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THE IMPLEMENTATION OF BLOCK-SYSTEM LEARNING ON THE EXPERTISE COMPETENCE OF AUTOMOTIVE LIGHTWEIGHT VEHICLE ENGINEERING IN VOCATIONAL HIGH SCHOOL

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Abstract

The research concerned here was to discover (1) the effectiveness of block-system learning as viewed from the teacher aspect; (2) the effectiveness of such learning as viewed from the student aspect; (3) the effectiveness of such learning as viewed from the facility and resource aspect; and (4) the students' learning achievement after an application of such learning. The study is descriptive and quantitative research, using a survey approach. The data were compiled through observation, questionnaire use, and documentation. The results indicate that (1) the effectiveness of block-system learning as viewed from the teacher aspect is very high in scale; (2) the effectiveness of block-system learning as viewed from the student aspect is very high in scale; (3) the effectiveness of block-system learning as viewed from the facility and resource aspect is high in scale; and (4) with block-system learning, students' learning achievement, as evaluated through UKK (Uji Kompetensi Keahlian or 'Expertise Competence Test'), improves.

Keywords: *effectiveness of learning, block-system, automotive light-vehicle engineering, state vocational high school, UKK value*

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INTRODUCTION

A nation could be called progressive if it has quality human resources. Such human resources constitute the most important asset to make a nation an advanced one. One of the strategic ways to improve the quality of human resources is to do it through education. Education here refers to a deliberate and planned effort to create a learning atmosphere in a learning process so that the students actively develop their potential for the possession of the spiritual and religious strength, self-control, personality, and intelligence; the praiseworthy character; and the skills needed by themselves and their society, nation, and country (Law of Republic of Indonesia No. 20 of 2003).

One of the forms of education in existence in society is that run at vocational high school. According to Sudira (2012, p. 13), vocational education is interpreted as the education designed to develop the potential of students at a formal educational institution in especially the knowledge, skill, and attitude needed by workers and specifically suitable for their fields of expertise prior to entering into the world of work. Vocational high school is one of the forms of an educational institution at the middle level of education, which prioritizes the development of students' competence in executing a certain kind of work (Government Regulation No. 29 of 1990).

In agreement with the abovementioned concept, Rauner and Maclean (2008, p. 433) also explain that Technical Vocational Education Training (TVET) is understood as a system of technical and vocational education that functions to give a supply of a qualified and skilled workforce to the prevailing types of production of a country, region, or sector or to equip people with the skills and competencies demanded by the labor market. It means that the technical part of training in vocational education functions to prepare a workforce with qualification and skillfulness in certain fields which are accepted in a country, region, or industry or to equip individuals with skills that meet the needs of the market, which is, in this case, the world of business or industry.

From those several opinions on the definition of vocational education, it is concluded that vocational education is a learning activity of a certain type that emphasizes one's skills of working according to one's interest and aptitude so graduates of that education possess the needed knowledge, capability, intelligence, and competence; praiseworthy morals; and high work ethic as well as highly-qualified skills to be able to have jobs or become entrepreneurs after finishing their learning.

SMK, as the shorter term for *Sekolah Menengah Kejuruan,* is what the vocational high school in Indonesia is called. SMKs differ from one another in vision and mission, and yet their objective is almost the same, namely, preparing a younger generation that is ready to work in order to meet the demand for workers in the circles of the business or industrial world. In general, the SMK vision is shaping the individuals and ecosystem of SMK education that possess a character based on the principle of *gotong royong* (i.e., something like cooperation, teamwork, or working together). To turn the vision to reality, SMK has the mission of (1) actualizing strong agents or practitioners of SMK education; (2) actualizing a widening, evenly-distributed, and fair access to SMK; (3) actualizing quality education at SMK; and (4) actualizing the management with effectiveness improvement in bureaucracy and public involvement (Setiawan, 2016).

With the afore-mentioned vision and mission of SMK as a basis, SMK has the objective of preparing a younger generation competent and skillful in accordance with their respective fields of expertise. As mentioned in part of a presidential regulation referred to as the Government Regulation No. 17 of 2010, on article 76, sunsection 2, SMK education has the function and objective of (1) preparing the students in order that they become personalities that are independent/self-dependent, productive, and capable of working in industrial or business circles in accordance with their expertise competence; (2) equipping them with science/knowledge, skills, and technology in order that they are capable of future self-development; (3) preparing them in order that they become strong in determination, capable of choosing a career, persistent, capable of adapting to their society, and professional in attitude concerning the field of expertise that they pursue; and (4) arming them with expertise competence for living within a society and continuing their education at a university.

To actualize the vision, mission, and objective expounded upon above, one of the efforts made by SMK Negeri (or SMKN or State SMK) in Kabupaten (or Regency or Sub-Province of) Batang was applying the learning with the block-system model. The application of the block-

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system learning at SMK Negeri in Kabupaten Batang had the purpose of scheduling classes of subjects called productive subjects close together, instead of being interspersed with classes of subjects called normative and adaptive subjects, so that the material could be received wholly by students. It is inseparable from the purpose of SMK, as stated by Djojonegoro (1998), by saying that if all this time, the purpose of the education at vocational school has been merely of getting a diploma, now it should be replaced with that of getting competence. It is also in line with the purpose of education at vocational high school, as previously mentioned, which is to get its graduates ready with the competence needed by the world of business or industry. The reason is that there is indeed a priority for SMK graduates to enter the world of work after graduating directly.

