DiversityScience

JDIL
Journal of Diversity in Learning
p2776-3730. eISSN 2774-6690
Vol. 2 No. 1. April, 2022

The effect of problem based learning model in writing explanation text

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Abstract

This research aims to improve the knowledge, skills and learning independence of senior high school students in writing explanatory texts based on problem-based learning models. The instrument used for knowledge test and practice test for skills. Experimental calculation instruments and data processed used Microsoft Excel 2016 and SPSS V.24. Briefly, the results of the research show 1) The ability to write explanatory texts for senior high school students whose learn used the PBL learning model is better than those used conventional learning with an average of 19.50 or 52.7% of the experimental class and 15.57 or 4.57% of the experimental class. control 2) The ability to write explanatory texts for senior high school students whose learned used problem based learning model is better than those used conventional learned with an average of 18.57 or 42.61% of the experimental class and 14.81 or 33.66% of the control class. 3) there is an association between knowledge and skills with a value of Q = 0.79. Association of knowledge with independent learning with a value of Q = 78 and the association of skills with learned independence with a value of Q = 79. 4). There are still difficulties experienced by students in solving questions and general tasks on indicators of improving the time sequence of occurrence of a sentence and the structure of the language used.

Keywords: PBL Model, Knowledge, Skills, Independent Learning, Explanatory Text

Introduction

The struggle that has been carried out by the government regarding the 2013 curriculum on 2016 revision has become an issue that has undergone significant changes, especially in the scope of the material. The Indonesian language subject covers various materials studied based on the 2013 curriculum syllabus in high school or vocational equivalent teacher books, namely procedural texts, explanatory texts, news texts, short stories, discourse texts and drama texts. These points require students to write creatively and be active in learning activities for Indonesian subjects. Learning that involves creativity is learning that can improve problem-solving skills that occur around them, which is a high skill needed in the future (Suryanto, 2020; Suryanto, Degeng, Djatmika, & Kuswandi, 2021; Suryanto, Warring, Kartikowati, Rorimpandey, & Gunawan, 2021). Refko (in Golding, 2014) some of the textbooks are everywhere in higher education, yet almost nothing has been written about the educational principles for their design. According to Aji & Ngumarno (2017) explained that the revision of a curriculum will have obstacles in its implementation because there are several differences with the previous curriculum. Rahmawati (2020) stated in her writing that explanatory texts is the main skill that needs to be taught to high school or vocational students in accordance with the 2013 curriculum.

Explanatory text writing skills, can be said as writing skills that are interrelated between one skill and another as well as from the point of view of knowledge. As stated by Wikanengsih (2013) who revealed that writing is a thinking activity related to one's reasoning. According to Rahmawati (2020) writing is an inseparable part of learning activities experienced by students. The results of writing skills are in the form of essays. Likewise, in writing an explanatory text, a person certainly needs to be good in skills and knowledge before being able to write well. In particular, complex explanatory texts play a very important role in everyday life. As stated by Palupi, B. S., & Subiyantoro (2020) that writing explanatory texts aims to explain various processed related nature, science, culture, social life, and others phenomenon. In short, explanations start from the question why and how about natural or social phenomenon. This text can help readers to know the phenomena and series of events that occur in the surrounding environment. The phenomenon itself consists of natural and social phenomena. As explained by Kosasih, E., & Kurniawan (2019) that an explanatory text is a text that describes a process or event about the origin, development process of a phenomenon, which can be in the form of natural, social, or cultural phenomena. So that it can be said that the skill of writing an explanatory text is an activity of reasoning a process or event from natural, social, cultural phenomena.

Writing explanatory texts is actually not just writing sentences in writing, but how students must know the structure in it, which consists of general statements, explanatory lines, and interpretations in the text (Kosasih, E., & Kurniawan, 2019). Writing explanatory texts needs special attention in language learning because it requires the ability to write with good and correct words and have a fairly wide vocabulary. That way, student participants apply it in making explanatory texts. According to Rahman (2017) that writing explanatory texts requires special action and attention in language learning, because it requires the ability to write with good and correct words. This text aims to provide as clear information as possible to the reader so that they understand the phenomena that are happening (Aprilia in Winita et al., 2020).

