Jurnal Pendidikan Teknologi Kejuruan, Vol. 6, No. 3, pp. 170-178, August 2023
e-ISSN 2621-1548; p-ISSN 2621-3273

Improving fashion design learning outcomes by problem based learning model in Vocational High School

Ernawati[1*], Feri Ferdian[1] and Rohana Zur[2]

[1] Faculty of Tourism and Hospitality, Universitas Negeri Padang, **Indonesia**
[2] College of Creative Art, University Technology MARA, **Malaysia**

*Corresponding Author: ernawati@fpp.unp.ac.id
Received March 16th 2023; Revised June 13rd 2023; Accepted July 25th 2023

Cite this https://doi.org/10.24036/jptk.v6i3.25223

Abstract: The background of this research problem was the low learning outcomes of students in the cognitive domain of Fashion Design course. This research aims at describing the implementation of the Problem Based Learning model to improve student learning outcomes in the Fashion Design course. The research was conducted at Vocational High School 6 Padang with the method used was Classroom Action Research (CAR). This Classroom Action Research (CAR) was divided into 2 cycles. Each cycle was divided into 4 stages: 1) Planning, 2) Implementation. 3) Observation, 4) Reflection. The research subjects used were students of Grade XI Fashion Design I at Vocational High School 6 Padang, totaling 29 students. Data collection techniques used observation, tests, and documentation. The data analysis technique was carried out by quantitative and qualitative analyzing. In the first cycle, students reached the Minimum Completeness Criteria of learning outcomes as much as 55%. In the second cycle, it increased while 83% of students have reached the Minimum Completeness Criteria. Thus, it can be concluded that the implementation of Fashion Design learning by using the Problem Based Learning Model can improve student learning outcomes in grade XI Fashion Design I at Vocational High School 6 Padang.

Keywords: Learning outcomes, problem based learning , fashion design, vocational education

1. Introduction

Education can be interpreted as a conscious and systematic effort to achieve a standard of living or for better progress (Patimah & Tabrani, 2018; M. Yusuf et al., 2021; S. Yusuf & Saputra, 2021). In simple terms, the notion of education is a learning process for students to be able to understand, understand, and make people more critical in thinking (Renatovna & Renatovna, 2021; Sulfemi, 2019; Tyas & Naibaho, 2021). The benefits of education are many, including providing knowledge, understanding, and experience, providing information, improving knowledge, helping to understand the ever-evolving science, and providing experience to prepare for a good job (Howell, 2021; Kayani, 2017; Mitchell, 2021). In the formal learning process, there are teacher teaching activities, and the participation of students in learning (Atmojo & Nugroho, 2020; Crispim et al., 2021; Louws et al., 2017). Education has many benefits, therefore efforts are needed to improve the quality of education, one of which is by improving the quality of learning carried out by teachers in schools (Apriana et al., 2019; Widayati, 2008; Winarto et al., 2020).

The teacher is one of the important elements in the learning process which is required to have the ability in various matters relating to the implementation of teaching in the classroom (Hidayat, 2020; Svendsen, 2020). Teachers play an important role in the success of their students, even though the equipment is well and complete, but if the teacher is not successful in the learning

process, the students cannot receive the lesson properly (Anwar, 2021; Parnawi, 2019; Santi & Muttaqin, 2021). In this case, it can be said that in every teacher lies the responsibility to bring his students to the level of victory (Fitrahana & Febrianti, 2021). But in reality, teachers often fail in delivering teaching materials (Maulana, 2021; Yulianingsih, 2020). The failure of teachers in delivering teaching materials is not always because the teacher lacks mastery of the material, but because they do not know how to convey the subject matter properly and appropriately so that students can learn in a fun and not boring atmosphere (Afriani, 2018; Subakti et al., 2021).

The selection of learning strategies is one alternative that can be taken by a teacher in the learning process, in order to achieve learning objectives that are in line with the abilities of students (Anggraeni & Dewi, 2021; Julaeha, 2019). So far, teachers only use a monotonous learning model with the lecture method where the entire learning process is teacher-centered or often called conventional learning (Amaliyah, 2021; Marta, 2020; Risal & Astutik, 2021).

