learning outcomes that increase after being given treatment or treatment using learning media that have been analyzed and tested hypotheses. In addition, according to the research conducted by Ratu and Us (2016: 85) states that the quality of automotive learning outcomes through the block system is categorized as a good implementation, and the results of the study state that the results of the percentage of learning aspects in automotive expertise teachers are included in the quality learning indicators. good category. In line with the research conducted by Hadromi (2011: 147) about the use of media in learning models proven to be able to improve student competence.

Research on learning media assisted by certain learning media was also carried out by Daryati, Marhaeni & Widiartini (2015) whose results contained the influence of the application of media assisted practical learning on student learning motivation, and media-assisted learning proved to make students more skilled in motor skills and increase learning motivation. The research on skills improvement was also carried out by Hadromi (2015: 108) who developed an automotive mechanical technology skills program, using a practical management model of factual productivity. This is in line with the purpose of this study, which is to find out whether the learning model provides positive results of students' practical skills and entrepreneurial spirit.

The problem revealed in the research development of the assisted workshop model for mobile workshops is to find out the validity, practicality and effectiveness of a mobile workshop assisted learning model for students' practical skills and entrepreneurial spirit.

METHODS

The method used in this study is the research and development method or Research and Development (R & D) with a 4D development model consisting of stage 1) Define (defining), 2) the stage of Design (design), 3) the stage of Develop (development), 4) Disseminate.

The define phase contains potential problems related to the completeness of the facilities and infrastructure of the practice of the Motorcycle Business Engineering department. The literature study contains the supporting theory of making the concept of practical learning models assisted by mobile workshops. In the preliminary study an observation was carried out on 7 Vocational Schools majoring in TBSM in Demak Regency to obtain data and information on the availability of practical facilities for the learning process.

The design phase contains a factual model that results from initial observations in the field, then the factual model is combined with theoretical concepts supporting the development of learning models that produce a conceptual model of assisted practice of mobile workshops to be validated by experts.

The develop stage provides model validation with the delphi exercise technique through two stages of validation which produces a hypothetical model based on suggestions and input from experts. The hypothetical model was tested for a limited scale of a technique before-after without control group design, and continued testing for products that would produce the final model.

In this study, the third step are to develop, to disseminate or spread only in tests with limited scale to students. This is due to the limited costs of the production of mobile workshops that are used for learning, so the steps of this research can only be done until the develop stage. Evaluation analysis of learning outcomes was carried out experimentally with the technique before-after without control group design.

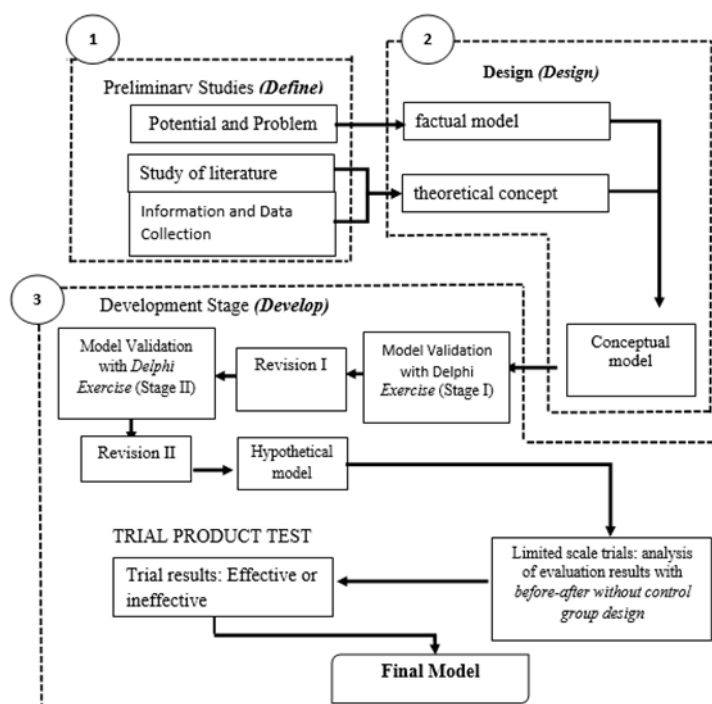


Figure 1. Steps of Research on R & D Learning Model Practices

A summary of the techniques and instruments for data collection can be seen in Table 1.