Kabupaten Batang is part of the province of Jawa Tengah (or Central Java), within which it shares borders with Kabupaten Kendal to the east, Kabupaten Banjarnegara to the south, Kota (or City of) Pekalongan to the west, and also Laut Jawa (or Java Sea) to the north. The data from AsliBatang.com (n.d.) indicate that Kabupaten Batang has 28 SMKs, which consist of 4 SMKNs and 24 private SMKs. Three of the SMKNs, i.e., SMKN 1 Kandeman, SMKN 1 Warungasem, and SMKN 1 Blado, have the expertise program of TKRO (short for *Teknik Kendaraan Ringan Otomotif*, or, alternatively, 'Automotive Light-Vehicle Engineering'). Of these three, the two last mentioned have already applied the block learning system.

According to results of interviews during observations at one of the SMKNs applying block-system learning, among the subjects listed in the curriculum to be taught in classes, there are subjects called productive subjects, and a class of a productive subject is divided into two parts differing in nature and respectively considered theory and practice, unlike that of a normative or adaptive subject, which, in form, consists of only theory and could be delivered verbally without having to prepare equipment and materials as in a practice class. In a productive subject class, before the learning itself is conducted, there has to be a preparation of certain equipment and materials specifically related to a certain expected product. Before the application of block-system learning at the SMK, it has often happened that when the students were still concentrating on their practice work, suddenly the time was up with the students' work not yet finished and with them having to turn to a class of a normative or adaptive subject. The respondents interviewed express that such a matter is not so effective for conducting learning (interview with Mr. IMD).

The learning system long in use at SMK for classes of productive subjects, as previously mentioned, briefly said, consists of theory and practice. According to results of observations in the field at one SMK Negeri in Kabupaten Batang, before a learning process for practice activity, there is a preparation of equipment and materials for around 15-20 minutes and an activity of cleaning and tidying up the practice place (which may be more like a workshop) for an additional 10 minutes. If there are four to six hours of a learning session, students already lose 30 minutes of the learning time. What often happens is that the students are still in the process of analyzing components and are not yet doing an experiment in turns within their groups when the time is up, and they have to resume the work in the following week.

Hari/jam	1	2	3	4	5	6	7	8	9	10
Senin	TDO				PDTO					ENG
Selasa	GTO				Seni Budaya			AGAMA		
Rabu	SKD				FISIKA		PKN		PJOK	
Kamis	MTK		BI		KIMIA			S.I		
Jum'at	B.J		MTK		B.I		ENG		PRAMUKA	
Kelas X TKRO I										
Senin	PSPTKR				PMKR					
Selasa	PJOK		MTK		ENG			B.I		
Rabu	PKKR						PSPTKR			
Kamis	PKK			BJ		PKKR		AGAMA		
Jum'at	PMKR		MTK		PKK				PKN	
Kelas XI TKRO I										
Senin	PKKR						PSPTKR			
Selasa	AGAMA			PKN		B.I		PMKR		
Rabu	PSPTKR				PMKR					
Kamis	B.J		MTK		PKK				JEPANG	
Jum'at	MTK		PKK				ENG		PKKR	
Kelas XII TKRO I										

Figure 1. Scheduling of Productive Subjects in Non-Block System

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The distribution of class hours for productive subjects is based on the structure of the 2nd revision of Curriculum 2013 in 2018. For Grades XI and XII (which are the last two of the three grades at SMK), concerning the following subjects, i.e., PMKR (*Pemeliharaan Mesin Kendaraan Ringan* or 'Light-Vehicle Mechanical Maintenance'), PSPTKR (*Pemeliharaan Sasis dan Pemindah Tenaga Kendaraan Ringan* or 'Light-Vehicle Cassis and Power Transmission Maintenance'), and PKKR (*Pemeliharaan Kelistrikan Kendaraan Ringan* or 'Light-Vehicle Electricity Maintenance'), there are 8-9 class hours for each subject in a week so that in total there are 24-25 class hours for learning the afore-mentioned productive subjects every week. According to results of documentation at SMK Negeri in Kabupaten Batang applying non-block learning, technically, the scheduling of the class hours is as in Figure 1.

Based on Figure 1, for Grades XI and XII, in the class scheduling of productive subjects employing the non-block system, in a week the classes are mixed with those of normative and adaptive subjects; if one class session requires preparation of equipment and materials, it would cause a waste of lots of time. Research by Masbahah et al. (2014) on SMKs in the city of Surabaya states that the constraints in the non-block (or conventional) learning system are that (1) the teacher does much preparation of the learning plan, (2) the execution of the learning is not optimum, and (3) the learning evaluation could not be done well. The execution of the learning is not optimum because (1) the materials of productive subjects could not be delivered wholly, (2) the materials of productive subjects could not be developed and studied in-depth, (3) the students could not master the materials of productive subjects well, (4) the students feel that the time allocated for the practice being done is still not enough, (5) the method of conducting the learning is not varied enough, and (6) the facilities provided by the school do not yet meet the standard for SMK facilities and resources.