Fashion Design is one of the subjects in the Fashion Design expertise program at Vocational High Schools which is taken in class XI. Fashion Design is a subject in which the learning outcomes of students are able to demonstrate the ability to apply and make various fashion design. Based on the observations in grade XI Fashion Design I at Vocational High School 6 Padang, it was found that the learning process in the classroom did not vary a learning model. In the teaching process, they are still fixated on the lecture method, question and answer, discussion, and exercises/tasks. And when learning theory, most of which was delivered using the lecture method, many students were less focused on participating in learning. This also has not been able to meet the demands of the competency standards expected in the 2013 Curriculum related to independent and active learning and has an impact on the learning outcomes of students who have not achieved the standard value of completeness. In general, the Minimum Completeness Criteria applied in the Fashion Design subject is 75.

Due to these conditions, it must be an effort to design student-oriented learning (student-centered approach) one method that is expected to be able to create an interesting learning atmosphere. Motivating students and having fun when students learn the material is to use the Problem Based Learning model (Khairani et al., 2020; Setiawan et al., 2021). The model of this learning is that students are formed in groups. Each group consists of four or five people. Students are first asked to observe a phenomenon first. Then students are asked to record the problems that arise. After that, the teacher's task is to stimulate students to think critically in solving existing problems. The teacher's task is to direct students to ask questions, prove assumptions, and listen to opinions that differ from theirs. Through the Problem Based Learning model, students are expected to gain direct experience of what is being studied. The learning experience is a learning activity that must be carried out by students in order to achieve mastery of competency standards, basic abilities, and learning materials.

2. Methods

This research is Classroom Action Research (CAR). This research will be carried out in Class XI Fashion Design 1 at Vocational High School 6 Padang. The subjects in this study were students of Class XI Fashion Design 1 at Vocational High School 6 Padang as many as 29 people and the object of research was the learning outcomes of Fashion Design through the application of the Problem Based Learning model. The procedure for implementing the action in each cycle starts from the planning, action, observing, and reflecting stages. Then the researcher concludes whether the cycle can be continued or stopped. The cycle will be stopped if the success indicators have been achieved and if the success indicators have not been achieved, the research will continue in the next cycle.

Data collection techniques were carried out through post-test, observation, and documentation. The data analysis technique used is quantitative data analysis and qualitative data analysis. The indicator of success in the cognitive domain is that 75% of students can achieve the Minimum Completeness Criteria that have been set at Vocational High School 6 Padang, which is 75. Then the criteria for the success of the action are also determined by the activities of students in class. The activeness of students in the classroom is seen from the role and participation of students in carrying out learning activities when applying the Problem Based Learning model.

3. Results and discussion

The data obtained from the teacher's observations before using the Problem Based Learning model when explaining the material during the learning process, the teacher still uses the lecture method so that the teacher dominates so that students become passive. Based on the results of the midterm exams obtained by researchers, students have various academic abilities. Some students have high, medium, and low academic abilities. It was found the pure value of Clothing Design for students of Grade XI Fashion Design 1 during the mid-semester exam activities from the class teacher which is presented in the following table 1.

Table 1. Pure Scores of Middle Semester Exams for Class XI Fashion Design 1

KKM		Percentage		Class Average	Mark	
T(≥75)	BT(<75)	T	BT		Highest	Lowest
11	18	38%	62%	68	80	55

Information :
KKM : Minimum Completeness Criteria
T : Complete
BT : Not Completed

Table 1 depicts the completeness of students in the Fashion Design subject is 11 students or 38%. The number of students who have not completed is 18 or 64%. The average value obtained by students is 68. It is indicated that the learning outcomes of students in the subject of Fashion Design Class XI Fashion Design 1 are low.

Cycle I . Implementation Results

The implementation of the first cycle was carried out by giving post-test questions at each meeting. The first cycle of action research was carried out at the 1st meeting at 07.00 – 11.30 WIB with house clothing material. In the first cycle, the researcher acts as a teacher who takes action in learning activities in the classroom, and colleagues as observers on the activities of students and teacher practitioners in the classroom. The application of the Problem Based Learning model was given to 29 students of Class XI Fashion Design 1. In classroom action research, each cycle consists of four stages of action, namely planning, action, observation, and reflection. The results of the first cycle of research are as follows

a. Student Activities

The implementation of the Problem Based Learning model in this first cycle of research provides a difference from the previous learning. The implementation of learning with the Problem Based Learning model in cycle I can be said to be quite good. Students understand and follow the

instructions given by the teacher. Students are also motivated to participate in learning activities with their interest and attention to the ongoing learning activities.