Table 1. Techniques and Data Collection Instruments

No	Research Steps	activities	the subject	Data collection technique	Data Collection Instrument	Data analysis technique
1	Model Validation	Development of a conceptual model (hypothetical)	Expert UNNES Vocational Education Lecturer and Productive Teacher of TBSM Department	• Expert Validation Questionnaire	closed questionnaire	Quantitative descriptive analysis
2	Effectiveness	Revealing the effectiveness of the practice learning model	XI th grade student of TBSM SMK Sultan Fattah Demak	• Pre-test and post-test question • Observation • Questionnaire	Guidelines for assessing knowledge Guidelines for evaluating practical skills Guidelines for assessing entrepreneurial spirit.	T Test Quantitative descriptive analysis
3	Practicality	Reveal the practicality of practical learning models	Productive Teacher TBSM XI th grade student of TBSM SMK Sultan Fattah Demak	questionnaire questionnaire	closed questionnaire closed questionnaire	Quantitative descriptive analysis Quantitative descriptive analysis

RESULT AND DISCUSSION

Testing the validity of the model is done by the Delphi Exercise technique and the average scores obtained are presented in the following Table 2.

Table 2. Results of Expert Validation

Category	judgment	
	Expert 1	Expert 2
Average score	3,57	3,74
Criteria	very Valid	very Valid
Information	very worthy of use	very worthy of use

Based on Table 2 above, the mean score of Expert 1 cycle II is 3.57 with very valid and expert categories 2 cycles II with a mean score of 3.74 with a very valid category and very feasible to use, so that it can be said that based on the assessment of the expert stated that the mobile workshop assisted practice learning model is very valid and very suitable for use in learning. The conclusions of this workshop assisted workshop model is "appropriate / valid" and can be used so that the mobile workshop assisted learning model contained in the model book can be implemented in the field. The assisted practice learning model of mobile workshops is shown in Figure 2.

Practical testing is done by giving a questionnaire for the assessment of the practicality of the model to students and teachers. The results show that 38 students gave very high practicality responses, while 4 students gave practical responses from a high category. While the results of the teacher practicality assessment obtained a total percentage of 91%, so it was said to be "very practical", and the results of assessments given by students related to practical learning assisted by mobile workshops for the motorcycle business technical skills program obtained a total percentage of 88%, so said the model Mobile workshop assisted learning practice "very practical" used in learning. This is in accordance with the research of Ferris and Aziz (2005) about the use of skills assessment forms in categorizing practical skills.

The practice learning model is declared effective if there are differences before (pretest) and after carrying out the posttest practice assisted by the mobile workshop based on the T Test, but before the T test is carried out the prerequisite test is done, namely the test of normality and homogeneity of data obtained sig. Shapiro Wilk pretest was 0.065 and sig. Posttest is 0.130. Sig value > of 0.05 so the data is declared to be normally distributed.

The results of the calculation of the homogeneity of the research data obtained sig. As much as 0.604 > than 0.05 so that it can be concluded that the data are homogeneous / variance between the two groups.

Testing the hypothesis coefficient t on the t-test. the result will be known whether or not significant with the criteria H_0 rejected if $t_{count} > t_{table}$. Based on the different tests the pre test and post tests data showed the mean pre test was 59.36 and the mean post test was 79.29. Based on the probability value / P value t test Paired: Result = 0,000. Meaning: there is a difference between before and after treatment. Because: Value of p values < 0.05 (95% confidence).