Several studies conducted on class XI high school and vocational students as subjects explained that complex explanatory text learning can run effectively using several existing methods such The Implementation of Problem Based Learning (PBL) to Improve The Learning Outcome; The Effectiveness of Guided Inquiry Learning and Problem Based Learning for Explanatory Writing Skill, Writing a Story Based on a Picture / Photograph Implementation of Learning Writing Explanatory Text in Class XI Students. Scaffolding in problem-based learning for low- achieving learners, Towards a model for problem-based learning (Kusumatuty et al., 2018; Palupi, B. S., & Subiyantoro, 2020; Parancika & Suyata, 2020; Haruehansawasin & Kiattikomol, 2018; Birch, 1986). In this research on explanatory texts there are also unsatisfactory results, both strategies can be said to be equally effective in learning to write complex explanatory texts but are still at a low level.

However, there was a case in class XI MIPA of Senior High School Almukhtariyah Rajamanda West Bandung, West Java, Indonesia, it can be said that writing skills and knowledge were still low. This can be seen from the scores obtained from Indonesian language teachers, as well as still finding obstacles in writing both in terms of skills and knowledge. Especially in writing complex explanatory texts. Not only that, difficulties or obstacles can be seen from the students' work in writing complex explanatory texts which are still at a low level. There are still many students who do not understand the knowledge of the format that must be written. The format that must exist in between is a general statement, and a series of explanations. The low writing skills and knowledge of students can be caused by the application of an inappropriate and unpleasant learning model by the teacher to students. Therefore, the application of a model that will act as an

appropriate learning tool. The learning model in question is Problem based Learning (PBL) which can increase students' knowledge and skills in writing explanatory texts. This learning model provides students with authentic and meaningful problem situations that serve as a basis for student investigation and investigation. This model is also able to help students to develop skills for independent learning, inquiry skills and problems solving skills as well as behavior and social skills according to adult roles. As explained by Nurtanto et al. (2020) that PBL is a most commonly understood as the approach to teaching like as pedagogic that focuses on active students and in a learn environment in the form of a problem solving by analytical and data skills. The same thing was conveyed by Afifah, (2019) that the problem based learning model in learning to write explanatory texts with the theme of social phenomena and its impact on students' skills and knowledge abilities. Gibbings et al. (2015) stated that PBL is an educational approach and method to concern with interest students in learning activities by requiring them to seek solutions to open-ended problems presented in real-life contexts. By PBL can be active and effective for improving the learning experience and students outcomes of high achievement, including for improving performance and problem solving as well as self assessment of learning (Haruehansawasin & Kiattikomol, 2018). Research conducted by Leppink et al.(2014) that guided problem based learning tends to increase students' awareness of the value and usefulness of the learning activity.

Based on the desire to improve the learning outcomes of the problems above, the researchers applied the model of problem based learning to improve the knowledge and skills of senior high school students in writing explanation texts. This research aims to determine, firstly, the knowledge of writing explanatory texts for senior high school students whose learn used problem based learning is better than those using conventional learned. Second, the writing skills of senior high school students whose learning used problem based learning where better than those who use conventional learning. Third, on the association between knowledge and skills, the association of knowledge with independent learning, skills with learning independence for senior high school students in writing explanatory texts. Fourth, what is the description of student performance in the implementation of learning by using a problem based learning model in solving written questions of explanatory text and completing practical tasks of writing explanatory texts.