Student activities increase as same as students' activities in learning activities by participating in carrying out their learning tasks. Each group is able to find the problems that exist in the home attire. The activeness of students is also seen when students begin to dare to ask questions and express their opinions to other students and teachers.

The interaction between teachers and students has seen the existence of reciprocity or feedback. When the teacher allowed present the findings of the problem, all groups did not dare to come forward to present the task. When the teacher conveyed the prize for the best team, one of the groups began to dare to come forward to present the findings of the problem. However, there are several obstacles encountered in the implementation of the activities. The obstacle faced is the insufficient time for learning activities, so the teacher must motivate students to speed up activities so that the time is completed according to the supposed lesson schedule.

b. Cognitive Learning Outcomes

During the implementation of the first cycle, a post-test was held to determine the increase in students' understanding after the implementation of the Problem Based Learning model. The increase in the percentage of students who complete the Minimum Completeness Criteria based on the results of the post-test cycle I can be explained in the table 2.

Table 2. Cognitive Learning Outcomes After Implementation Problem Based Learning Cycle I

Test	KKM		Percentage		Class Average	Mark	
	T (≥75)	BT (< 75)	T	BT		Highest	Lowest
Post Test	16	13	55%	45%	74	82	65

Information:
KKM : Minimum Completeness Criteria
T : Complete
BT : Not Completed

Table 2 figures the implementation of the Problem Based Learning model in the post-test results of the first cycle there were 16 students or 55% who completed, while there were still 13 students or 45% who had not completed. Then the average post-test in the first cycle is 74, for the highest score in the first cycle is 82 and the lowest value is 65. It is indicated that the learning outcomes of students in Class XI Fashion Design subject is classified as increasing after implementing the Problem Based Learning model but still does not meet the graduation standards set in the Fashion Design subject, which is 75.

Cycle II Implementation Results

The implementation of cycle II is done by giving post test questions at each meeting. The second cycle of action research was carried out at 09.45 – 10.30 WIB with the design material for women's work clothes. In this second cycle, the researcher acts as a teacher who takes action in learning activities in the classroom, and peers as observers on the activities of students and teacher practitioners in the classroom. The implementation of the Problem Based Learning model was given

to 29 students of Class XI Fashion Design 1. In classroom action research, each cycle consists of four stages of action, namely planning, action, observation and reflection. The results of the second cycle of research are as follows:

a. Student Activities

The implementation of the Problem Based Learning model in the second cycle of research is the same as the activities in the first cycle, namely planning, action, observation and reflection, but student activities have increased in a positive direction according to the reflection made from the observations in the cycle. I. Implementation of learning with Problem Based Learning model in cycle II can be said to be quite good. Students want to take part in learning activities with the Problem Based Learning model. Students understand and follow the instructions given by the teacher. Students are motivated to participate in learning activities with their interest and attention to the ongoing learning activities.

Student activity began to increase. Students are active in learning activities by participating in carrying out their learning tasks in the form of finding problems in home clothing. The activeness of students is also seen when students begin to dare to ask questions and express their opinions to other students and teachers. The interaction between teachers and students is already good. When the teacher allows presenting the findings of the problem, all groups dare to come forward to present their findings. And one of the groups started to come forward to present their task. Then the problem of lack of time that occurred in the first cycle has been successfully overcome by making the best use of time according to the given learning schedule.

b. Cognitive Learning Outcomes

During the implementation of the second cycle, a post-test was held to determine the increase in student learning outcomes after the implementation of the Problem Based Learning model. The increase in the percentage of students who complete the Minimum Completeness Criteria from the results of the post-test cycle II can be explained at Table 3:

Table 3. Cognitive Learning Outcomes After Implementation of Problem Based Learning Cycle II

Test	KKM		Percentage		Class Average	Mark	
	T (≥75)	BT (< 75)	T	BT		Highest	Lowest
Post Test	24	5	83%	17%	88	100	75

Information:
KKM : Minimum Completeness Criteria
T : Complete
BT : Not Completed

Table 3 describes the second cycle after the implementation of the Problem Based Learning model in the post-test results of the second cycle there were 24 students or 83% who completed. Then the average post-test in the second cycle is 88. It is indicated that the learning outcomes of students in the Class XI Fashion Design 1 have increased from the first cycle after the Problem Based Learning model was applied. The following graph showed the average presentation of pre-test and post-test in cycle I and cycle II