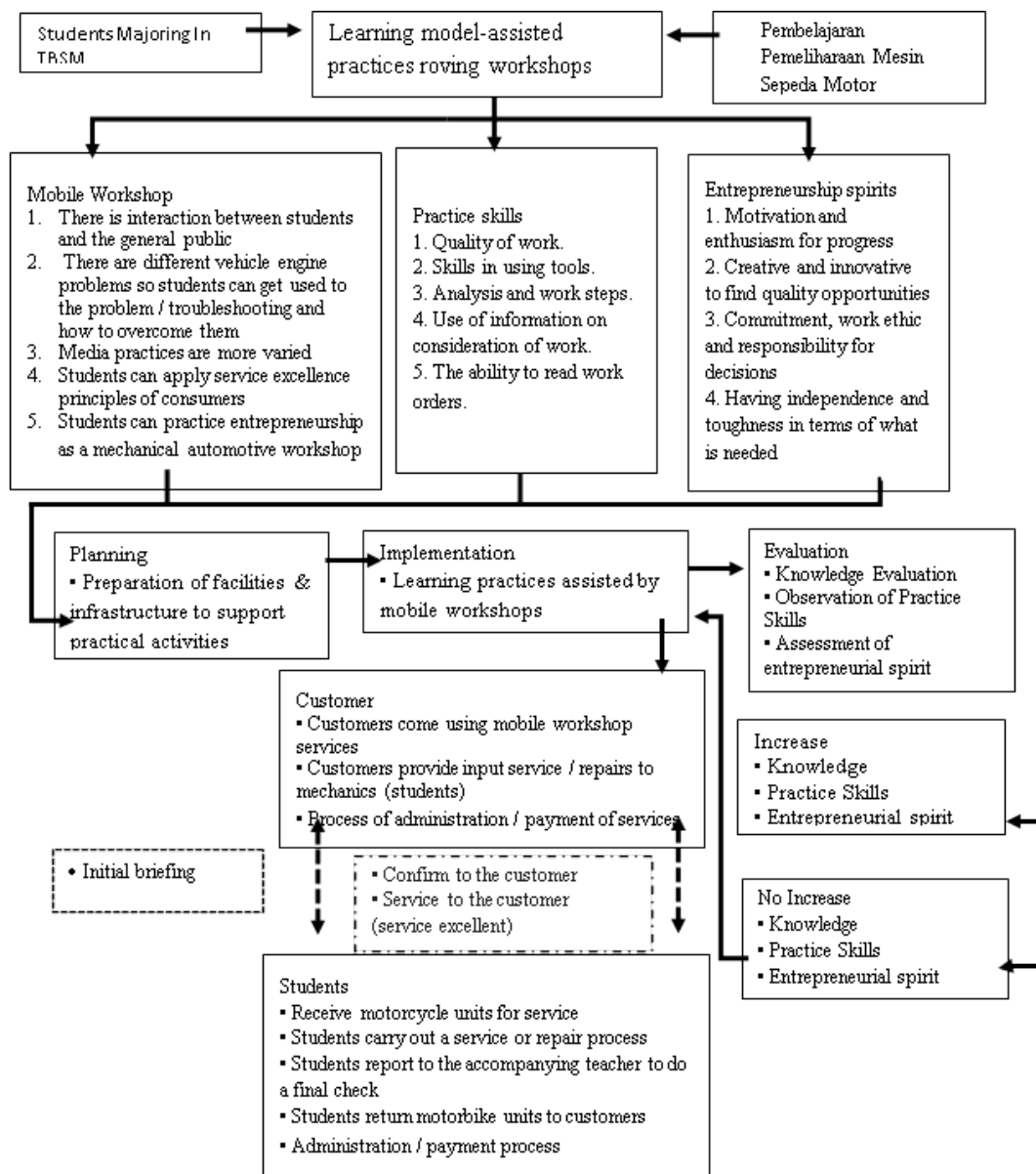


Figure 2. Final model of Practical Learning Model Assisted By Mobile Workshop For Enhancing Practical Skills And Entrepreneurial Spirit For Prospective Vocational High School Graduates

Table 3. Recapitulation of Practical Practice Skills in Learning Model Assisted by Mobile Workshop

Intotal		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	unskilled	0	0	0	0
	Less skilled	2	4.8	4.8	4.8
	Skilled	14	33.3	33.3	38.1
	Very skilled	26	61.9	61.9	100.0
	Total	42	100.0	100.0	

Based on the skills assessment, it was found that 2 students were in the less skilled category, 24 students in the skilled category, 26 students in the highly skilled category.

Table 4. The total entrepreneurial spirit of students based on SPSS calculations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not excited	0	0	0	0
	Les enthusiastic	4	9.5	9.5	9.5
	Excited	12	28.6	28.6	38.1
	Very excited	26	61.9	61.9	100.0
	Total	42	100.0	100.0	

Based on the assessment of entrepreneurial spirit, it can be categorized as 0 students in the lackluster category, 4 students in the less enthusiastic category, 12 students in the excited category, and 26 students in the very excited category.

After testing the practice skills data, and entrepreneurial spirit, testing was carried out to find out how much improvement in practical skills and entrepreneurial spirit of students using the Gain Test in Table 5 as follows.

Table 5. Student's N-Gain Criteria

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Being	36	85.7	85.7	85.7
	High	6	14.3	14.3	100.0
	Total	42	100.0	100.0	

Based on Gain testing, it can be seen that 6 students experienced an increase in the high category, and 36 students experienced an increase in the medium category, so it can be concluded that there was a significant increase in students' practical skills and entrepreneurial spirit after carrying out a practical learning model assisted by a mobile workshop.