Block-system learning is the learning conducted with a management system that schedules classes of a productive subject, for example, in one group, meaning that, instead of being scheduled in separation from each other, interspersed with classes of other productive subjects or classes of normative or adaptive subjects, the classes of the said productive subject in a week is grouped into one or more sessions that, though relatively brief, still get a long time portion in each learning period. Majid et al. (2011) believe that block-system learning is the learning conducted by combining the study hours of class sessions of a subject so the session previously done once a week until the finish changes into sessions done in one full week or more until the subject is finished with the materials being able to be delivered in a maximum way and in accordance with the demand of the curriculum as the standard of measurement.

According to LAB Board of Governors (1998), the scheduling of learning using the block system arranges the learning sessions that there are relatively fewer sessions but with a longer time in each session, which enables the activity in the learning to become more flexible. The objective of block-system learning is to improve students' effectiveness in learning. It could also be beneficial by making the relationship between the teacher and the students become better in the learning process and encouraging the teacher to be innovative by simultaneously using several learning methods and improving the school's learning climate and making it more varied. In line with this, Suwati (2008, p. 89) also explains that the block system is the grouping of effective study (or learning) hours in time units that enables learners to attend to and receive learning materials to the maximum and wholly.

The objective of learning is to attain the maximum achievement conforming to the objective. Learning achievement is an important matter in teaching and learning activity. Students' learning achievement determines how much of the learning objective that has been designed could be attained. Besides, the educator also uses learning achievement as standard of measurement of the success in the learning. One of the factors determining the degree of students' learning achievement is the teacher's role because the teacher's main function is designing, managing, and evaluating the learning. The teacher has the obligation of transferring a set of the knowledge that he/she possesses to the students so that from that knowledge comes what becomes part of the students' attitude.

Effective learning can be known if the learners could attain the KKM (*Kriteria Ketuntasan Minimal* or 'Minimum Mastery Criteria') predetermined by the school authorities. Anderson et al. (2005) explain that outcomes are the consequences or results associated with instructional experiences, the end results of institutional programs or curricular goals. Thus, the emphasis of outcome-

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based education is not on acceptance of any "results" but on efforts to produce the specific results based on predetermined agreement realized through consensus. The same in tone with that concept, Saefuddin and Berdiati (2016, p. 34) state that effective learning could be attained if the learning could give new experience, shape students' competence, and get them to the goal that they want to attain. It is in line with Kyriacou (2009, p. 7) who states that effective teaching could be defined as the teaching that successfully achieves the learning by pupils intended by the teacher.

The application of block-system learning at particularly SMK Negeri in Kabupaten Batang since the school year of 2018-2019 as one-year-long learning had never been previously studied, so that how effective it was was not yet known. Therefore, in the research concerned here, the objective was to know the effectiveness of block-system learning as viewed from the aspects of the teacher, the students, and the facilities and resources as variables and to know the students' learning achievement after an application of block-system learning on the expertise competence of TKRO (*Teknik Kendaraan Ringan Otomotif* or 'Automotive Lightweight-Vehicle Engineering') at SMK Negeri in Kabupaten Batang.

RESEARCH METHOD

The type of this research is descriptive and quantitative research with a survey approach. The data were compiled by means of observation, questionnaire use, and documentation. The research was conducted at SMK Negeri in Kabupaten Batang on the field of the said expertise competence of TKRO. Data on SMK Negeri in Kabupaten Batang are presented in Table 1.

Table 1. Data on SMK Negeri in Kabupaten Batang

Schools Name	Address
SMK Negeri 1 kandeman	Jl. Raya kandeman. KM.N0.04. Kec. Batang (51261)
SMK Negeri 1 Warungasem	Jl. Banjiran, Sawahjoho. KM. 08. Kec. Warungasem (51252)
SMK Negeri 1 Blado	Jl. Blado. KM. 02. Desa Cokro. Kec. Reban (51255)

A purposive sampling technique was employed in the research. As a result, two schools, SMK Negeri 1 Warungasem and SMK Negeri 1 Blado, were used as objects of the research, considering that those two were the only ones around belonging to the population that had applied block-system learning. The research did not compare the qualities of learning achievement. Instead, it measured the effectiveness of block-system learning that had been applied. For particularly the sample determination, disproportional stratified random sampling was used. The sample was part of the population of students of Grade XII at the two schools. Details related to the sample determination can be seen in Table 2.

Table 2. Sample of Determination

Schools Name	Population	Percentage	Sample
SMK Negeri 1 Warungasem	72	25%	19
SMK Negeri 1 Blado	70	25%	18
Value			37

A research instrument was constructed and developed in a questionnaire form based on the theoretical review so some sub-variables were established. The sub-variables were three in number, i.e., learning effectiveness viewed from the teacher aspect, viewed from the student aspect, and viewed from the facility and resource aspect. The Likert scale was used to measure each variable.

The data were processed by using descriptive-quantitative analysis. From the data obtained from the questionnaire, the total score for each variable was calculated. The result was then interpreted. With the interpretation as a basis, a conclusion was then made. The interpretation was made by going through the steps as follows. (1) Determining the maximum score = number of questionnaire items × number of respondents × 5. (2) Determining the minimum score = number of questionnaire items × number of respondents × 1. (3) Determining the range = maximum score – minimum score. (4) Determining the class width (p) = range ÷ number of categories. (5) The formula used in determining the response scale can be seen in Formula (1).