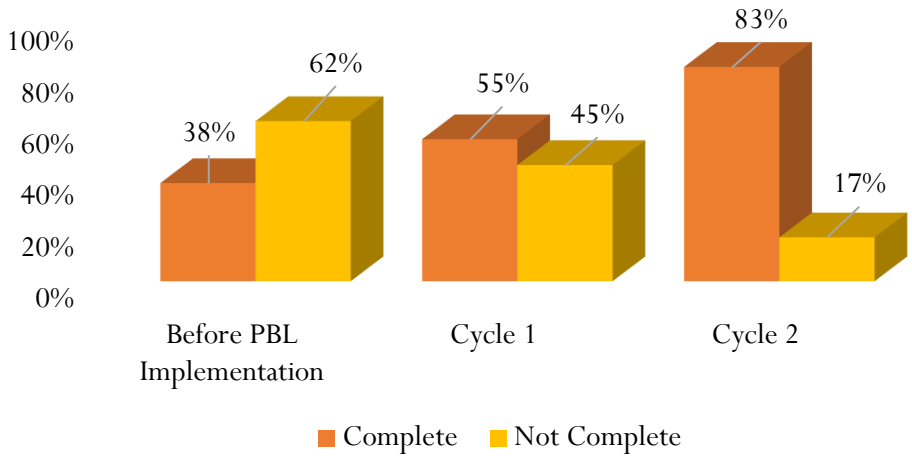

Figure 1. Graph of Student Learning Outcomes Improvement per aspect in Cycle I and Cycle II

Before implementing the Problem Based Learning model, the learning outcomes of students who met the standard of learning completeness were 38%. In the first cycle, mastery learning increased to 55%. In the second cycle, learning completeness has a better increase, which is to 83%. Through the Problem Based Learning model, students are actively involved in the learning process. The Action Research results showed that the problem based learning was effective to implement in Grade XI Fashion Design 1 at Vocational High School 6 Padang, it is proven by improving students' learning outcomes. Research has been conducted to see an increase in learning outcomes by using the Problem Based Learning model. By using this model, students become more active in participating in the learning process in class. Students' interest that participating in the learning process has an impact on increasing the material understanding that has been delivered. This is evidenced by an improving the learning outcomes, while before implementing the problems did not meet the mastery standards of learning outcomes. Before implementing the Problem Based Learning model, students' learning outcomes that meet the standard of learning mastery is 38%, but after the application of this learning model, there is an increase in cycle I to 55% and cycle II to 83% of students who experience mastery learning. The results of this study explain that the Problem Based Learning model can be an alternative in improving students' learning outcomes Fashion Design subject in Class XI Fashion Design 1 at Vocational High School 6 Padang. The results of this study are in line with (Malmia et al., 2019) and (Putri & Hardjono, 2019) that the application of the Problem Based Learning model could improve student learning outcomes.

4. Conclusion

Based on the findings of study, the research conclusions were obtained:

1. The implementation of Problem Based Learning learning models in Fashion Design learning activities will increase the variety of learning models implementation in schools, they can attract the attention of students and make students more active and independent in the learning process.
2. Students' learning outcomes of the Fashion Design course for Grade XI Fashion Design I at Vocational High School 6 Padang increased.

The results showed that during the learning activities of Fashion Design by the Problem Based Learning model implementation can improve the ability of students to understand the learning material and make the subject of Fashion Design a fun lesson.

Author contribution

Ernawati: Conceptualization, Visualization, Investigation and Supervision. Feri Ferdian: Writing - Original Draft, Writing -Review & Editing, Conceptualization, Visualization, Formal analysis, Investigation and Resources. Rohana Zur: Visualization, Formal analysis, Investigation and Supervision.

Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgements

We are grateful to Faculty of Tourism and Hospitality Universitas Negeri Padang, Indonesia and Faculty of Art and Design Universiti Teknologi MARA, Malaysia for all the support in conducting this research.

Competing interest

The authors declare that we have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Afriani, A. (2018). Pembelajaran Kontekstual (Cotextual Teaching and Learning) dan Pemahaman Konsep Siswa. *Jurnal Al-Mutaaliyah: Jurnal Pendidikan Guru Madrasah Ibtidaiyah*, *3*(1), 80–88.