Methode

This research uses a quasi-experimental method. In the research, there was one pair of groups, namely the experimental group who received learning by learning problem based learning and the control group received learning as conventional as treatment. According to Zuhara (in Aryana, 2020) to determine the effectiveness and improve students' interpersonal communication, the Quasi-Experimental method is used to determine the effectiveness and improve students' interpersonal between before and after getting a quasi-experimental technique and design, which consists of two groups of subjects, namely experimental and control group. The argument from Jewitt et al., (2017) a quasi-experimental approach as an interaction observation approach. According to Fitzpatrick et al. (2021) an experimental design (quasi-experimental) students were placed in control and intervention conditions by random assignment. Only four quasi- experimental studies examining college academic achievement. The population in this research were all students of SMA Almukhtariyah class XI in West Bandung Regency. From the three existing XI classes, two classes were selected as the experimental class and the control class. The instrument of this research was a written test to measure the ability of students' knowledge, skills and learning independence in writing explanatory texts, namely as many as twenty multiple choice questions as a means of measuring students' knowledge of writing explanatory and one item of description or essay questions to measure students' skills in writing explanatory texts.

Result

This quasi-experimental research was conducted in 12 meetings consisting of 2 pretest meetings, 12 learning treatment meetings and 2 posttest meetings. Quantitative data in the form of pretest, posttest, n-gain and attitude scale data. Quantitative data processing using Microsoft Excel 2016 software and SPSS 26 Application. To complement the results of the quantitative data analysis, a comprehensive description of the performance and responses of students during the learning process and also during the pretest-posttest was presented. The following is a summary of the overall research data:

Table. 1 Recapitulation of the value of writing knowledge, writing skills and student learning independence.

Ability	Statistics	Problem Based Learning Approach				Konventional Learning			
		Pretes	Postes	N-Gain	N	Pretes	Postes	N-Gain	N
Knowladge	$\bar{x}$	6.56	19.50	0.43	32	6.38	15.75	0.32	32
SMI 37	%	17.73	52.7	-		17.24	42.57	-	
	Sd	2.17	6.80	0.20		2.85	6.38	0.15	
Skill	$\bar{x}$	1.69	18.75	0.41	32	1.88	14.81	0.31	32
SMI 44	%	3.84	42.61	-		4.27	33.66	-	
	Sd	1.06	6.77	0.15		1.43	5.99	0.12	
Independent Learning	$\bar{x}$	113.19			32	107,34			32
SMI 160	%	71.5				67.25			
	Sd	9.19				9,78			

Table. 2 Statistical description of student learning independence attitude scale data

No	**Indicator**	**Experiment**			**Control**		
		Total		**Category**	**Total**		**Category**
		Average	**%**		**Average**	**%**	
1	Initiative and intrinsic learning motivation	2.82	70.50	Strong	2.80	70.00	Strong
2	Self-confident	2.79	69.75	Strong	2.70	67.50	Strong
3	Set your own research schedule	3.02	75.50	Strong	2.95	73.75	Strong
4	Utilize and look for relevant sources	2.69	67.25	Strong	2.68	67.00	Strong
5	Evaluating learning processes and outcomes	2.69	67.25	Strong	2.50	62.50	Strong
6	Responsible	2.45	61.25	Strong	2.32	58.00	Enough
7	Want to achieve high	3.54	88.50	Very Strong	2.88	72.00	Strong

Average	2.86	71.5	Strong	2.69	67.25	Strong

Discussion

From the data obtained by the researchers in the learning process, it can be seen in table 1 that the average pretest scores of the experimental class and the control class, both in writing knowledge and writing skills, are not much different. This shows that the initial abilities of the two classes are the same, in this case they both do not know about the material for writing explanatory texts. Meanwhile, the average posttest scores of the two classes were quite different for both writing knowledge and writing skills. This shows that the writing knowledge and writing skills of the students in the experimental class are better than the students in control class. However, to see whether the difference is significant or not, a statistical test is carried out. The results of statistical tests conducted by the author are from the analysis.

The pretest data of students' knowledge of writing explanatory texts based on table 1 above shows that the average initial knowledge ability of the experimental class students is 6.56 around 17.73%. It is generally seen the average initial ability score of the experimental class students is higher than the control class students. although not much different. But after doing a lesson with the PBL model, it can be seen that the level of students' knowledge of writing explanatory texts is significant. Based on table 1, it shows that the average explanatory text writing knowledge ability of experimental class students after being given learning using the PBL model is 19.50 or 52.7%. Meanwhile, the control class students' average explanatory text writing knowledge ability after being given conventional learning is 15.75 or 42.57%. In general, it can be seen that the average post-test score of the experimental class students is greater than the control class, but is still in the same qualification, which is moderate. This means that after learning, the improvement of students' knowledge of writing explanatory texts using the PBL model is better than those using conventional learning.