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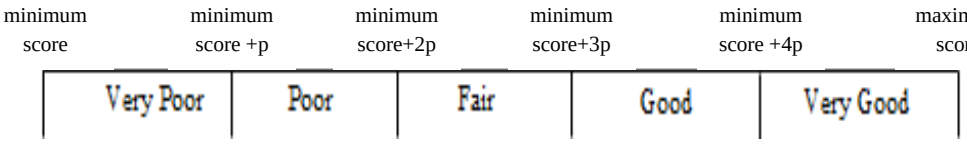


…… (1)

(Sundayana, 2014, p. 11)

RESULTS AND DISCUSSION

Results

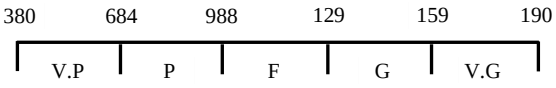
The Effectiveness of Block-system Learning as Viewed from The Teacher Aspect

Table 3 shows that the effectiveness of block-system learning application is viewed from the teacher aspect as a variable at SMK Negeri 1 Warungasem by using asix indicators with 20 statements. The respondents' total score for it is 1693. The interpretation is that it is very high in scale because 380 < 1693 < 1900.

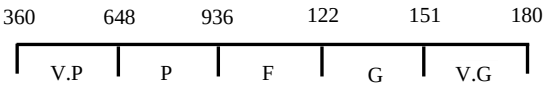
Table 3. Questionnaire Result of Block-System Learning Effectiveness from the Teacher Aspect

Indicator	**Respondents**	
	SMK N 1 Warungasem	**SMK N 1 Blado**
Learning Plan	85	81
	91	80
	84	83
Learning Method	86	81
	86	80
	87	82
Learning Strategy	82	82
	89	81
	81	83
	87	82
Class Management	87	81
	87	82
	84	81
	83	81
Reviewing the Contents of a Course	87	79
	83	80
	83	82
Motivator	84	78
	77	73
	80	76
Value	**1693**	**1608**

SMK Negeri 1 Warungasem



SMK Negeri 1 Blado



Annotation: VP = Very Poor P = Poor F = Fair G = Good VG = Very Good

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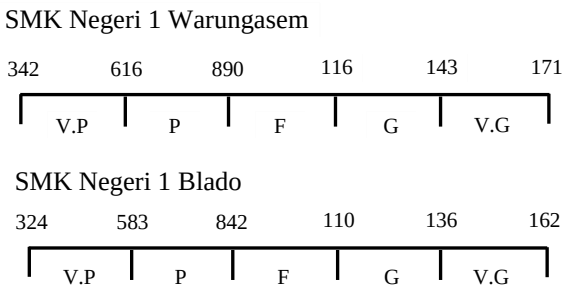
Still, according to Table 3, the effectiveness of the block-system learning application is also viewed from the teacher aspect as a variable at SMK Negeri 1 Blado using six indicators with 20 statements. The respondents' total score for it is 1608. The interpretation is that it is very high in scale because 360 < 1608 < 1800. Data in Table 3 indicate that the application of block-system learning at SMK Negeri in Kabupaten Batang as viewed from the aspect of the teacher's involvement in the process of block-system learning is very good in the degree of effectiveness.

The Effectiveness of Such Learning as Viewed from the Student Aspect

Table 4 shows that the effectiveness of the application of block-system learning is viewed from the student aspect as a variable at SMK Negeri 1 Warungasem by using five indicators with 18 statements. The respondents' total score for it is 1496. The interpretation is that it is very high in scale because 342 < 1496 < 1710.

Table 4. Questionnaire Result of Effectiveness of Such Learning as Viewed from the Student Aspect

Indicator	**Respondents**	
	SMK N 1 Warungasem	**SMK N 1 Blado**
Preparation and Interest	86	80
	85	84
	88	83
	83	85
Students Activity	80	76
	85	80
	77	75
The Role of a Teacher	87	80
	84	80
	81	82
	86	83
Tasks	85	83
	81	78
	84	82
Working Equipment	83	81
	83	74
	77	77
	81	78
Value	**1496**	**1441**



Still, according to Table 4, the effectiveness of the block-system learning application is also viewed from the student aspect as a variable at SMK Negeri 1 Blado using five indicators with 18 statements. The respondents' total score for it is 1441. The interpretation is that it is very high in scale because 324 < 1441 < 1620. From Table 4, it is indicated that the application of block-system learning at SMK Negeri in Kabupaten Batang viewed from the aspect of the students' involvement in the process of block-system learning is very good in the degree of effectiveness.