Amaliyah, N. (2021). The Analisys of the Roles Teacher for Implementing Learning of 4.0 Industrial Revolution (A Case on Elementary School of Jakarta). *1st Annual International Conference on Natural and Social Science Education (ICNSSE 2020)*, 268–274. https://doi.org/10.2991/assehr.k.210430.041

Anggraeni, E. D., & Dewi, N. R. (2021). Kajian Teori: Pengembangan Bahan Ajar Matematika Berbantuan GeoGebra untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Melalui Model Pembelajaran Preprospec Berbantuan TIK pada Materi Bangun Ruang Sisi Datar. *PRISMA, Prosiding Seminar Nasional Matematika*, *4*, 179–188.

Anwar, A. H. (2021). *Implementasi Tujuan Dan Model Pembelajaran Mata Pelajaran Pendidikan Agama Islam Pada Kurikulum 2013 (Penelitian di SMP S Riyadul Mubtadiin Cimanuk Kabupaten Pandeglang)*. UIN SMH BANTEN.

Apriana, D., Kristiawan, M., & Wardiah, D. (2019). Headmaster's competency in preparing vocational school students for entrepreneurship. *International Journal of Scientific & Technology Research*, *8*(8), 1316–1330.

Atmojo, A. E. P., & Nugroho, A. (2020). EFL classes must go online! Teaching activities and challenges during COVID-19 pandemic in Indonesia. *Register Journal*, *13*(1), 49–76. https://doi.org/10.18326/rgt.v13i1.49-76

Crispim, J. S., Vaz, M. G. M. V., Pereira, K. F., da Silva, J. D., Duarte, V. da S., Sanches, N. M., Mantovani, H. C., Teresinha dos Santos, M., Peluzio, L. E., & Karla dos Santos, J. (2021). Teaching-learning: a mutual exchange between high school and graduate students in the field of microbiology. *FEMS Microbiology Letters*, *368*(1), fnaa199. https://doi.org/10.1093/femsle/fnaa199

Fitrahana, F., & Febrianti, D. (2021). Tantangan Guru dalam Memahami Karakteristik Peserta Didik pada Pemelajaran Online. *Peran Guru Dalam Membentuk Karakter Siswa (Antologi Esai Mahasiswa Pendidikan Guru Sekolah Dasar)*, 27.

Hidayat, A. (2020). Pengaruh Kompetensi dan Motivasi terhadap Kinerja Guru di Gugus II Kecamatan Jatiwaras Kabupaten Tasikmalaya. *Jurnal Revolusi Indonesia*, *1*(1), 1–12.

Howell, R. A. (2021). Engaging students in education for sustainable development: The benefits of active learning, reflective practices and flipped classroom pedagogies. *Journal of Cleaner Production*, 129318. https://doi.org/10.1016/j.jclepro.2021.129318

Julaeha, S. (2019). Problematika Kurikulum Dan Pembelajaran Pendidikan Karakter. *Jurnal Penelitian Pendidikan Islam, [SL]*, *7*(2), 157–182. https://doi.org/10.36667/jppi.v7i2.367

Kayani, M. (2017). Analysis of Socio-Economic Benefits of Education in Developing Countries: A Example of Pakistan. *Bulletin of Education and Research*, *39*(3), 75–92.

Khairani, S., Suyanti, R. D., & Saragi, D. (2020). The Influence of Problem Based Learning (PBL) Model Collaborative and Learning Motivation Based on Students' Critical Thinking Ability Science Subjects in Class V State Elementary School 105390 Island Image. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, *3*(3), 1581–1590. https://doi.org/10.33258/birle.v3i3.1247

Louws, M. L., Meirink, J. A., van Veen, K., & van Driel, J. H. (2017). Teachers' self-directed learning and teaching experience: What, how, and why teachers want to learn. *Teaching and Teacher Education*, *66*, 171–183. https://doi.org/10.1016/j.tate.2017.04.004

Malmia, W., Makatita, S. H., Lisaholit, S., Azwan, A., Magfirah, I., Tinggapi, H., & Umanailo, M. C. B. (2019). Problem-based learning as an effort to improve student learning outcomes. *Int. J. Sci. Technol. Res*, *8*(9), 1140–1143.

Marta, N. (2020). Historical Learning Model In Middle Vocational School. *International Journal of Education, Information Technology, and Others*, *3*(1), 11–18. https://doi.org/10.5281/zenodo.3739927

Maulana, M. (2021). Pelaksanaan Model Pembelajaran Kooperatif Jigsaw Untuk Meningkatkan Prestasi Belajar Pkn Siswa Sd Negeri 011 Bintan Timur. *Daiwi Widya*, *7*(4), 11. https://doi.org/10.37637/dw.v7i5.674

Mitchell, E. M. (2021). *An Everglades Literacy Workshop for Elementary School Teachers: a Case Study of Its Effectiveness and Educator Teaching Experiences*. Florida Atlantic University.