The analysis of the results of the pretest data on the ability of students to write explanatory texts based on the data in table 1, which shows that the average initial ability of students' explanatory writing skills in the control class is 1.88 or 4.27%, while the average initial ability of explanatory writing skills for the experimental class students is 1.69. or 3.84%. It is generally seen that the average initial ability score of the experimental class students is lower than the control class, although not much different. However, after learning with the PBL model, it was clear that there was a significant increase in students' explanatory text writing skills. Based on the data in table 1 shows that the average explanatory text writing skills of control class students after being given conventional learning is 14.81 or 33.66% while the average explanatory text writing skills of experimental class students after being given PBL learning model is 18.75 or 42.61 % . It can be seen that in general the post-test scores of the experimental class students are higher than the control class. Therfore, it can be said that after learning, the improvement in the ability of students to write explanatory texts using the PBL model is better than those using conventional learning.

The analysis of the data on the independent learning attitude scale of students based on the learning approach can be seen in table 1 and table 2 that the value of the experimental class is 113.19 or 71.5% while the control class is 107.34. or 67. 25%. Wherever, it can be concluded that after the independent learning treatment of students' learning in writing explanatory texts, students who use the PBL model are better than those who use conventional learning.

The Association Between Knowledge and Skills

The association between knowledge and students' writing skills after going through the Chi Square test process, the results of the contingency coefficient values are obtained based on the table. 3 below.

Table. 3 The results of the contingency coefficient value between knowledge and students' writing skills

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	,648	,000
N of Valid Cases		32	

Based on the results of the table above, the value of the contingency coefficient C is obtained, this value is then compared with C maks

$C_{maks} = \sqrt{\frac{m-1}{m}} = \sqrt{\frac{3-1}{3}} = \sqrt{\frac{2}{3}} = 0{,}816$

Then the Q value is calculated as follows:

$Q = \frac{C}{Cmaks} = \frac{0{,}648}{0{,}816} = 0{,}79$

From the value of Q obtained that is 0.79, it can be concluded that the degree of association between knowledge and skills in writing explanatory texts is very strong.

Association Between Writing Knowledge and Learning Independence

The association between writing knowledge and student learning independence after going through the Chi Square test process, the results of the contingency coefficient values between knowledge and student learning independence are based on the table. 4

Table. 4 The results of the contingency coefficient values between writing knowledge and student learning independence.

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	,639	,000
N of Valid Cases		32	

Based on the results of the table above, the value of the contingency coefficient C is obtained, this value is then compared with C $_{maks}$

$C_{maks} = \sqrt{\frac{m-1}{m}} = \sqrt{\frac{3-1}{3}} = \sqrt{\frac{2}{3}} = 0{,}816$

Then the Q value is calculated as follows:

$Q = \frac{C}{Cmaks} = \frac{0{,}639}{0{,}816} = 0{,}78$

From the Q value obtained is 0.78, it can be concluded that the degree of association between knowledge and skills in writing explanatory texts is very strong.

The association between writing skills and learning independence after going through the Chi Square test process, the results of the contingency coefficient values are obtained based on the table. 5

Association Between Writing Skills and Independent Learning

Table 5. The results of the contingency coefficient values between writing skills and student learning independence.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	,646	,000
N of Valid Cases		32	

Based on the results of the table above, the value of the contingency coefficient C is obtained, this value is then compared with C $_{maks}$

$$C_{maks} = \sqrt{\frac{m-1}{m}} = \sqrt{\frac{3-1}{3}} = \sqrt{\frac{2}{3}} = 0{,}816$$

Then the Q value is calculated as follows:

$$Q = \frac{C}{Cmaks} = \frac{0{,}646}{0{,}816} = 0{,}79$$

From the Q value obtained is 0.79, it can be concluded that the degree of association between writing skills and learning independence is very strong.