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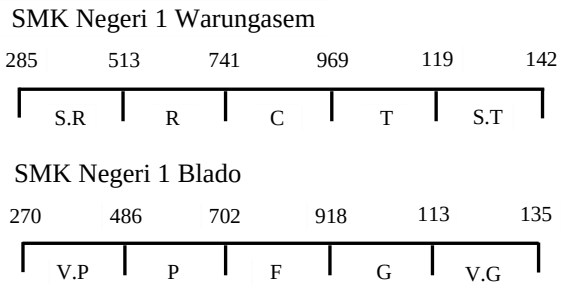
The Effectiveness of Such Learning as Viewed from the Facility and Resource Aspect

Table 5 shows that the effectiveness of the block-system learning application is viewed from the facility and resource aspect as a variable at SMK Negeri 1 Warungasem using five indicators with 15 statements. The respondents' total score for it is 1175. The interpretation is that it is high in scale because 285 < 1175 < 1425.

Table 5. Questionnaire Result of Effectiveness of Such Learning as Viewed from the Facility and Resource Aspect

Indicator	**Respondents**	
	SMK N 1 Warungasem	**SMK N 1 Blado**
Laboratory of Practic	79	77
	81	76
	75	81
Equipmets of Practic	79	80
	78	74
	78	74
Materials of Practic	76	77
	79	75
	80	80
Learning Media	81	81
	75	77
	81	79
Management Practic	75	75
	78	79
	80	81
Value	**1175**	**1166**



Still, according to Table 5, the effectiveness of the application of block-system learning is also viewed from the facility and resource aspect as a variable at SMK Negeri 1 Blado by using five indicators with 15 statements. The respondents' total score for it is 1166. The interpretation is that it is high in scale because 270 < 1166 < 1350.

From the data which are obtained from Table 5, it can be concluded that the application of block-system learning at SMK Negeri in Kabupaten Batang that is viewed from the aspect of the involvement of facilities and also resources in the process of block-system learning is good in the degree of effectiveness. It is in accordance with the result of an interview with the Head of the Department of TKRO at SMK Negeri in Kabupaten Batang, who informs that one of the objectives of applying block-system learning is to bridge a gap due to lack of equipment and materials for students' practice since applying block-system learning gives teachers more ease in running the learning process and, in addition, the application of block-system learning would make students more enthusiastic in indulging in the learning process, because the classes of a productive subject are not scheduled apart from each other and are interspersed with classes of normative or adaptive subjects.

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The Students' Learning Achievement After an Application of Such Learning

The data of students' learning achievement after the application of block-system learning in the research are secondary in type. The data are obtained from the results of the students' UKK (*Uji Kompetensi Keahlian* or 'Expertise Competence Test') within the last two years, i.e., the school years of 2017/2018 and 2018/2019. The data are then used to compare the attainment of students' learning achievement in the form of categorization.

SMK Negeri 1 Warungasem

The data of UKK scores for the last two years at SMK Negeri 1 Warungasem can be categorized as presented in Table 6. It can be seen there that a comparison between the students' UKK scores for the 2018 school year, before the application of block-system learning, and their UKK scores for the 2019 school year, after the application of the said learning. It indicates that students who are categorized as being special in score increase from 2 to 4 in number (or from 2.8% to 5.6%), those categorized by the score as meeting the criteria for being very competent increase from 11 to 26 in number (or from 46.43% to 36.1%), and those categorized by the score as meeting the criteria for being competent increase from 38 to 42 in number (or from 15.8% to 58%) while those categorized by the score as meeting the criteria for being fairly competent remain 20 in number (or 1.19%), with there being only one student (or 1.4%) categorized by the score as meeting the criteria for being incompetent. A description of the percentages of students meeting one set of criteria or another in diagram form is presented in Figure 2.

Table 6. Categorization of UKK Value at SMK N 1 Warungasem from 2018 to 2019 School Year

Range	Criteria	Student Number		Percentage (%)	
		2018	2019	2018	2019
X > 91	Special	2	4	2.8%	5.6 %
81 < X ≤ 91	Very Competent	11	26	15.3%	36.1 %
71 < X ≤ 81	Competent	38	42	52.8%	58.3 %
61 < X ≤ 71	Fairly Competent	20	0	27.8%	0 %
X ≤ 61	Incompetent	1	0	1.4%	0 %
Value		**72**	**72**	**100%**	**100%**

(Source: Result of Data Analysis, 2019)

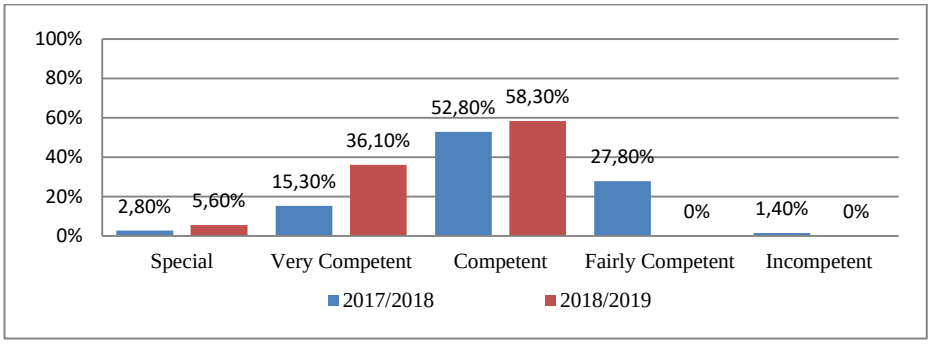

Figure 2. UKK Values Percentage of SMKN 1 Warungasem in the Last Two Years

The block-system learning application at SMK Negeri 1 Warungasem can be said effective in being used for learning and capable of improving students' learning achievement. It can be seen from the increase in the number of students entering the categories of being special and very competent.