Parnawi, A. (2019). Pengetahuan Manajemen Guru Dalam Mengelola Kelas Di Sdit Al Kautsar Madani. *Madania: Jurnal Ilmu-Ilmu Keislaman*, *9*(1), 18–28.

Patimah, S., & Tabrani, Z. A. (2018). Counting Methodology on Educational Return Investment. *Advanced Science Letters*, *24*(10), 7087–7089. https://doi.org/10.1166/asl.2018.12414

Putri, R. H., & Hardjono, N. (2019). Peningkatan Hasil Belajar Tematik Melalui Penerapan Model Problem Based Learning Dengan Media Mind Mapping. *Jurnal Riset Teknologi Dan Inovasi Pendidikan (Jartika)*, *2*(1), 87–101.

Renatovna, A. G., & Renatovna, A. S. (2021). Pedagogical and psychological conditions of preparing students for social relations on the basis of the development of critical thinking. *Psychology and Education Journal*, *58*(2), 4889–4902. https://doi.org/10.17762/pae.v58i2.2886

Risal, M., & Astutik, A. P. (2021). The Effectiveness of Islamic Education Learning Based on Learning Cycle on Learning Outcomes in Junior High School. *Academia Open*, *4*, 10–21070. https://doi.org/10.21070/acopen.4.2021.3098

Santi, S., & Muttaqin, A. I. (2021). Internalisasi Soft Skill Guru dalam Proses Pembelajaran Pendidikan Agama Islam di MTS. Miftahul Midad Lumajang. *Khazanah: Jurnal Edukasi*, *3*(2), 217–234.

Setiawan, R. R., Suwondo, S., & Syafii, W. (2021). Implementation of Project Based Learning Student Worksheets to Improve Students' Science Process Skills on Environmental Pollution

in High Schools. *Journal of Educational Sciences*, *5*(1), 130–140. https://doi.org.10.31258/jes.5.1.p.130-140

Subakti, H., Watulingas, K. H., Haruna, N. H., Ritonga, M. W., Simarmata, J., Fauzi, A., Ardiana, D. P. Y., Rahmi, S. Y., Chamidah, D., & Saputro, A. N. C. (2021). *Inovasi Pembelajaran*. Yayasan Kita Menulis.

Sulfemi, W. B. (2019). Penerapan model pembelajaran discovery learning meningkatkan motivasi dan hasil belajar pendidikan kewarganegaraan. *Jurnal Rontal Keilmuan Pancasila Dan Kewarganegaraan*, *5*(1). https://doi.org/10.29100/jr.v5i1.1021

Svendsen, B. (2020). Inquiries into Teacher Professional Development—What Matters? *Education*, *140*(3), 111–130.

Tyas, E. H., & Naibaho, L. (2021). HOTS Learning Model Improves the Quality of Education. *International Journal of Research-Granthaalayah*, *9*(1), 176–182. https://doi.org/10.29121/granthaalayah.v9.i1.2021.3100

Widayati, A. (2008). Penelitian tindakan kelas. *Jurnal Pendidikan Akuntansi Indonesia*, *6*(1). https://doi.org/10.21831/jpai.v6i1.1793

Winarto, W., Syahid, A., & Saguni, F. (2020). Effectiveness the Use of Audio Visual Media in Teaching Islamic Religious Education. *International Journal of Contemporary Islamic Education*, *2*(1), 81–107. https://doi.org/10.24239/ijcied.Vol2.Iss1.14

Yulianingsih, D. (2020). Upaya Guru Sekolah Minggu dalam Meningkatkan Motivasi Belajar Alkitab di Kelas Sekolah Minggu. *Fidei: Jurnal Teologi Sistematika Dan Praktika*, *3*(2), 285–301.

Yusuf, M., Syarifah, I., & Wahyudin, U. (2021). Education Innovation Model With Strategy Implementation Of The" Dare To Be Different" Concept. *Jurnal Ilmiah Teunuleh*, *2*(2), 285–299.

Yusuf, S., & Saputra, K. D. (2021). Ihsan-Based Character Education. *2nd Southeast Asian Academic Forum on Sustainable Development (SEA-AFSID 2018)*, 207–211. https://doi.org/10.2991/aebmr.k.210305.038