Overview of Student Performance in the Implementation of Learning

Description of student performance in the implementation of learning by using problem based learning models in solving written questions of explanatory text and completing practical tasks of writing explanatory texts. The difficulties experienced by students in solving problems and practical assignments in writing explanatory texts are generally indicators of improving the time sequence of occurrence of a sentence and the linguistic structure used such as conjunctions from the sentences used such as causality conjunctions, in others that, because, because of that, so, therefore, and chronological conjunctions (time relations), such as, then, after that, finally

Conclusion

Through a series of learning processes through 12 meetings of 2 pretest meetings, 10 meetings of the implementation of learning using a problem based learning model and 2 posttest meetings. It was concluded that the results of the knowledge of writing explanatory texts for senior high school students who studied using the PBL model were better than students who used conventional learning. The skill of writing explanatory texts for senior high school students whose learning uses an inductive approach is better than students who use conventional learning. There is an association between the ability of knowledge and skills, knowledge with learning independence, and skills with learning independence of students writing explanatory texts in the very strong category. Learning with the PBL model has been running with planned steps where students look more active, creative,

communicative and collaborative with each other. Some of the difficulties experienced by students in solving problems and practical assignments in writing explanatory texts in general are indicators of improving the time sequence of occurrence of a sentence and the linguistic structure used, namely conjunctions.

References

Afifah, R. N. (2019). *Model Problem Based Learning dalam Pembelajaran Menulis Teks Eksplanasi Bertema Fenomena Sosial dan Dampaknya Terhadap Kemampuan Berpikir Kritis Siswa Kelas VIII SMPN 19 Bandung Tahun Pelajaran 2018-2019*. *DISERTASI*, *8*(5), 55.

Aji, W. N., & Ngumarno, N. (2017). *Implementasi Kurikulum 2013 Mata Pelajaran Bahasa Indonesia di Kabupaten Klaten*. *Jurnal VARIDIKA*, *29*(1), 1–8. https://doi.org/10.23917/varidika.v29i1.5141

Aryana, S. (2020). Peningkatan Pengetahuan dan Keterampilan Menulis Cerita Fantasi Siswa MTs Melalui Pendekatan Induktif. *Semantik*, *9*(2), 115–124. https://doi.org/10.22460/semantik.v9i2.p115-124

Birch, W. (1986). Towards a Model for Problem-based Learning[1]. *Studies in Higher Education*, *11*(1), 73–82. https://doi.org/10.1080/03075078612331378471

Fitzpatrick, D., Collier, D. A., Parnther, C., Du, Y., Brehm, C., Willson-Conrad, A., Beach, A., & Hearit, K. (2021). Experimental evidence for a first-year experience course plus mentoring on moderate-income university students' engagement, achievement, and persistence. *Higher Education Research and Development*, *40*(3), 491–507. https://doi.org/10.1080/07294360.2020.1761303

Gibbings, P., Lidstone, J., & Bruce, C. (2015). Students' experience of problem-based learning in virtual space. *Higher Education Research and Development*, *34*(1), 74–88. https://doi.org/10.1080/07294360.2014.934327

Golding, C. (2014). The educational design of textbooks: a text for being interdisciplinary. *Higher Education Research and Development*, *33*(5), 921–934. https://doi.org/10.1080/07294360.2014.890573

Haruehansawasin, S., & Kiattikomol, P. (2018). Scaffolding In Problem-Based Learning for Low-Achieving Learners. *Journal of Educational Research*, *111*(3), 363–370. https://doi.org/10.1080/00220671.2017.1287045

Jewitt, C., Xambo, A., & Price, S. (2017). Exploring Methodological Innovation in The Social Sciences: The Body in Digital Environments and The arts. *International Journal of Social Research Methodology*, *20*(1), 105–120. https://doi.org/10.1080/13645579.2015.1129143

Kosasih, E., & Kurniawan, E. (2019). *Jenis Teks dan Strategi Pembelajarannya di SMAMA/SMK. Bandung:*, Yrama Widya.