SMK Negeri 1 Blado

The data of UKK scores for the last two years at SMK Negeri 1 Blado are categorized as shown in Table 7. It can be seen there that a comparison between the students' UKK scores for the 2018 school year, before the application of the block system, and their UKK scores for the 2019

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school year, after the application of the said system, indicates that students categorized as being special in score increase from 0 to 5 in number (or 0% to 7.1%), those categorized by the score as meeting the criteria for being very competent increase from 14 to 29 in number (or 20% to 41.4%), those categorized by the score as meeting the criteria for being competent increase from 44 to 34 in number (or 62.9% to 48.6%), and those categorized by the score as meeting the criteria for being fairly competent increase from 2 to 12 in number (or 2.9% to 17.1%), with there being no student categorized by the score as meeting the criteria for being incompetent. A description of the percentages of students meeting one set of criteria or another in diagram form is presented in Figure 3.

Table 7. Categorization UKK values of SMKN 1 Blado from 2018 to 2019

Range	Criteria	Student Number		Percentage (%)	
		2018	2019	2018	2019
X > 91	Special	0	5	0%	7.1 %
81 < X ≤ 91	Very Competent	14	29	20%	41.4 %
71 < X ≤ 81	Competent	44	34	62.9%	48.6 %
61 < X ≤ 71	Fairly Competent	12	2	17.1%	2.9 %
X ≤ 61	Incompetent	0	0	0%	0 %
Value		**70**	**70**	**100%**	**100%**

(Source: Result of Data Analysis, 2019)

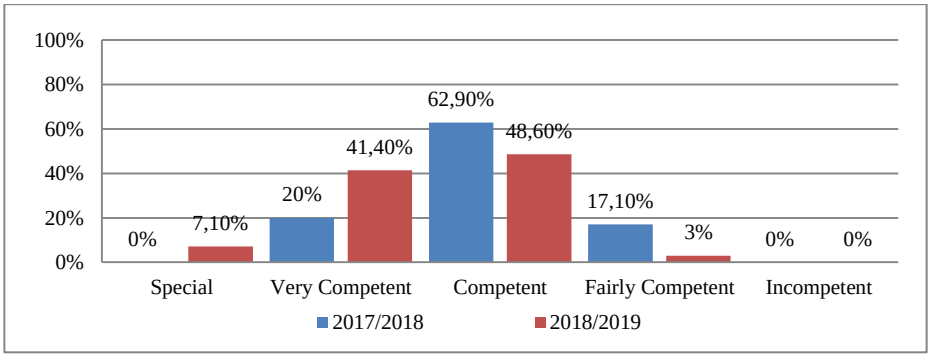

Figure 3. UKK Values Percentage of SMKN 1 Blado in the Last Two Years

It is indicated that the block-system learning application at SMK Negeri 1 Blado can be said effective in being used for learning and capable of improving students' learning achievement. The block-system learning application at SMK Negeri in Kabupaten Batang has made the students' learning achievement better in their UKK mean score than before applying the block-system learning. The supporting data can be seen in the diagram in Figure 4.

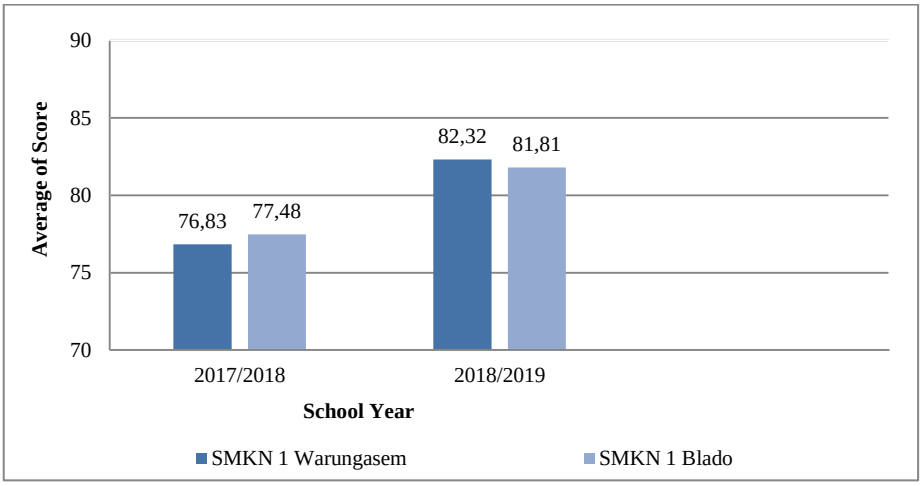

Figure 4. Average Score of Expertise Competency Test (UKK)

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With the diagram in Figure 4 as a basis, it can be seen that, after the application of the block-system learning, there is an increase in students' learning achievement, described as follows: (1) at SMKN 1 Warungasem in the school year of 2017/2018 (i.e., before the application of block-system learning), the students' UKK mean score has been76.83 and, after the application of block-system learning in the school year of 2018/2019, it has undergone an increase into 82.32 and (2) at SMKN 1 Blado in the school year of 2017/2018, the students' UKK mean score has been 77.48 and, after the application in the school year of 2018/2019, it has risen to 81.81. It can be concluded that the application of block-system learning could influence students' learning achievement.