Define phase aims to obtain various kinds of potential information and problems from several Vocational High Schools (Vocational Schools) in Demak Regency which have a Motorcycle Business Engineering (TBSM) department from that information which will produce a factual model of existing motorbike engine maintenance practice learning in Demak Regency, in this study information collection was carried out by direct observation and interviews with 7 Vocational Schools in Demak Regency along with 7 productive teachers of Motorcycle Business Engineering (TBSM).

The design phase in this study produces a factual model and theoretical concept of developing a practical learning model assisted by a mobile workshop. The factual model contains learning practices for motorcycle engine maintenance that exist on vocational schools in Demak Regency. The stage of developing the model (develop) in this study there are several stages including: 1) model validation 2) revised model 3) hypothetical model 4) limited scale trial 5) final model. Based on the analysis of the validity, reliability and effectiveness of the model it can be concluded that the model of a practical workshop assisted by a mobile workshop is valid, reliable, and effective used to improve students' practical and entrepreneurial skills.

Increasing student competency after implementing a practical learning model assisted by a mobile workshop for the medium category. This is in line with the research of Setiawan, Widjanarko, & Budiyo (2009: 28) about improving student competence by using teaching aids.

Measurements of effectiveness are seen from the increase in students' entrepreneurial spirit, that in practical learning, students are given a questionnaire about entrepreneurial spirit after students have completed the mobile workshop assisted learning model, the entrepreneurial spirit assessment for students gets very effective results to enhance students' entrepreneurial spirit. This is in accordance with the opinion of Suharti and Sirine (2011) which states that a high desire to choose entrepreneurship as a career or profession is after getting entrepreneurial education.

CONCLUSION

Based on expert judgment and analysis, it was obtained (1) the results of the second cycle assessment with an average value of 3,655 with very valid categories so that it was very feasible to use, so it was concluded that the mobile workshop assisted learning model was valid and very feasible to use in learning. (2) Practical test results of teachers obtained a total percentage of 91%, so that it was said to be "very practical", and the results of assessments given by students related to practical learning assisted by mobile workshops for the motorcycle business technical skills program obtained a total percentage of 88% so that it is said that the mobile workshop assisted learning model is "very practical" used in learning. (3) The results of the effectiveness test based on the t test are equal to 0,000 which mean that there is a difference between before and after treatment, because the p value is less than 0.05 with 95% confidence. It is also proven by the N-gain value that 6 students have increased from the high category, and 36 students experienced an increase in the medium category, so it can be concluded that there was a significant increase in students' practical skills and entrepreneurial spirit after implementing a practical learning model assisted by a mobile workshop.

ACKNOWLEDGMENT

Acknowledgments to the coordinator of the Vocational Education study program, Sultan Fattah Demak Principal and Vocational Teacher, expert validate and thesis testing team and editor of the UNNES Postgraduate Vocational Education journal.

REFERENCES

- Arif, U. N., & Suyanto, W. 2014. "Evaluasi Pelaksanaan Praktik Kerja Industri Peserta Didik Program Keahlian Teknik Otomotif Smk Evaluation of work practice of Automotive Engineering Program Vocational High School". *Jurnal Pendidikan Vokasi*, 4(2), 262-270.
- Badan Pusat Statistik (BPS). 2017. *Pengangguran Terbuka Menurut Pendidikan Tertinggi yang Ditamatkan*. Jakarta: Badan Pusat Statistik.
- Dariyati, I., G., A., Marhaeni, A., A., I., N., & Widiartini, N., K. 2015. Pengaruh Pembelajaran Praktik Berbantuan Media Audio Terhadap Kemampuan Motorik Dan Motivasi Belajar Siswa Smp Di SLB A Negeri Denpasar Tahun Pelajaran 2014/2015. *e-Journal Program Pascasarjana Universitas Pendidikan Ganesha Program Studi Penelitian dan Evaluasi Pendidikan (Volume 5, No 1)*.
- Depdiknas. 2008. *Pengembangan Perangkat Penilaian Psikomotorik*. Jakarta: Direktorat Jenderal Manajemen Pendidikan Dasar dan Menengah.
- Ferris, T. L. J., & Aziz, S. M. 2005. A Psycomotor Skills Extension to Bloom's Taxonomy of Education Objectives for Engineering Education. *Exploring Innovation in Education and Research Tainan, Taiwan*.
- Gamble, J. 2013. Why improved formal teaching and learning are important in technical and vocational education and training (TVET). Revisiting global trends in TVET: Reflections on theory and practice. *UNESCO-UNEVOC | Revisiting global trends in TVET* 204-238.