Kusumatuty, A. J., Baedhowi, B., & Murwaningsih, T. (2018). The Implementation of Problem Based Learning (PBL) Based E-Book to Improve The Learning Outcome of Vocational High School (VHS) Students. *International Journal of Educational Research Review*, *3*(4), 103–110. https://doi.org/10.24331/ijere.454794

Leppink, J., Broers, N. J., Imbos, T., Van Der Vleuten, C. P. M., & Berger, M. P. F. (2014). The Effect of Guidance in Problem Based Learning of Statistics. *Journal of Experimental Education*, *82*(3), 391–407. https://doi.org/10.1080/00220973.2013.813365

Nurtanto, M., Fawaid, M., & Sofyan, H. (2020). Problem Based Learning (PBL) in Industry 4.0: Improving Learning Quality through Character-Based Literacy Learning and Life Career Skill (LL-LCS). *Journal of Physics: Conference Series*, *1573*(1), 0–10. https://doi.org/10.1088/1742-6596/1573/1/012006

Palupi, B. S., & Subiyantoro, S. (2020). The Effectiveness of Guided Inquiry Learning (GIL) and Problem-Based Learning (PBL) for Explanatory Writing Skill. *International Journal of Instruction*, *13*(1), 713–730.

Parancika, R. B., & Suyata, P. (2020). *Implementasi Pembelajaran Menulis Teks Eksplanasi Kompleks Pada Siswa Kelas XI SMAN 10 Yogyakarta dengan Menggunakan Strategi Writing*

a Story Based on a Picture / Photograph Implementation of Learning Writing Complex Explanation Text in Class Xi Students. *Rumpun Jurnal Persatuan Melayu*, *8*(1), 13–25.

Rahman, T. (2017). *Teks dalam kajian struktur dan kebahasaan*. CV. Pilar Nusantara.

Rahmawati, L. E. (2020). Language errors related to syntax in the writing of explanatory text by eleventh grade students. *International Journal of Innovation, Creativity and Change*, *4*, 192–204. https://api.elsevier.com/content/abstract/scopus_id/85081257454

Suryanto, H. (2020). Hubungan interaksi sosial antar siswa dengan kreativitas belajar dalam memahami pelajaran IPS. *Journal of Creative Attitudes Culture*, *1*(1), 19–33. Retrieved from https://journalofdiversity.com/index.php/jcac/article/view/23

Suryanto, H., Degeng, I. N. S., Djatmika, E. T., & Kuswandi, D. (2021). The effect of creative problem solving with the intervention social skills on the performance of creative tasks. *Creativity Studies*, *14*(2), 323–335. https://doi.org/10.3846/CS.2021.12364

Suryanto, H., Warring, S., Kartikowati, R. S., Rorimpandey, W. H., & Gunawan, W. (2021). Study creativity with diverse social skills to support the learning process in future education. *JDIL Journal of Diversity in Learning*, *1*(2), 85–89. https://doi.org/10.1300/J104v03n01_0

Stanton, M. T., Guerin, S., & Barrett, T. (2017). Interdisciplinary Journal of Problem-Based Learning The Transfer of Problem-Based Learning Skills to Clinical Practice Problem-based Learning Special iSSue on Competency OrientatiOn in prOblem-based learning. *Interdisciplinary Journal of Problem-Based Learning*, *11*(2). https://doi.org/10.7771/1541-5015.1678

Wikanengsih, W. (2013). Model Pembelajaran Neurolinguistic Programming Berorientasi Karakter Bagi Peningkatan Kemampuan Menulis Siswa SMP. *Jurnal Ilmu Pendidikan Universitas Negeri Malang*, *19*(2), 104445.

Winita, S., Ramadhan, S., & Asri, Y. (2020). *The Development of Electronic Module Based on Discovery Learning in Writing Explanation Text*. *463*, 63–69. https://doi.org/10.2991/assehr.k.200819.013