Discussion

Meo (2016, p. 20) explains that learning is said to be effectively conducted if there is a certain difference in learning achievement in relation with such a matter as students' thinking skill after they undergo a learning process within a certain period of time and they feel motivated in the learning process. The same in opinion, Prihartono (2012, p. 37) also explains that effectiveness is interpreted as the degree of success in attaining a goal or target, which is interpreted as the state or condition desired, while efficiency is the best comparison between input and output, more often called the input to output ratio.

The block-system learning application at SMK Negeri in Kabupaten Batang, seen from students' learning achievement and mean score, already meets the KKM value predetermined by the school authorities, i.e., 75.00. That KKM indicator implies that, according to the rule, the predetermined learning objective can be attained. It fits according to the results of documentation concerning UKK scores of the 2018/2019 school year, i.e., at SMK Negeri 1 Warungasem, the UKK mean score rises from 76.83 to 82.32 with a standard deviation of 3.71 and, at SMK Negeri 1 Blado, the UKK mean score rises from 77.48 to 81.81 with a standard deviation of 5.55. Such difference in students' learning achievement, which indicates that, with the application of block-system learning, students' learning achievement could improve, is inseparable from the management of the learning system, the teacher's role in the learning process, students' enthusiasm when participating in the learning process, and the facilities and resources needed during the learning conducted.

The results above indicate that the research concerned is in line with that made by Masbahah et al. (2014) on the effectiveness of block-system learning at SMK in the city of Surabaya. The research results indicate that (1) there is a significant difference in competence between students using the learning with a block system and those using the learning with a non-block system, (2) there is a significant influence of the learning plan in both the learning with a block system and that with a non-block system on students' competence, (3) there is a significant influence of the learning execution in both the learning with a block system and that with a non-block system on students' competence, (4) there is a significant influence of the learning evaluation in both the learning with a block system and that with a non-block system on students' competence, and (5) learning with a block system is higher in effectiveness than that with a non-block system in improving students' competence.

Further, research conducted by Prastiyo et al. (2012) on the application of block-system learning for quality improvement in results of building drawing in Grade XI on the expertise competence in TGB (*Teknik Gambar Bangunan* or 'Building Drawing Engineering') at SMKN 2 Kendal in the school year of 2011/2012 gives results indicating that (1) block-system learning in the Expertise Program of TGB at SMK Negeri 2 Kendal is in implementation categorized good with an average percentage of 87.5% and the condition of the learning is in implementation categorized good with an average percentage of 78.5%, (2) the quality of results in TGB learning through the block system is in implementation categorized good with an average percentage of 70%, (3) students' readiness is categorized good in implementation with an average percentage of 75%, the teacher's readiness is in implementation categorized good with an average percentage of 75%, and the readiness of the school's management is in implementation categorized fairly good with an average percentage of 66.67%, and (4) the block-system learning in the Expertise Program of TGB at SMK Negeri 2 Kendal is in implementation categorized effective with an average percentage of 73.33%.

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The research concerned here is also in line with a research conducted by Prasetyo and Yoto (2016) on students' perception toward the effectiveness of learning with the block system in the practice classes at the Department of Mechanical Engineering, Faculty of Engineering, State University of Malang. With results of the data analysis as a basis, the following conclusion can be drawn: (1) the effectiveness as viewed from the learning aspect is high in the category, being 27 in magnitude and 54% in percentage; (2) the effectiveness as viewed from the educator (in this case, university teacher or lecturer) aspect is high in the category, being 31 in magnitude and 62% in percentage; (3) the effectiveness as viewed from the learner (in this case, university student) aspect is high in the category, being 34 in magnitude and 68% in percentage; and (4) the effectiveness as viewed from the equipment/machine aspect is high in the category, being 28 in magnitude and 56% in percentage.

With the results of the research concerned here and the research by some other aforementioned researchers on the application of block-system learning as a basis, it is inferred that the application of block-system learning is effective and could improve students' learning achievement. Therefore, block-system learning is quite right and fitting to be applied to the scope of SMK.

CONCLUSION

The effectiveness of block-system learning at SMK Negeri in Kabupaten Batang, as viewed from the aspect of teacher involvement in the process of block-system learning, is very good in level. At SMK Negeri 1 Warungasem, the total score for it from respondents is 1693. It is interpreted as being very high in scale because $380 < 1693 < 1900$. Likewise, at SMK Negeri 1 Blado, the total score for it from respondents is 1608. It is interpreted as being very high in scale because $360 < 1608 < 1800$.

The effectiveness of block-system learning at SMK Negeri in Kabupaten Batang, as viewed from the student aspect, is very good in level, with indications of students being very highly enthusiastic in attending the learning using the block system. At SMK Negeri 1 Warungasem, the total score for it from respondents is 1496. It is interpreted as being very high in scale because $342 < 1496 < 1710$. Likewise, at SMK Negeri 1 Blado, the total score for it from respondents is 1441. It is interpreted as being very high in scale because $324 < 1441 < 1620$.