- Hadromi. 2011. Pengembangan Model Pembelajaran *Learning Cycle* Berbasis Panel Peraga Sebagai Upaya Meningkatkan Kompetensi Mahasiswa pada Materi Sistem Pengapian Mobil. *Jurnal Penelitian Pendidikan* Vol 29 Nomor 2 Tahun 2011.
- Hadromi. 2015. The Development of Productivity Practical Management Model At Automotive Mechanical Technology Skill Program in Semarang Vocational Schools. *International Education Studies; Vol. 8, No. 5;2015*. ISSN 1913-9020 E-ISSN 1913-9039.
- Hadromi. 2018. A Model for a vocational school corporate/industry partnership to improve student' technical skills. *World Transactions on Engineering and Technology Education. Vol. 16, NO. 1, 2018*.
- Hanaf, F. 2013. Rancang Bangun Sistem Informasi Bengkel Mobil Berbasis Web (Studi Kasus PT. Surya Kencana). *Skripsi*. Jurusan Sistem Informasi. Surabaya: Sekolah Tinggi Manajemen Informatika & Teknik Komputer.
- Joyce, B., Marsha, W. 1972. Conceptual Complexity, Teaching Style and Models of Teaching. *A paper prepared for the National Council for the Social Studies*, Boston: Teacher Collage, Columbia University.
- Kurnia, A. 2015. Pengaruh Penggunaan Media Pembelajaran Visual Terhadap Hasil Belajar Ekonomi Siswa Kelas X Semester Genap SMA Negeri 1 Pekalongan. *Skripsi*. FKIP. Universitas Sebelas Maret.
- Meyer, B. J. F. (1985). Prose analysis: Purposes, procedures, and problems, Parts 1 and 2. In B. K. Britton & J. B. Black (Eds.), *Understanding expository text* (pp. 11-64, 269-304). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Nolker, Helmut & Shoenfeldt, E. 1983. *Pendidikan Kejuruan. Pengajaran kurikulum Perencanaan. Diterjemahkan oleh Agus Setiadi.*. Jakarta: Gramedia.
- Ratu, Y. H., & Us, T. 2016. Efektifitas Penerapan Pembelajaran dengan Sistem Blok Jurusan Teknik Mekanik Otomotif di SMK Muhammadiyah Prambanan. *Jurnal Pendidikan Teknik Otomotif Edisi XV, Nomor 2, Tahun 2016*.
- Ratu, Y. H., & Us, T. 2016. Efektifitas Penerapan Pembelajaran dengan Sistem Blok Jurusan Teknik Mekanik Otomotif di SMK Muhammadiyah Prambanan. *Jurnal Pendidikan Teknik Otomotif Edisi XV, Nomor 2, Tahun 2016*.
- Setiawan, E., Widjanarko, D., & Budiyo, A. (2009). Pengembangan Panel Peraga Multifungsi Sistem Lampu Kepala Sebagai Upaya Meningkatkan Kompetensi Sistem Penerangan Mahasiswa. *Jurnal PTM* Vol 9, No 1 Juni 2009. ISSN:1412-1247.
- Slamet., S. 2011. *Implementasi Pendidikan Karakter Melalui Pembelajaran Terpadu*.Jogjakarta : Cakrawala Pendidikan.
- Sudiyono. (2016). Evaluasi Sarana dan Prasarana Bengkel Praktik SMK Teknik Permesinan di Kota Semarang Berdasarkan Kebutuhan Kurikulum. *Jurnal Pendidikan Vokasi*. Vol 6 No 1 Feb 2016. p-ISSN:2088, e-ISSN:2476-9401.
- Sugiyono. 2015. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Suharti, Lieli & Sirine. H. 2011. "Faktor-Faktor yang Berpengaruh Terhadap Niat Kewirausahaan (Studi Terhadap Mahasiswa Universitas Kristen Satya Wacana, Salatiga)". *Jurnal manajemen dan kewirausahaan*, 13(2): 124-134.
- Wijaya, M.B.R 2013. Model Pengelolaan Teaching Factory Sekolah Menengah Kejuruan. *Jurnal Penelitian Pendidikan. Vol. 30 Nomor 2* tahun 2013.