The block-system learning at SMK Negeri in Kabupaten Batang, as viewed from the aspect of facilities and resources, has a good degree of effectiveness. At SMK Negeri 1 Warungasem, the total score for it from respondents is 1175. It is interpreted as being high in scale because $285 < 1175 < 1425$. So is the case at SMK Negeri 1 Blado, where the total score for it from respondents is 1166. It is also interpreted as being high in scale because $270 < 1166 < 1350$.

The application of block-system learning in relation to students' learning achievement, as viewed from the UKK score obtained, already meets the KKM value predetermined by the school authorities, i.e., 75.00. At SMK Negeri 1 Warungasem, the UKK mean score of 76.83 in the school year of 2017/2018 rises to 82.32 in the school year of 2018/2019 with an increase of 5.4. Meanwhile, at SMK Negeri 1 Blado, the UKK mean score of 77.48 in the school year of 2017/2018 rises to 81.81 in the school year of 2018/2019 with an increase of 4.3.

REFERENCES

Anderson, H. M., Moore, D. L., Anaya, G., & Bird, E. (2005). Student learning outcomes assessment: A component of program assessment. *American Journal of Pharmaceutical Education, 69*(2), 256–268. https://doi.org/10.5688/aj690239

AsliBatang.com. (n.d.). *Daftar SMK negeri dan swasta di Batang*. AsliBatang.Com. Retrieved March 20, 2019, from https://aslibatang.com/1580/daftar-smk-negeri-dan-swasta-di-batang?amp

Djojonegoro, W. (1998). *Pengembangan sumber daya manusia melalui sekolah menengah kejuruan*. Jayakarta Agung Offset.

Government Regulation No. 17 of 2010 on Educational Management and Implementation, (2010).

ISSN (print) 2088-2866 | ISSN (online) 2476-9401

https://doi.org/10.21831/jpv.v10i1.30378

Government Regulation No. 29 of 1990 on Secondary Education, (1990).

Kyriacou, C. (2009). *Effective teaching in school: Theory and practice*. Nelson Thornes.

LAB Board of Governors. (1998). *Block scheduling: Innovations with time*. LAB at Brown University. https://www.brown.edu/academics/education-alliance/sites/brown.edu.academics.education-alliance/files/publications/block.pdf

Law of Republic of Indonesia No. 20 of 2003 on National Education System, (2003).

Majid, D. A., Mukhadis, A., & Poerwanto, E. E. (2011). Pengaruh model penjadwalan pembelajaran dan motivasi berprestasi terhadap hasil belajar perawatan sepeda motor siswa SMK. *Jurnal Teknologi, Kejuruan, Dan Pengajarannya*, *34*(1), 35–48. https://doi.org/10.17977/tk.v34i1.3020

Masbahah, M., Kustono, D., & Patmanthara, S. (2014). Efektivitas sistem pembelajaran blok di sekolah menengah kejuruan Kota Surabaya. *Jurnal Teknik Mesin*, *22*(1), 57–70. http://journal.um.ac.id/index.php/teknik-mesin/article/view/4488

Meo, S. O. (2016). *Efektifitas discovery learning dan problem learning dalam pembelajaran Geografi ditinjau dari keterapan media elektronik siswa SMA negeri di Ngada Nusa Tenggara Timur*. Master thesis. Universitas Negeri Yogyakarta, Yogyakarta.

Prasetyo, N. Y., & Yoto, Y. (2016). Persepsi mahasiswa terhadap efektivitas pembelajaran dengan sistem blok mata kuliah praktikum pada Jurusan Teknik Mesin Fakultas Teknik Universitas Negeri Malang. *Jurnal Teknik Mesin*, *24*(2), 1–13. http://journal2.um.ac.id/index.php/jurnal-teknik-mesin/article/view/527

Prastiyo, P., Gunawan, H., & Supriyono, B. W. (2012). Implementasi pembelajaran block system sebagai upaya meningkatkan kualitas teknik gambar bangunan kelas XI program keahlian Teknik Gambar Bangunan bidang keahlian Bangunan SMK Negeri 2 Kendal tahun ajaran 2011/2012. *Scaffolding*, *1*(2), 17–27. https://journal.unnes.ac.id/sju/index.php/scaffolding/article/view/2327

Prihartono, P. (2012). *Administrasi, organisasi, dan manajemen: Pendekatan praktis dan teknik mengelola organisasi*. Andi Offset.

Rauner, F., & Maclean, R. (Eds.). (2008). *Handbook of technical and vocational education and training research*. Springer.

Saefuddin, A., & Berdiati, L. (2016). *Pembelajaran efektif*. Rosdakarya.

Setiawan, Y. (2016). *Visi dan misi PSMK*. Direktorat Sekolah Menengah Kejuruan. http://psmk.kemdikbud.go.id/konten/1611/visi-dan-misi-psmk

Sudira, P. (2012). *Filosofi dan teori pendidikan vokasi dan kejuruan*. UNY Press.

Sundayana, R. (2014). *Statistika penelitian pendidikan*. Alfabeta.

Suwati, S. (2008). *Sekolah bukan untuk mencari pekerjaan*. Pustaka Grafika.

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